



* Fa. 3. 3.

R36135

*By order of the College, this Book is not to be taken out
of the Library (except after 6 P.M. until 10 A.M.) for one
month from this date.*

PHYSICIANS' HALL, 9-3 - 1905

CASSELL'S PHYSICAL EDUCATOR

BY

EUSTACE MILES, M.A.

Author of "Muscle, Brain, and Diet," "A Boy's Control and Self-Expression," etc. etc.



ILLUSTRATED BY DIAGRAMS, PHOTOGRAPHS, AND
DRAWINGS

CASSELL AND COMPANY, LIMITED

LONDON, PARIS, NEW YORK AND MELBOURNE. MCMIV

ALL RIGHTS RESERVED



CONTENTS.

CHAPTER		PAGE
INTRODUCTION		i
I.—A COURSE FOR MOST MEN WHO ARE BUSY		I
II.—WANTED: MOTIVES		14
III.—GAMES IN GENERAL, AND BRITISH GAMES		22
IV.—EXERCISES FOR INDIGESTION AND CONSTIPATION		34
V.—HOW TO GET EXERCISE IN OR NEAR CITIES		39
VI.—WHAT TO DEMAND OF SYSTEMS OF EXERCISE		51
VII.—COURSE FOR MOST WOMEN		67
VIII.—WHERE PRAISE IS DUE		79
IX.—BETTER BREATHING AND VOICE-PRODUCTION		87
X.—BRITISH GAMES AND SUGGESTED CHANGES		98
XI.—SOME EXERCISES TO REMEDY DEFORMITIES		111
XII.—ORDINARY AND TRAINING DIETS: THEIR PROS AND CONS		118
XIII.—EXERCISES TO REMEDY OBESITY		131
XIV.—A WEEK OF NATURE-CURE		144
XV.—NERVE-TRAINING BY GRADUATED PRACTICES		157
XVI.—THE SWEDISH (OR LING) SYSTEM ESTIMATED		170
XVII.—BOXING AND FENCING		181
XVIII.—THE FAST FULL MOVEMENT ESTIMATED		206
XIX.—TRAINING OF THE SENSES		216
XX.—DRINKS, STIMULANTS, IRRITANTS, AND NARCOTICS		233
XXI.—PHYSICAL EDUCATION ON THE CONTINENT		248
XXII.—POPULAR FALLACIES		260
XXIII.—BETTER VOICE-PRODUCTION AND ADVANTAGES OF BETTER BREATHING.—II.		269
XXIV.—THE SANDOW SYSTEM ESTIMATED		280
XXV.—EXPERIMENTAL DIETS		290
XXVI.—SHORT GAMES FOR THE YOUNG		301
XXVII.—IN AND ON WATER		314
XXVIII.—LEISURELY EATING: FEWER MEALS FOR MANY		326
XXIX.—THE BRITISH SYSTEM		339
XXX.—COURSE OF PHYSICAL DEVELOPMENT FOR BOYS		350
XXXI.—WHY WE FEEL TIRED		371
XXXII.—CLOTHING, VENTILATION, AND AIR		388

CONTENTS.

CHAPTER		PAGE
XXXIII.—A FEW MINUTES' COURSE FOR VERY BUSY PEOPLE		400
XXXIV.—PATRIOTIC PROFESSIONS		411
XXXV.—PHYSICAL EDUCATION IN THE EAST		421
XXXVI.—WALKING, RUNNING, AND CYCLING		432
XXXVII.—ADVANTAGES OF BETTER BREATHING (<i>concluded</i>)		448
XXXVIII.—PHYSICAL EDUCATION IN AMERICA		464
XXXIX.—REMEDIAL WORK, ESPECIALLY FOR THE YOUNG		478
XL.—DELSARTEAN SYSTEMS ESTIMATED		492
XLI.—GYMNASTICS: INTRODUCTION, AND PARALLEL BARS		509
XLII.—HOW TO BEGIN A CHANGE OF DIET		521
XLIII.—THREE "MODEL" COURSES ESTIMATED		530
XLIV.—BETTER TRAINING FOR THE LEFT SIDE		545
XLV.—POWER OF THE MIND OVER THE BODY		555
XLVI.—ATHLETIC SPORTS, AND AMERICAN METHODS		563
XLVII.—PHYSICAL EDUCATION IN ANCIENT TIMES		583
XLVIII.—USEFUL PHYSICAL FEATS FOR MOST PEOPLE		593
XLIX.—WHAT SHALL WE DRINK?		608
L.—ANATOMY AND PHYSIOLOGY		616
LI.—GYMNASTICS.—II. VAULTING HORSE AND HORIZONTAL BAR		629
LII.—WHEN YOU ARE "TOO BUSY"		651
LIII.—GAMES FOR GIRLS		656
LIV.—CARE FOR THE EXTREMITIES		666
LV.—A COURSE FOR VERY LITTLE CHILDREN		680
LVI.—HINTS ON SELF-MASSAGE		693
LVII.—GYMNASTICS.—III. (<i>concluded</i>)		704
LVIII.—VARIOUS SYSTEMS ESTIMATED		715
LIX.—A FEW HINTS TO TEACHERS		729
LX.—A FEW CURIOSITIES OF PHYSICAL CULTURE		734
LXI.—A COURSE FOR PEOPLE PAST THEIR PRIME		744
INDEX		753

INTRODUCTION.

Our Aim: to Select Best Features of All Systems—to Offer Different Courses for Different Groups—Need of Many Attractive Motives—Greatest Care for Neglected Practices (Breathing, Repose, Promptitude, Stretching)—Individuality—Best Conditions (Air, Clothing, Diet, Washing, Massage, Rest)—The Mind—Effects of Exercise—Co-operation with an Expert Instructor—"Try Fairly and Judge by Results"—Athletic Play—Physical Education as a Profession—Difficulties.

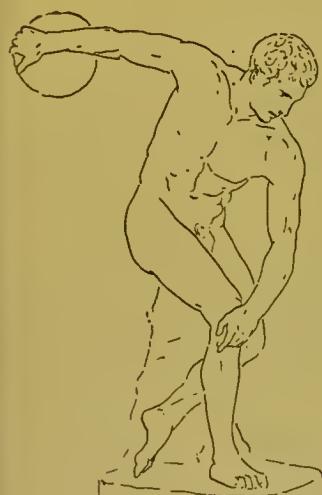


FIG. 1.

"TO be a good animal is the first requisite to success in life; and to be a nation of good animals," wrote Herbert Spencer, "is the first condition to national prosperity." It is the young animal that we need to train, just as

in South Africa

it is the black boy, rather than the black man, that reformers trouble about. But there are not many exercises which would benefit the child "fed on cold cabbage and kippers, with an occasional radish or nip of gin to hearten him up," as the *Manchester Guardian* put it, housed as he is in an unventilated room, and perhaps—poor mite!—dwarfed by cramping work. It is the parents and future parents and those in authority that we must also train, so that the alphabet of Physical Education for a healthy animal life and mental life may be learnt and taught by them—taught by example more than by precept or code.

Ideally and theoretically, we should not begin with a full "course" of exercises

for all the muscles of the body. Exercise (as ordinarily understood) may be only the fifth letter of the Physical Alphabet, coming after Air, Breathing, Cleanliness, and Diet. Indeed, even E itself might stand for Economy rather than for Exercise, since during the greater part of our lives we want *not* to exert our muscles; and how not to strain and not to fidget is a decidedly vital problem.

Practically, however, *Exercise* is what people are likely to try, and, while we shall not leave the A, B, C, and D unwritten, we shall lay chief stress on this E. Besides, nearly all of us require proper Exercise before we can assimilate and use the best Air; we require proper Exercise in the art of Breathing; we require proper Exercise for Cleanliness; we require proper Exercise (e.g. of the trunk-muscles, to hold the organs in position and to move them well) before we can assimilate Diet. Again, it is Exercise that is the interest and talk of the present day, even of some of those in authority.

Just before the Editor began to write this Introduction, he had a most interesting talk with Sir Lauder Brunton on the subject of the proposed League of Physical Improvement. The League, by the way, is vastly different from certain "philanthropic" schemes that keep alive

the thrifless and decrepit and silly. The League has no idea of giving people food that they never earn; it has no sentimental scheme to remove or suppress bodily discomforts, and at the same time too often to remove or suppress independence and other mental excellencies. The League will help the careful and healthy and sensible at least as much as it will

opportunity — not be compelled — to improve his or her own methods accordingly.

Meanwhile, it will devise (with the aid of expert advice from practical teachers and athletes, as well as from scientific and medical men and theorists) what the Editor has elsewhere called a *Nucleus System*: a very small set of simple



FIG. 2.—THE TRAINING OF BOYS AT Highbury Truant School.

(Photo: H. Irving, Horley.)

help others. Its purpose is not to force any single cut-and-dried and unalterable system upon all people alike, as if they were so many unthinking recruits to be licked into a certain rigid shape, but to collect notes about *every* institution and influence that is *already working* in the direction of a better Physical Education. It will publish these notes so that each worker may know what all the other workers are doing, and may have the

exercises which seem to be nearly if not quite essential to any true Physical Education—exercises for less miserable breathing would certainly be among them, and would be of special importance for children. The League, then, has "come not to destroy, but to fulfil" to complete what now exists, and it will take care that "the children shall be served" at any rate among the first.

The PHYSICAL EDUCATOR includes these

among its aims. It is not intended to instruct the young—or anyone—in the technical terms and details of Pathology. It is intended to bring to the reader's notice most, if not all, of the systems in vogue to-day or in the past, and to tell him—a vital point—some tests by which he may *estimate each system for himself*, so that he need no longer trust to the statements made in advertisements. We have found good points in all systems, but all good points in none. Yet we also, like the League, wish to map out clear and brief charts of exercises for most people—for men and boys of average physique and intelligence, for women and girls of average physique and intelligence, for ordinary children, and for those who have general or special weaknesses to be remedied. But throughout we insist and repeat that *we do not and cannot offer the best possible*; we only offer the very best we have tried and seen, the very best that people are doing or *are likely to do*, as a makeshift till something better be found. The reader must try, and search, and think for himself. To the intelligent reader we must leave the actual work, and much of the credit for it.

In two respects, however, we dare to be dogmatic. First of all, there must be some sufficiently strong and enduring *interest and attraction* to make the reader not only begin good exercises, but also continue them. So long as the Continental nations can gather together their members by the tens or hundreds or thousands, as we saw them at Antwerp in 1903, when thousands performed in the Vélodrome, and drill the squads in unison, there is a compelling motive. Each people has its own habits of mind, amounting sometimes to passions. We Anglo-Saxons, though we do drill some children in the Continental fashion (*see Fig. 2*), yet have not the passion for such drill in unison. Our foot-

ball has its twenty-two or thirty players, but they do not all, at words of command, perform precisely the same carefully-rehearsed movements. They play, perhaps too seriously, perhaps without much skill; but still they play—within certain limits they express themselves of their own free will.

Yet other Anglo-Saxons have other pursuits—walking, running, swimming, cycling, boxing, and so on. They tend to do what they like most, or dislike least. In a word, they are more or less interested. Our difficulty is to interest them (and the great majority who cannot or will not play) in something more scientific and systematic, which they could and should do regularly by themselves.

In a word, not being able—and, moreover, not being willing—to thrust a long compulsory drill upon a nation easily divided into battalions and companies, we must entice the public somehow. *Somehow we must show you, the individual reader, that a certain amount of Physical Education is worth while for you, because it is either pleasant for you to practise, or valuable to you in its results, or both.* It may be theoretically valuable in its results in many ways which fail to appeal to the person at the time—e.g. spiritually or intellectually or even hygienically. Our difficulty is to find the prevailing motives of action. Indeed, we have devoted a chapter to this very consideration. Here it is enough, at present, not to forget the nobler results of good Physical Education, but to offer a reasonable inducement to take it, if necessary, in private.

Fig. 3 is typical of a large number of illustrations that haunt various papers devoted to muscle culture. Our object is



FIG. 3.

not to condemn this beginning—for it very often is the beginning of a young man's pride in his body, self-control, self-respect, and who knows how many higher feelings?—but ourselves to offer it and recommend it *as your beginning*, if you cannot find any better attraction.

At the same time we shall point out that to have an abnormally large biceps (composed of hard and tough and stiff rather than of elastic and lithe and flexible muscle) may be to draw some of the best blood out of the all-important brain and vital organs into the tense and slow upper arm. We wish to raise the weight-lifter's ambitions without despising that first step up the ladder of self-culture and self-respect.

Interest—the “point of contact” to attract you, the individual reader—must be shown at the very beginning. Most individuals who read these pages want to keep youth and all that goes with it—feelings of vitality and spring, looks free from haggard worry, and so on. Now good exercise—especially with good diet and other means—tends to good, pure, active blood and healthy nerves; and that spells your youth, even if the register pretends that you are fifty or sixty years old, instead of fifty or sixty years young; just as, conversely, that brainless rake now loafing along Piccadilly may be aged and worn out at twenty-five. Surely it is a commandment we need to obey physically: become, if not like little children, like *young* people.

Think of it, city men, whose chief arm-exercise is with a knife and fork, whose sharpest leg-movement is the angry stamp when some dish is not served precisely to your taste: can you imagine what a throbbing and thrilling vitality means? And you, a K.C., can you realise what fire a few minutes of proper exercise might give to that speech of yours? Or you,

a parson, what conviction it might bring to that sermon in which you speak of the body as the home of the Spirit? You organise and encourage some physical recreation club for your men. Good! But perhaps it seems to lack life. Well, come out of the chair and take the floor. Try the sticks, or the gloves, or even the punch-ball. Don't be ashamed to get hot and blown, if only you can start the circulation and show a little more health and humanity in your face and your voice when you preach next Sunday's sermon.

Whoever you are, if your doctor has “passed” you as fit to take exercise in moderation, good exercise that interests you—be it games, fencing, swimming, gymnastics, or something else—this should tune up your body and nerves, your limbs and your vital organs, should give you self-control and self-respect, and make you a more useful citizen, and a pleasanter citizen or citizeness to be near and to look at. If a really attractive appearance is your strongest incentive to exercise, by all means think of that incentive often; exercise in order to improve your looks. There is no need to tell all the members of the opposite sex precisely *why* you get up early in the morning to go through some sensible “Course.” Only, for Heaven's sake—that is to say, for health's sake—take some good exercise and get some good ambitions to tide you over the first six months of it.

We said that we should be dogmatic about two points. The first is your interest—your strongest interest—even if it seems to be a very low one, and not the welfare of the soul. We may notice, by

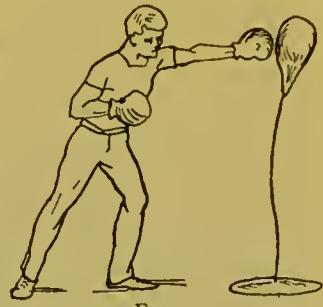


FIG. 4.

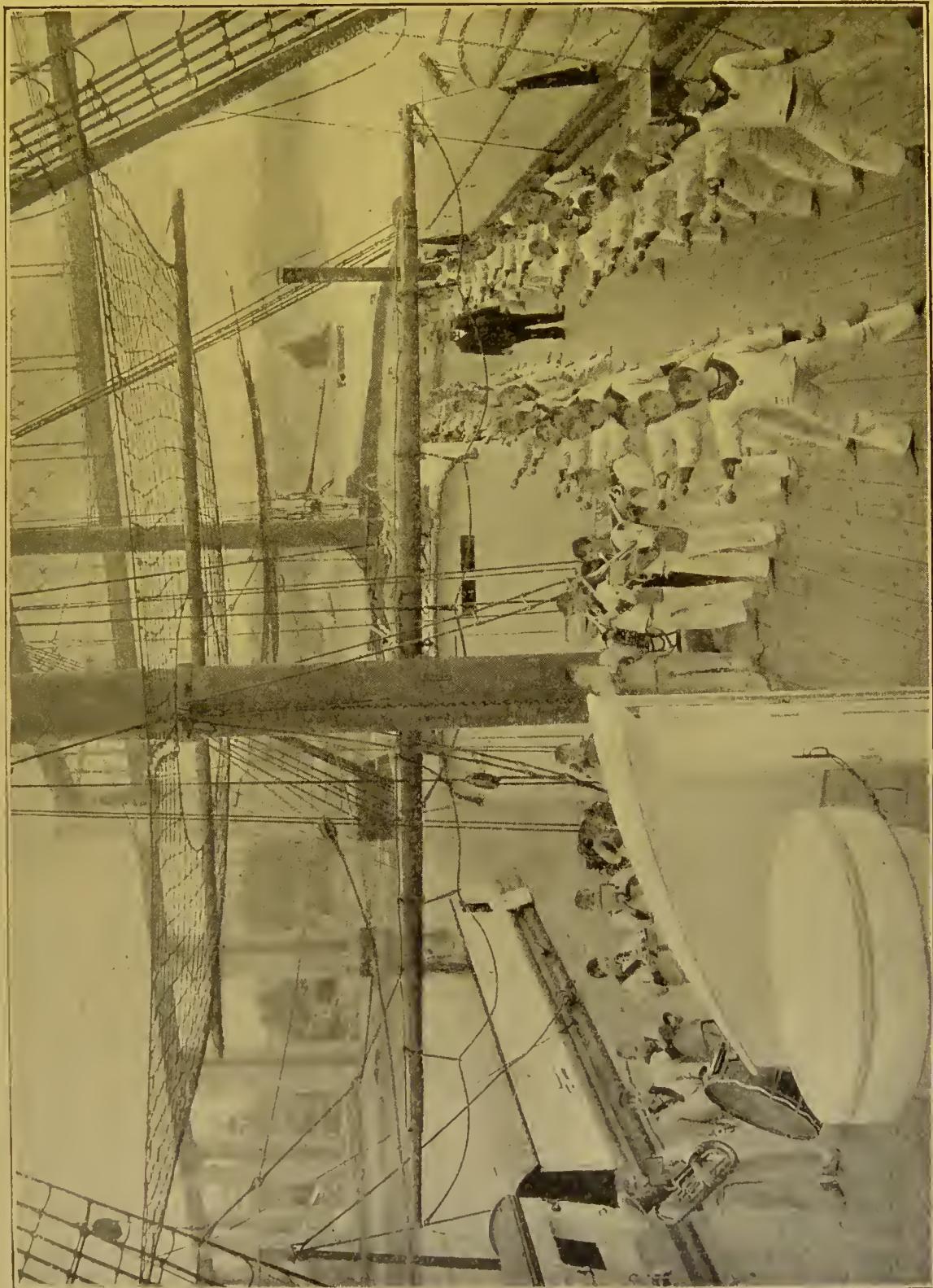


FIG. 5.—REFORMATORY AND INDUSTRIAL SCHOOL BOYS AT INTERESTING EXERCISE, MOUNT EDGCOMBE.

the way, that the Greek word translated "soul" in the New Testament meant rather the real connection of your self and your body—the state in which they work together. After your genuine interest—the need of a motive to compel you to care for your body—we shall insist on this: that *most space must be given, in proportion, to those practices which have generally been most neglected or even despised* in most systems as well as in the daily life of most people. What are these practices?

1. *Right breathings.* Two special chapters will point out the different ways of breathing and of producing the voice. Each way is right, has its proper value,

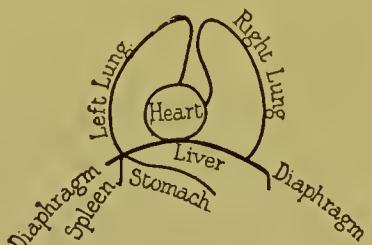


FIG. 6.—ORGANS AFFECTED BY THE DIAPHRAGM IN BREATHING.

and no one way is absolutely right always. Training in breathing forms part of the training of the nerves. So does—

2. *Relaxing* those muscles which we do not want to keep tense on any given occasion. There is much confusion between relaxing and not moving; the latter may be due to the strong efforts of two sets of opposing muscles, and may be an enormously severe task. For instance, hold your arm out perfectly stiff and still in front of you for five minutes. Relaxing of the right kind is a very different matter; it tends to muscular and nervous economy, repose, gracefulness, flexibility, and poise. It is far commoner in the plant and animal world than in the human world to-day. How perfect is the sleeping flower's expression of repose! How wonderful is the cat's art

of keeping limp and soft those muscles which it would be wasteful to exert! Man has to regain a lost virtue by a conscious art which is quite as important for work and play—at least, so the Editor finds—as for rest and sleep. Some exercises must be done in private, others—especially if the sense of humour be allowed to show itself—may be done in classes. Fig. 7, adapted from Le Favre's "Physical Culture," shows one exercise (described on page 13 of our "Course) by which the tension about the spine may be gradually lessened and nervous energy saved, because such leakages are stopped.

3. *Upset balances must be restored.* Most of us have one nostril considerably narrower than the other, one shoulder higher than the other, and—so a recent authority has contended—one leg longer than the other: hence inadequate breathing, unhealthily curved spines, etc. Some abnormalities are so common as to be almost universal. Others belong to classes (*e.g.* the comparatively undeveloped leg to typical gymnasts); others to individuals. Ling was among the first to work out exercises by which one could restore upset physical balances. Here is a characteristic exercise of De Laspée, from his book (now out of print). Like Ulysses, it is more ingenious than beautiful.

4. *Promptitude and rapid adaptation* to new conditions are to be encouraged. The different

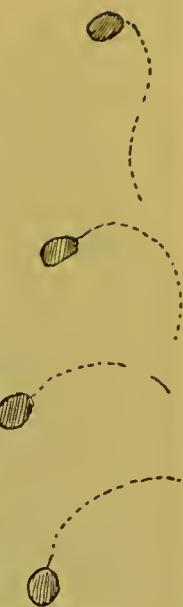


FIG. 7.



FIG. 8.

limbs should be under independent control with regard to direction, pace, etc. The Macdonald Smith system (*see Fig. 9*) rightly aims at this quick independent control, though, on the other hand, its movements are brisk and do not necessarily encourage patient regulation of pace.

5. *Independent control of the two sides* is a result of the Macdonald Smith system. We shall lay great stress upon this point, because most systems neglect it sadly. But, we do not know of any system which urges that in certain exercises, when one part or one side is working, the other parts or side should be relaxed and not working. Sandow persistently ignores it, for the other hand of his pupil grips tight the whole time.

Of these five important principles on which we shall lay particular stress, the middle one (No. 3) is the pivot—namely, to restore upset physical balances, and bring the body and its nerves up to the *normal*. If the body and its nerves once reach near the normal, then we believe that, with reasonable diet, etc., *there might be no longer any call for daily exercise of all or even many muscles of the body*. This is a new idea, and the mere possibility of its being true will come as a relief to busy people. It shall have a separate article to itself later on.

If the word had been more familiar and better understood, we might have called the work “*The Physical Normaliser*.” A few other deficiencies which it will try to remedy may be cited here.

6. To-day, people are cramped, in mind as well as in body, by over-crowding. They are cramped by mobs, buildings, ceilings, furniture, clothing, custom. All the more



FIG. 10.

need, then, that they should consciously expand and extend themselves whenever they can, as when they half-unconsciously lift up their arms and stretch and yawn after a sedentary and perhaps hunched-up sitting—not often, let us observe, after a free walk or game in the open. *The art of stretching*—of making a full extension and holding it for awhile, as in Fig. 10—is to be emphasised in this EDUCATOR. It has many excellent effects.

7. Some senses are left nearly undeveloped in this city life of ours. A special article will be devoted to the training of the senses, including the sense of taste.

The exercises of different groups and individuals must be somewhat different. Children up to a certain age—as was advised by the French Commission many years ago—may have many exercises and games in common. The Lawn-tennis service, and the exercise for it (as described later on), would do no harm to the average woman if she did not practise it too fast. But the fast long-distance throw with a cricket-ball, or the hard drive at Racquets, seem to us bad exercises for her, as being too jerky, though for a fairly well-trained boy or man they may be quite good.

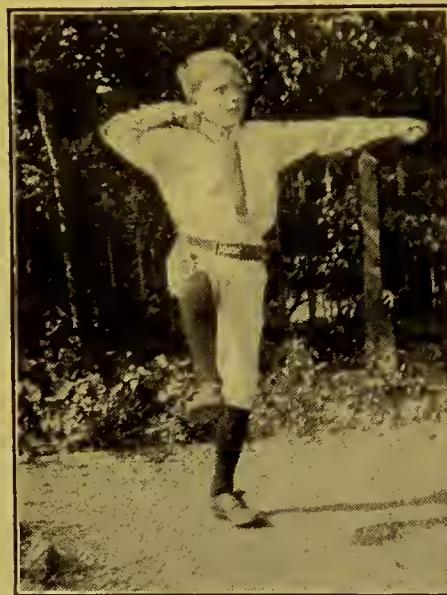


FIG. 9.—INDEPENDENT CONTROL OF MOVEMENTS.
(By permission of W. Macdonald Smith, E.g.)

Some individuality of exercise as well as some individuality of interest are our aims; and especially individuality of interest. This includes clear description, free from the technical terms of savants and disectors. It may necessitate a personal teacher, who, however, should try to make the pupils eventually self-active and independent of him. It may necessitate some apparatus as a sort of personal teacher, or, rather, task-master. Here the object must be the same—namely, eventually to be free from slavery to apparatus, instead of being obliged to confess, "If once I give up this spring-grip dumb-bell, I can't keep my attention on my work." It may necessitate—again, at the beginning—the advice or command of a medical man or (why is it not regularly given?) a clergyman. Here also, in the end, the individual should know instinctively what exercise will do him most good. But in any case there must be real interest at the start.

While the PHYSICAL EDUCATOR will suggest apparatus for certain exercises, it will also treat other good conditions, each in a special chapter. We have already mentioned breathing (or, rather, breathings). Most exercise is, incidentally, an exercise for the lungs, making them take in more air than usual, so the subject of *fresh air* is an essential one. The Editor has recently seen at least three gymnasia where, the more vigorous and prolonged the movements, the more carbonic acid gas, undesirable exhalations, and dusty particles would the lungs receive. It is the British play-room and the British bedroom that need official examination far more urgently than the British work-room—and that is saying a great deal.

That *light* is another vital matter the Science or Art of Hygiene is proving yearly, and Nature has taught us for

ages past by her lessons from flowers. The maximum of sensible light—including (indirect) artificial light for evening exercise—and reasonable warmth, with the minimum of sensible clothing, this is a matter too commonly ignored, but one on which we shall offer practical hints.

The *clothing* also should be not only unrestricting, but also clean and well-aired. Nowhere in England have we yet seen anything to equal the wire-work locker system in use at Columbia University in New York. We are still too content with stuffiness.

Besides such suggestions we have others which may seem, to the untrained, less closely connected with exercise and physical education. The first of these is *Diet*. It may be questioned whether it is or is not better for a person to take much exercise (apart from a few deep breathing exercises and relaxing and trunk exercises) on a diet such as Mr. Seebohm Rowntree cites in his now famous book "*Poverty*"—a diet deficient in proteid and alkaline and some other salts, excessive in stimulants and irritants:

Breakfast.—White bread, butter, jam, tea, etc.

Dinner.—White bread, beef, tea or coffee, etc.

Tea.—Same as breakfast.

Supper.—White bread, jam, cake, etc.

This and other dietaries quoted by Mr. Rowntree abound in starch and stimulants, but fall 17 to 29 per cent. below the present "scientific" standard in body-building proteid. The diet of an over-fed alderman is perhaps more ridiculous still, since it has excess of nearly everything except alkaline and some other salts, and much of the nervous energy is used in getting rid of the waste. In both cases the person feels disinclined for severe exercise, which needs

a well-nourished body—a body not stuffed with indiscriminate masses, but supplied with a well-balanced dietary. It is *balance* that we shall emphasise. Exactly what diets are best we do not know. But what we do know is that certain diets are *not* the best for most of us to-day. And among these are not only the poor diet and the alderman diet, but also the ordinary household diet. Let us explain briefly why.

“Science”—that is to say, the analysis of a number of dietaries—tells us that average people need a certain amount of *Proteid* or albumen daily; it tells us some of the sources of proteid. Pawlow and other experimenters show that the gastric juice (to digest proteid) is enticed by pleasant *taste* and other factors. “Science” mentions the elements required besides proteid—“salts,” fats, starches, fibre, water, and—how pitifully we forget it!—oxygen. Anatomy and physiology point out favourable *positions and movements* for digestion. Physiology, chemistry, and psychology ought to inform us of the effects of *pleasant sensations* and emotions. Common-sense urges *economy*. Political economy and the possibility of war advise us to grow more foods or to keep more of the *durable* foods at home. Refinement tends to *cleanliness and humaneness*. Considerations of purity, self-control, morality, command *moderation*. Last, but not least, we insist that in these days of stimulants and constipation the diet should be one to help the *excretion*, and *reasonably free from stimulants, narcotics, and irritants*.

If the Editor can claim any original contribution to the truth (though Heaven knows that the idea is as old as experience), it is that no “analysis” of foods or exercises is “scientific” unless it works out in practice. Try the theory fairly for yourself; if it does not work out, it

is not “science” for you. On the other hand, you must *not* say that a new diet or exercise, successful in many cases, will certainly *not suit you, until you have given it this fair trial*.

In diet, therefore, as in exercise, we shall appeal to a new science, which will, we predict, be the science of the future: *the science of individual judgment, according to all-round results, after fair trial along lines that have proved successful in certain cases*. We shall quote no theory without examples of success; no examples of success without provisos. We shall never dogmatise except on this point: that *without some teaching about the (theoretical) A B C of diet (food values, idea of a balanced diet, digestion, etc.) Physical Education is utterly incomplete*.

Now, while exercise may remove some bad effects of wrong food and wrong thought, and while the food itself should do as little as possible to produce impure blood and unsatisfactory thought, actual cleansing is also needed, especially after the exercise, by *water*. So that our Physical Education must include some teaching not only about air and clothing and light during the exercise, and about food not too soon before it, but also about the uses of water after exercise, water with friction, first to cleanse, then to invigorate.

Here we shall insist on the usefulness of a Turkish or Russian bath, which can be had at an establishment, or in the bedroom or bathroom at home. We take this opportunity of illustrating the lines along which we have thought it best to deal with such subjects. The Editor does not wish to advertise any firm. He would much rather that each reader chose for himself, or—better still—made his own bath-cabinet or ingeniously invented his own device

(wearing, for instance, a blanket-wrapper, while he sat in a hot-water bath with hot bricks in it to keep up the temperature).

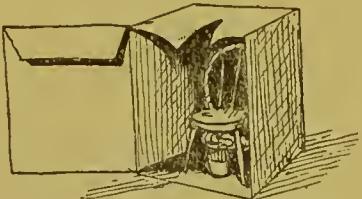


FIG. 10.—A HOME-MADE BATH CABINET.

But few have the energy. So we shall mention what we ourselves use and find good at the present time, without asserting that it is better than any other. In fact, our point of view in mentioning any article is that such definite and concrete instances appeal to the public and lead to action. In every single case, we should always be glad to hear of something better.

After the hot bath there should be cool or cold water sponging, douche, or plunge, according to individuality. The all-round effects of swimming will, of course, be emphasised. Personally, we find that a cold douche down the spine is very invigorating. It is easy to obtain a piece of india-rubber tubing of the right size and attach it to the cold-water tap, or else to rig up some device of one's own.

Friction and massage are almost as important elements as water and washing in Physical Education, not merely to remove waste-products and excessive fat, but to make the body supple and lithe, and its organs healthy and strong. An early chapter touches on the practice of self-massage for constipation, etc.

Then there is *rest*. We are beset by talk of Physical Education for movement, and even of Physical Education for position; but where is the Physical Education for that repose which most of our muscles and nerves should enjoy *for at least a third of our lives?* The art is terribly neglected, especially in these days of rush, worry, and tension. We

wish to suggest to our readers not merely how to move, not merely how to stand, but also how to rest, and how to feel inclined to rest by other means than by eating a grossly heavy meal. We hear much about faith, about power, about poise, about beauty and gracefulness, about economy. But how often do we remember that the high if not the highest expressions of faith, of power, of poise, of beauty and gracefulness, of economy, are utterly impossible without repose? Dr. Maudsley said that "*he who is incapable of controlling his muscles is incapable of controlling his mind.*" We go beyond this, and say that *he who is capable of controlling his expressions, and of keeping the expression of repose, is (as Professor William James and others hold) very near to being capable of controlling his mind.*

So it becomes, after all, *a question of mind.* To keep the thoughts pure yet interesting, to will to express certain desirable things by the body, to concentrate the attention and the whole of the manhood, not through mere curiosity, but with determination to succeed, to be regular in practice, to be moderate, to be intelligent, to be alert for something better than we suggest—that is mind-work.

Mind-work or brain-work, as the brain is usually understood, is (alas!) outside the sphere of the PHYSICAL EDUCATOR. But within its sphere there is plenty of valuable brain-work to be done by you, who ever you are. If you would set yourself to find out what are your best positions, ways of breathing, ways of moving, ways of amusing yourself, ways of resting, and so on, and what are the various effects of these ways, you would find occupation for all the time which is not devoted either to exercise or to rest, or to what is called "*serious life.*"

Some of the *effects* of exercise will be considered in special chapters. First of all are the general effects, whatever the exercise may be—*e.g.* the effects on lungs and breathing, heart and circulation. Then there are the particular effects of particular exercise and exercises—*e.g.* of all-round movements, of brisk, full, slow, strained, or relaxing movements, of local movements, etc. The total effects would be very different, for example, according as the exercise is done with spring-grip dumb-bells (which probably produce tension and a not very pleasant expression of face) in both hands, or with one hand or both hands relaxed, or opened and extended by a special kind of apparatus.

But as a wide statement of results the following quotation from Sir Lauder Brunton will serve. He says: “Exercise which puts in action every muscle of the body, but does not put any one into too great action for any length of time at once or in too violent a manner, is exceedingly beneficial. It causes increase of strength and endurance in the muscles themselves (as the muscles become trained they form the poisonous substances in less quantity), it augments the respiratory power, it makes the heart stronger and the circulation more active, and indirectly increases the power of digestion and the activity of the mind. It thus causes a sensation of well-being, bodily and mental, and enables the individual to resist all the various destructive agencies, microbic and climatic, which tend to produce disease, and so it tends to preserve health and prolong life.”

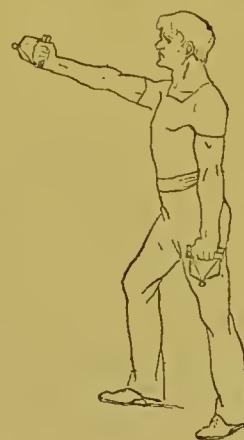


FIG. II.
TENSION CAUSED BY EXCESSIVE USE OF GRIP DUMB-BELL.

Enjoyment has a definite chemical effect upon the blood, and Professor James, of Harvard, is not the only high authority who holds that positions and movements incline to produce corresponding states of mind; so that an attitude and facial expression of worry or despondency would incline to make one feel worried or despondent. Appropriate and moderate exercise would then help to give pleasant emotions, as well as to remove depressing waste-products.

In order to interest readers and to encourage them to study and observe for themselves, we shall insist that the effects of really good exercise go far beyond the physical and hygienic, and include, of course, not a complete education, but one that is to some extent artistic and æsthetic (*see p. 102*), intellectual and economical (commercial, etc.), moral and social, and prospective—prospective because the Physical Education of this generation is part of the physical and mental education of subsequent generations. We know that there are some to whom the words “physical” and “hygienic” are less than echoes of realities, to whom the words “æsthetic” and “artistic” sound faddy, but who might listen if they were told how they might help self-control by means of pleasant self-expression.

It is the interest of our readers—the necessity to make them read, try, and continue—that forces this work to be a *compromise*. Instead of the ideally best system according to theory, even if we could ever find it, we prefer to offer the best systems that people are likely to try and to continue as *readers*, even without any personal instructor.

We have been faced with a dilemma. We had to emphasise either the abstract perfection, of which most readers would have taken very little notice, or else what does exist or is likely to exist directly

people see how feasible it is. We have chosen the latter course, because it gives us our definite and pictorial starting-points. We have not offered such systems as the best. Rather, we affirm that better are to be devised, and will soon be devised. We do not dogmatise about results. We merely ask whether this or that is interesting and suitable after fair trial.

The Editor was once told that he had not been through "*the system*," as if there were one system—the best and the only one. He has been through many "*the-systems*" already—some systems of breathing, some games and athletics and gymnastics, some special exercises for games and athletics, some relaxing exercises, some club exercises, and the courses as given in this PHYSICAL EDUCATOR.

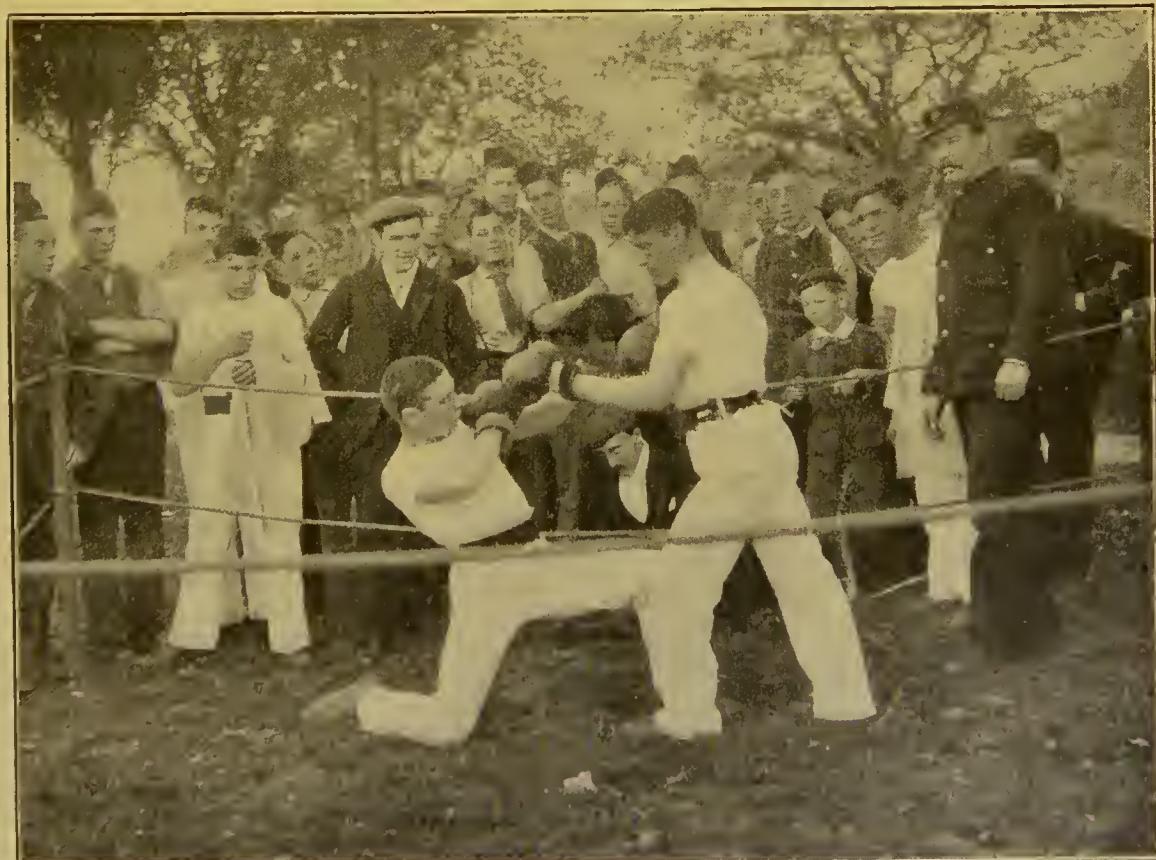
But he has also gathered whatever information he could from many practical teachers of various systems, whom he wishes to thank here for their courtesy in supplying information. Especially he wishes to thank Mr. T. A. W. Flynn for his co-operation throughout the work. Mr. Flynn was at a public school and then at Cambridge, where he was a fair all-round athlete; afterwards he went through the Army course, and practised Ling, boxing, fencing, gymnastics, clubs, and so on. He has had experience in teaching individuals, and schools for boys and girls; and as the result of his experience and observation, he, like the Editor, finds good points in all, but all good points in none. He has even found good points in the Editor's favourite diet —of which more in a later chapter.

The Editor wishes also to thank those who have supplied him with hints, criticisms, photographs, and illustrations, and especially Miss M. Dovaston and Miss J. Bloxam, who have done most of the plain-line drawings. He would welcome any additional hints and criticisms,

of which due account will be taken. For he feels no shame in admitting mistakes. He offers no perfections.

This point of view will be a partial answer to the objection so frequently made that a uniform system is unadvisable, if not positively dangerous. The objection might be put in this form: "You may include the best from all known systems, as well as from games, athletics, gymnastics, etc.; you may insist on favourable conditions before, during and after exercise (food, light, air, clothing, etc.); you may lay special stress on right ways of breathing; you may insist on muscular repose and economy for the parts which we do not wish to use; you may attend to nerve-training in promptitude, etc.; you may devise admirable trunk-movements that might help digestion and excretion as well as breathing and carriage; but, for all that, any one system forced on all is pernicious. What's one man's meat is another's poison; what's one man's interest is another's boredom.

It is a function of an Introduction to anticipate such an objection. And the spirit in which we offer our ideas is the best answer: "Try this or that fairly if it appeals to you; and judge it only by its all-round results. Meanwhile, search for better things and let us know." Moreover, we do not ignore individuality. It is from respect for the individual that we praise a point in this system, a point in that; that we recommend various Courses; that we insist on corrective and remedial exercises; that we urge readers to get good medical advice before they go in for any strain. For, as Sir Lauder Brunton aptly says, "What is exercise for one man is over-exercise for another, or may even be over-exercise for the same man under different conditions. Nay, more:



FIGS. 12 AND 13.—OUTLETS FOR SUPERFLUOUS ENERGY ARE MOST VALUABLE.
(REFORMATORY INDUSTRIAL SCHOOLS AT PLAY.)

what is sufficient exercise for the muscles may be over-exercise for the heart, and one of the risks which schoolboys [and, we may add, schoolgirls] sometimes run is that their athletic power may be judged by their masters or school-fellows according to their apparent size and strength, and not according to the strength of their heart and of their lungs."

But who dares to come forward—this is the best reply to the above objection—who dares to come forward and deny the need (and hence, for most of us, the

need of practice) of deep, full breathing through the nostrils, of muscular economy, of healthy trunk muscles to hold the organs in place and move them duly, of means to remedy badly curved spines, flat feet, and so on? Who denies the need to remedy a case like this?

So we say once again to every reader, *Get some good physical ambition.* It may be competition against your past self, or it may be, at first, competition against others, even if it be only a desire to look healthier and more attractive than they do. Make a fine and all-round Physical Education worth your while.

For that is the ultimate question: Is Physical Education *worth while?* The success or failure of this PHYSICAL EDUCATOR depends largely on the answer to that question. What can Physical Education do? What is it likely to do? And the answer to that, in turn, depends largely on the particular Physical Education and (as we shall show in the article on "What to demand from Systems of

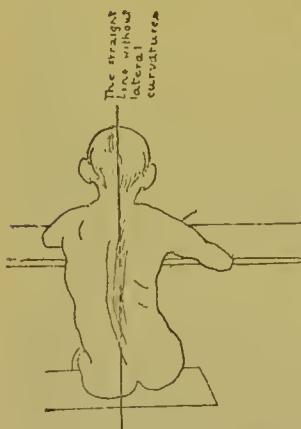


FIG. 14.—A COMMON SPINAL DEFORMITY.

Exercise") on how it is tried and practised, how it is "begun, continued, and ended."

The individual reader becomes in the end the responsible person. We cannot move for him, breathe for him, eat for him, rest for him. The former depends mainly on us. Let us, then, at the risk of reiteration, say what Physical Education must include, at any rate for Anglo-Saxons if not for all mankind who are physically deficient.

The words "Physical Education" have many barnacle-ideas fastened to them, and not a few ships called "Physical Education" have sunk, crew and all, because the captain cut off certain parts of the ship to save some of the large barnacles! A part which ignorant captains have been too prone to cut off as useless—as too light and pleasant and free to be useful—is *athletic play*. We shall not define it here; readers understand well enough what it means. Animals hardly distinguish between athletic play and Physical Education in the narrower sense. Gymnastic and Ling teachers usually do. They say, "We teach Physical Education, the only scientific system. Games have their value, but"—to quote the words of a military instructor—"they are chiefly for amusement and recreation—merely a relief and change from serious life." This objection is common on the part of those whose livelihood depends on teaching gymnastics.

Now, as a relief and change from "serious" life, athletic games are worth while. All work and no play makes Jack a dull boy, an ugly boy, an unmanly boy, a smug, a prig, and perhaps something worse—if there is anything worse. It has a similar effect upon Jill, except that it often makes her very morbid and very silly, and very dishonest as well. For children, and for many of those adults

who should obey the scriptural commandment and become like children, athletic play is a humanising power, and—thank goodness for it!—an outlet for some of the unnaturally pent-up physical energies of both sexes. If this were all that athletic play, interesting to the individual, could do for him or her, it would be inseparable from true Physical Education in self-control, self-direction, self-expression; but this is far from all.

The best athletic play is not only a relief and change from “serious” life, but also a preparation for that life; not merely for athletic feats, not merely for war, but for an enormous range of duties. In home-life athletic play forms a friendly bond which perhaps no other can equal—a bond and a starting-point for confidence and sensible friendship and affection outside the blindly indulgent laziness and selfishness that has too often usurped the name of love. So it is in social life also; no age or class or race being beyond the athletic pale. In commercial life, athletic play can give invaluable lessons in co-operation, division of labour, patience, prevision, and so on, as well as in that honour and manly right-dealing for which our clearest Anglo-Saxon expression actually is “fair *play*.” Athletic play can teach us our true relation to our opponents—whether they or we be victors or vanquished. Above all, it can train us in concentration, in the art of feeling—“This *one* thing I do with might and main *now*.”

Well, if Physical Education consisted entirely of this athletic play, even then it would be essential to the all-round training of man and woman, of boy and girl. But if with this athletic play we yoke and mate a more methodical Physical Culture, a more scientific set of exercises to prepare for play and for mental and physical life, as well as to

supplement play and mental and physical life, then Physical Education is worth while. Indeed, we might say that, except for a few “religious” ideas, scarcely anything else in life is worth while until there has been laid a sound basis of Physical Education.

Therefore, good Physical Education is worth while. And therefore, as an inevitable corollary, the teaching of good Physical Education is also worth while, being a profession inferior to none whatsoever anywhere. In no single respect should the good Physical Educator, male or female, stand on a platform below the schoolmaster or clergyman or lawyer or surgeon or physician or soldier or well-born loafer or financier or politician. Of a truth we are a nation not of shopkeepers but of snobs, whose thoughtlessness is on neutral ground with cowardice. How terribly we need what Nietzsche would call “new evaluations”—to see things as they are all round, in their many effects, and to classify and esteem them accordingly!

For health’s sake, for happiness’ sake, for helpfulness’ sake, let us set this Physical Education in its right place, above the arrant snobbishness such as led the early Roman to despise all who were not Roman soldiers and farmers and political leaders and voters. Let us turn our eyes from a few expensive games badly taught, badly played, misunderstood (as if games were mere accessories of life); let us turn our eyes from those narrow-minded though genuinely enthusiastic professional teachers who talk of their one system (whether it be the Army or Ling or any other system) as *the* system, and, indeed, honestly believe it to be so; let us hear what the advocates of such onesidedness have to say, and then pass on to the more comprehensive practices—not the one system

so much as (in a good sense) "the mutable many."

"By their fruits ye shall know them" is universally true. And among the fruits of good systems should be the following: the power to take in abundant oxygen through the nostrils (not merely the possession of a large chest, or even—see Fig. 15—a large chest-expansion); strong

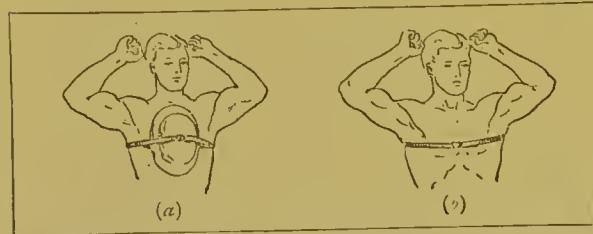


FIG. 15.—AN AMERICAN TEACHER PROFESSES THAT HE HAS HIS LUNGS FILLED IN (a), DEPLETED IN (b).

trunk muscles to help to prevent indigestion, constipation, etc.; straightness (or, rather, normal bodily curves) and flexibility; economy and absence of unnecessary tension; poise; and so on. A special article will suggest a practical scheme for applying these and other tests, and for remedying and preventing mistakes, in so far as a paper-scheme can help in this direction, in this difficult age when people read, as they eat, much too fast, and are content with a very low standard of fitness.

However worthless anything that we say may prove in practice, yet at least we have realised the prodigious difficulties that beset any would-be reformer of the Anglo-Saxon physique.

1. First there is our climate, which we may abuse, of course, as dull, but which enables us to commit the maximum of physical sin with the minimum of physical harm. There seems to be, as Emerson said, an Anglo-Saxon reserve force in soil and climate, as in body and

mind, which refuses to give mistakes their due.

2. In spite of this comparative impunity, ill-health, disease, and dis-ease abound. And, by the law of the "vicious circle," the ill man finds it hard to change his ways; his foul blood will not be purified except by steady effort, of which a foul-blooded man soon wearies. Besides this, he is constantly deceived by fraudulent advertisers, uncensored liars, whose main aim is to make money.

3. The general ignorance of the public in this and in all matters of health is a huge obstacle. We are not educated as to ideals of manhood and womanhood. Our popular heroes and heroines are one-virtue exhibitors, and to hint that in other respects they are villains is regarded as sheer profanity. We are told that they are *the* leaders. If our authorities are hard pressed, they inform us that such and such deficiencies are "customary," "normal," "natural," "to be expected," "necessary," and so on. The physical tests that are commonly applied are the tests of ignorance—great size, heavy weight, red face, athletic feats.

4. There is in the Anglo-Saxon majority a reluctance to tread new paths, partly due to that shyness which prevents us from speaking French except in an entirely Anglo-Saxon manner, and even then with a sheepish look, as if one were a traitor and a buffoon.

These are a few of the difficulties. If, then, we have seemed often to lay too much stress on the fragments of what already exists, it is not because we have lost sight of the all-round aims and possibilities of Physical Education, but because we have considered a bird in the hand worth three in the clouds.

CASSELL'S PHYSICAL EDUCATOR.

CHAPTER I.

A COURSE FOR MOST MEN WHO ARE BUSY.

To Introduce the Course—The Dangers of Uniformity—If not Ideal it is Short and Practical and Varied—Not Complete, but Good to begin upon—How to Exercise—Air—Light—Clothing—Form—Concentration—The Order of Exercise—Some “Don’ts”—The Course.

INTRODUCTION TO THE “COURSE.”

NOT everyone is suited by vigorous early morning exercise or even by a gentle walk—for example, the Editor himself rather prefers to work for at least three hours before taking any exercise at all. But the early morning is the least inconvenient time for most men, especially if they take a large breakfast afterwards. Uniformity in advice is bound to have disadvantages. But in a work like this, which cannot be expected to do what a good personal teacher can do, some general instructions are inevitable, and the only defence is that we (the Editor and a trained and experienced teacher of Physical Culture) should offer all-round exercises without strain, as exercises which we have ourselves now done six times a week for a month, but which must be given up by the individual if the effects after a few weeks prove unsatisfactory. The Editor wishes to express here his debt to this teacher, Mr. T. A. W. Flynn, who has worked out many of these exercises especially for this Course.

The Course is not an ideal one for all alike ; it is a short and practical Course for helping the breathing, circulation, digestion, excretion, carriage, and repose for

most men who are busy, and comes as near as we care to bring it to the Courses which they are likely to know already, while we have tried to remove some of their most fatal faults, such as the perpetual tension-grip. Neither is it a complete Course. This and the subsequent chapters will suggest additional and special exercises—*e.g.* to remedy indigestion, constipation, nervousness, and so on, as well as to prepare for athletics in particular.

But it is a varied Course. We have chosen the movements out of many hundreds and from many systems, though we have adapted the majority according to our plan of developing each side of the body independently, and educating the other side in relaxed repose, and so on. We offer some practice in better control, better economy, better breathing ; we offer preparatory movements, free movements, and exercises with apparatus.

We have tried not to offer more than the average man is likely to do regularly, and, remembering what human nature is, we have sacrificed some strict science for practical utility. Thus, people would do better if they began certain movements as they lie on their backs upon the floor. This keeps the chief organs in their right place. But few will agree to do this.

Last, but not least, we give some simple instructions for use.

INSTRUCTIONS FOR USE.

Do not exercise too soon after a large meal, and do not continue up to exhaustion. The number of repetitions is far less important than the amount of attention and "mind" put into accurate movements.

Breathe in, not through the mouth, but through the nostrils, and, as a rule, slowly and fully. (We shall treat the breathing out in a later chapter.)

Get the maximum of fresh air and light.

Wear the minimum of clothing, especially of cramping clothing. If possible, be naked, or, *at least, have the feet naked and free.*

Do not use the parts of the body that are not called upon to work. Do not frown. Do not strain.

Secure correct form first, even if—as has been the case with the Editor in all the physical work he has ever managed to do passably, including his recent Indian club work—this may necessitate very slow and laboured care at first. In the end it will save time and trouble, and give more satisfaction.

Be regular, not so much according to the time of the clock as according to the occasion—e.g. "after waking" and "before bed" are, for many, better rules than "7 a.m." and 10.30 p.m."

Concentrate the attention, and, as Sandow says, throw the will into the muscles. The following hints have helped some people to concentration:—

(i.) Find the interest of the exercise—e.g. by studying its effects (some of which we shall point out with the various movements).

(ii.) Look at the muscles, either directly or in the mirror, until they can be trusted to work correctly. (This does not apply to certain exercises, in which it is better

to look at a spot, or, for example, at the end of the Indian club.)

(iii.) Apparatus may be of some help. We prefer the hand-opening appliance which is illustrated later to the tense grip, at least as an antidote.

(iv.) Keep records of progress—increase of extent, correctness, ease, number of times, etc., with dates. A card can easily be devised for this, or if the student is earnest a daily record may be kept in a Diary.

(v.) It may be well to adopt the Résumé plan—*i.e.* to learn a few exercises (*a*, *b*, and *c*) really well, then to learn *d*, *e*, and *f* really well; then to combine *a*, *b*, *c*, *d*, *e*, *f*, then to learn *g*, *h*, *i*, and add them to the first six, and so on.

(vi.) One person can set the exercises to another, or others—e.g. in a family or school.

(vii.) A good personal teacher is, needless to say, of the greatest value at the start, if only to ensure correct form.

(viii.) Vary the course, as you feel inclined, by your own additions or substitutes. For example, George's "Hundred Up" (p. 52), the Lawn-Tennis service exercise (p. 56), the bowling exercise (p. 57), may all be useful.

(ix.) Adapt the exercises in the Course to your own needs, and please send the Editor any criticisms or suggestions.

In most of the exercises, *start by using the two sides independently, if you can spare the time.* Such movements will be fuller, and will give you finer control and poise.

Do most of the movements with equal vigour in both directions.

The general order which we suggest is as follows, though the reader must alter it for himself if he thinks fit:—

I. *In the morning*: In the well-aired bedroom, blow the nose and wash the teeth; then—

(i.) Massage in bed.

- (ii.) Vigorous movements for chest and arms.
- (iii.) In the well-aired bathroom. Breathing ; bath.
- (iv.) After the bath. Head movements and trunk movements and leg movements.

These may also be repeated after business hours; or the following may be substituted :—

- II. Two or three times a week, as an alternative in the morning, inclined plank exercises, club exercises, etc.
- (v.) Plank exercises in climbing, kicking, leg-swinging, swimming, etc.
- (vi.) Club exercises.
- (vii.) Various exercises.

III. At night :

- (viii.) Chest expansion with stretcher.
- (ix.) Relaxing.

THE COURSE.

Don't strain: gradually increase the extent, pace, and number of times.

Don't use muscles that are not wanted: In particular, don't grip, don't frown.

Breathe in fully through the nostrils.

Concentrate on each movement in turn, without thinking of what is to come next.

I. A. After blowing the nose and washing the teeth, you may begin massage of the abdomen.



FIG. 1.

(i.) *Massage of the Abdomen in Bed* (see further, Chapter on Indigestion).—The advantages of massage for the circulation and the heart, the breathing and the lungs, for elimination, for the skin and organs, the digestion, the muscles, the nerves, etc., will be explained in a special chapter later on. Here we must be content with two kinds that can be practised in bed before one gets up, the



FIG. 2.

the “ventral integuments” more pliable.

B. FIRST MASSAGE OF THE ABDOMEN.—With the three long finger-tips of the right

hand, and holding the thumb (see Fig. 2), as a fulcrum for the movement, which is done chiefly with the finger-joints and the hand, make circular strokes round the navel *up the right side and down the left*. The movement becomes more effective when the circles are enlarged, and when the finger-tips press, now strongly, now faintly upon the abdomen. If this process is too irritating, the following should be applied :—

c. SECOND MASSAGE OF THE ABDOMEN.—Make circles in the same direction, but keep the finger-tips passive, and make the passes with the ball of the hand. Notice how, in Fig. 3, the hand is stretched out forcibly, so as to be almost at right angles to the forearm. It is here not the three long finger-tips but the ball of the thumb and the little finger that give the pressure; the three fingers (slightly bent) follow the movements of the hand without giving even the faintest pressure.



FIG. 3.

(ii.) *Vigorous Movements for Chest and Arms.*

PRELIMINARY POSITION.—Fig. 4 shows a fairly good position for many exercises,



FIG. 4.

without too much of the wooden soldier type. The heels should be closed and in line, the toes moderately turned out, the knees straight, the body with its two sides even, but with the small of the back well in, and the trunk slightly forward from the hips, so that the weight may bear on the fore part of the feet; the chest expanded (but not stiffly), the head erect, but with the chin in rather than up; eyes to the front and not to the floor; hands not gripped; arms hanging loosely from the shoulders either down at the sides, as in Fig. 4, or else with the hands further forward.

Independent control of the two sides of the body is very important. In many of the exercises you should let one side rest while the other works; this practice must react upon the brain. Most systems err in using the two sides together far too often. We wish each side to be able to move while the other side keeps not only still but also reposeful. Sometimes, however, you will be extra busy, and then the two sides may be used together.

D. ARM EXTENSIONS.—Extend the right arm outwards with the palm down, having the left arm hanging

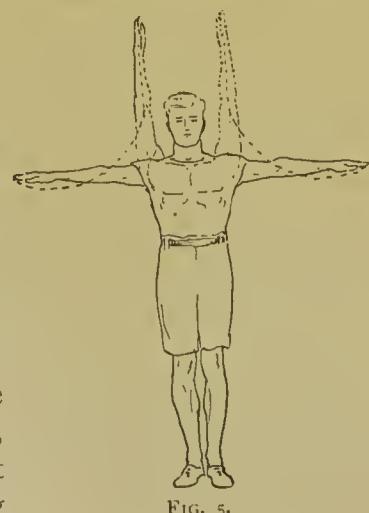


FIG. 5.

loose at the side. Now, keeping square to the front all the time, swing the right arm up above the head, with the palm outwards. Swing it downwards again with equal vigour. Then swing it right down, palm facing backwards. Repeat.

Do this with the left arm similarly.

If busy, and also for a change, move the two arms together, as in Fig. 5, out, up, and down.

[For a change, in alternate weeks, alter the palm's position to (a) arm out with palm up; (b) arm up with palm inwards; (c) arm down with palm forwards.]

E. ARM CIRCLES.—Swing the right arm in a circle up and forwards, then down and backwards, and round, keeping the nails of the closed hand facing the front during as much of the circle as possible. Here, also, let the body face square to the front, and not swing, and let the left arm hang loose at the side, the hand being closed, but not gripped. Repeat.

Do this with the left arm similarly.

If busy, and also for a change, move the two arms together, as in Fig. 6.

[For a change, in alternate weeks, reverse the direction, still keeping the nails of the closed hand to the front for as long as possible.]

(iii.) *In the well-aired bathroom.*

F. BREATHING.—The subject of breathing and voice-production is treated in two later chapters. Here only a few simple exercises can be offered in order that the many different kinds of breathing may be somewhat more developed and under control. To be able to breathe

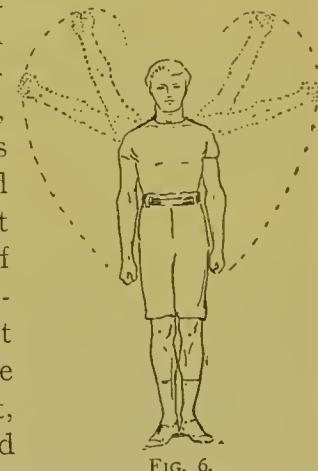


FIG. 6.

rightly is to be able to breathe not in one way only, but in many ways, as a habit and instinct, whether natural or acquired. Distrust a man who pretends that there is only one way of breathing. There are many ways, all good in their proper place.

The effects of correct breathings are to get rid of undesirable matter (too much carbonic acid gas, etc.), to bring in more oxygen (to purify the blood, to help the assimilation of food, etc.), to massage the stomach and liver and spleen, etc. by the fall and rise of the diaphragm (*see Fig. 6, on p. xiv.*), to relieve these organs of pressure by the upholding of the diaphragm, to exercise the lungs and keep them free from dirt and other "soil for disease-germs," to invigorate, and, when necessary, rest the nerves, and so on. If one lies down flat on the back, the organs are kept nearer to their normal position.

Imagine your breathing-apparatus to be a heart-shaped box which you wish to enlarge so that it may hold more oxygen—for, within certain limits, the more oxygen, the more vitality. It is the lowest and widest parts of the apparatus that stretch out furthest, and take in most air; but, having taken in the air, you can then draw the walls up and in, and so force the air into the top of the lungs, the apex, which is usually very badly ventilated, and an excellent nursery for those tuberculosis germs which love refuse but hate oxygen.

To practise each breathing separately, with chin slightly in, and small of the back hollow, send the abdomen slightly out, and the diaphragm well down (eventually you ought to be able to send the diaphragm down without sending the abdomen far out) as you breathe in a full breath of pure air through the nostrils. As you breathe out thoroughly through the mouth, bring the abdomen in, and bring the dia-

phragm well up. This kind enlarges the cavity by sending the floor down. Now for the second kind, which sends the side-walls out in various directions, the lower ribs being able to move forward, sideways, backwards, and slightly up.

Keeping the diaphragm nearly or quite up, breathe in a full breath of pure air through the nostrils while you send the ribs outwards in each direction. It helps this movement if you put the palms of your hands upon them and feel them move. Then again breathe out thoroughly through the mouth, pressing the ribs in.

The third kind is the hardest for many. As you breathe in a full breath of pure air through the nostrils, first send the diaphragm down, then lift it and send the lower ribs out; then (keeping the diaphragm up) draw the ribs in and send the breath to the top of the chest, which has very little power of expansion (for it has no diaphragm and no movable ribs).

The relaxed breathing (for economy and repose) will be given later. And other varieties, as well as movements of the arms, etc., to help them or develop them, will be offered in later chapters. One or two such exercises with the chest-expander will be suggested directly.

G. THE BATH and water will form the topic of a subsequent article. Here we must be content with a few words. First get yourself comfortably warm by breathing, exercise, and, if necessary, hot water. Then wash and rub with warm water and pure soap; then cool with cool or cold water on the eyes, the head, the back of the neck, the chest, the base of the spine, the feet; then rub vigorously to secure a good reaction and glow. Last of all, practise the exercises which follow.

(iv.) *After the Bath. Head Movements.*

These are to strengthen the neck-muscles, improve the carriage, help the breathing; they tend to athletic success,

since, among other reasons, the sight and the correctness are handicapped if the head cannot either move freely in various directions or keep still while the body moves.



FIG. 7.

H. FIRST HEAD-MOVEMENT (BACKWARDS AND FORWARDS).

—In the position of Fig. 7, the hand supporting the breathing organs—

i. Bend the head slowly backwards, without severe strain.

2. Draw the chin in, and then bring the head slowly up again. This exercise does much to help the chest to come forwards, and to prevent or cure a "poke."

3. Bend the head forwards, with the chin in, and then immediately bring the head back to the normal position.

i. SECOND HEAD-MOVEMENT (FROM SIDE TO SIDE). — Keeping the shoulders square to the front, turn the head first to the right then to the left, as in Fig. 8, keeping the chin in.



FIG. 8.

j. THIRD HEAD-MOVEMENT (BENDING TO RIGHT AND LEFT). — Bend the head right and left, as in Fig. 9.

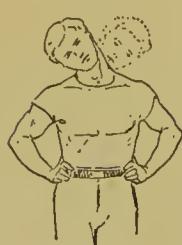


FIG. 9.

k. FOURTH HEAD-MOVEMENT (CIRCLES). — Rotate the head first to the right, then down and forwards to the left; then out and back to the right again, keeping the face fronting forwards; then reverse the

direction. All the time maintain a firm position of feet, legs, and shoulders. (Fig. 10.)

This exercise helps to remedy stiffness of the neck.

(v.) Trunk and Leg Movements.

l. FIRST TRUNK-MOVEMENT.—Keeping the feet and

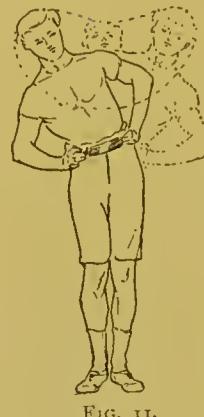


FIG. 11.

legs firm, and the hands as in Fig. 11 (thumbs behind as a support), circle the body from the hips, back to the right, down, round to the left, then down and forwards, the head facing all the time to the front as much as possible without strain. Then reverse the direction.

m. SECOND TRUNK-MOVEMENT.—Keeping the chin in and the small of the back as hollow as possible without strain, and the feet and legs firm, bend the trunk back from the hips, then chop down with the trunk first straight down, then to either side in turn, coming back each time to the attitude in Fig. 12.

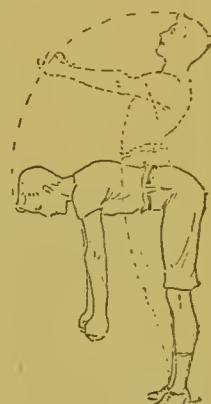


FIG. 12.

n. THIRD TRUNK-MOVEMENT, FOR FEET ALSO.—Keeping the chin in, and the feet and legs as firm as possible without strain, circle the stiff right arm down to the toes, then to either side of them in turn, each time rising on the balls of the feet as you come up. Do this lying on the floor, as in Fig. 13. Do this similarly with the left arm.

o. FOURTH TRUNK-MOVEMENT.—Standing as some players do before a Golf-drive,



FIG. 10.

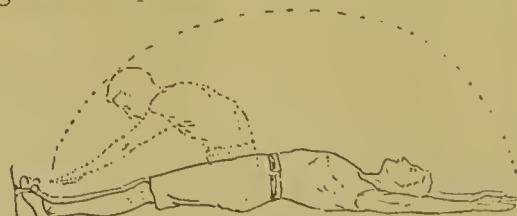


FIG. 13.

and keeping the eye all the time on a spot upon the floor (or upon a golf-ball), swing the arms and trunk vigorously up and



FIG. 14.

back to the right, as in Fig. 14, then swing them down and out and round and away till they finish up as in Fig. 15, the weight having come on to the left foot.

Now perform a similar movement with equal vigour in the opposite direction.

P. FOOT MOVEMENT.—Taking the position of Fig. 16, with the thumbs as a support behind, raise the body as high as possible on the balls of the feet and the toes, and sink it upon the heels.

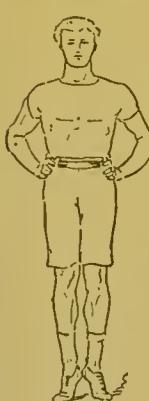


FIG. 16.

Q. TRUNK AND LEG AND FOOT MOVEMENT.—From the same position, with the chin in and the trunk erect, raise the body on the balls of the feet and the toes, sink to a half-squatting attitude, as in Fig. 17, still keeping the heels up; then straighten the legs and sink on the heels.

Now do this exercise with the chin in and the trunk erect as before, but sink to the full squatting position of Fig. 18.

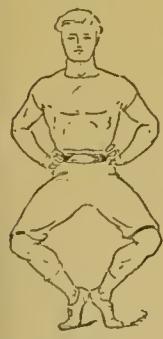


FIG. 17.

R. LEG (FORWARD) AND ARM MOVEMENT.—With chin in and trunk erect, vigorously raise the right arm and the

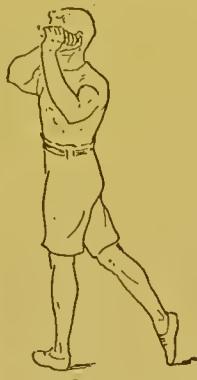


FIG. 15.

exercise is at all difficult, begin carefully and increase the vigour gradually.

S. LEG (BACKWARD) AND ARM MOVEMENT.—Send back as high as possible without strain the left foot and the left arm, as in Fig. 20, then, while you bring both of them down and to the front, send back the right foot and the right arm. Here also begin

carefully and increase the vigour gradually.

T. LEG (FORWARD AND UPWARD) AND ARM MOVEMENT.—With chin in and trunk erect, send the right arm forward with palm down. Then, as you kick the right leg up towards that point (as in kicking a football high, but without as much strain), send the right hand back. (Fig. 21.)

Lower both foot and hand, and do a similar exercise with the left side.

II. Two or three times a week, as an alternative, in the morning.



FIG. 18.

U. (v.) PLANK EXERCISES.—Lean a smooth and strong plank with one end upon some solid piece of furniture in the bedroom. Or buy the special plank which has been designed. Now, with bare feet—to give them air and light, to stretch out the toes, to increase the gripping power of the feet, and to

right leg at the same time, as in Fig. 19, then vigorously lower them while you raise the left arm and the left leg. If the

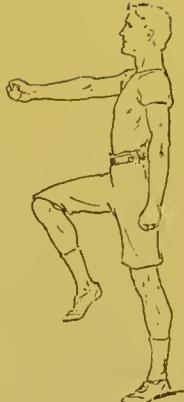


FIG. 19.

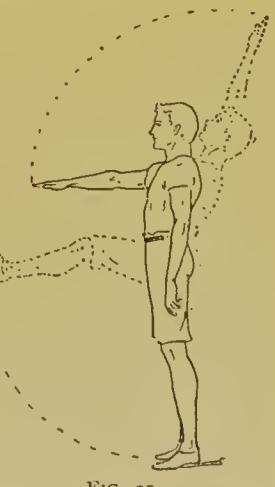


FIG. 21.

develop a fine arch and instep—and with chin in, trunk erect, and hollow small of the back, walk up and down the plank ordinarily, then upon the heels, then upon the balls and toes, with arms at first to the sides, then behind the head, then out, then up. As you come down, shoot out the leg and stretch the toe downwards.

Then walk up and down backwards.

Then stand with one leg on the plank, half-way up, and let the other swing down freely, and kick, while you keep your poise.

Then lie on the back, and do circles (see Fig. 6); then imitate the breast-stroke of swimming.

Then vault over the plank and jump sideways over it.

Fuller instructions will be given later on. As to balancing, Sir Lauder Brunton says:—

"Balancing exercises ought to form only a part of general physical training which should be as compulsory for every child as learning the three R's."

(vi.) Club Exercises.

While in many other exercises the trunk is moved, clubs can develop the poise and self-control by keeping the feet and legs and trunk firm—as if they were pushing against the floor in spite of and *in resistance to their tendency to move with the clubs*. Besides this, they are good for the breathing and breadth of the chest, the spine, the shoulders (flexibility, etc.), the arms, the wrists, the fingers and thumb, the extensions, the flexibility and liteness, the muscular sense, the co-ordination and independent use of the two sides, and so on. The Editor here, with Mr. T. A. W. Flynn's permission, describes the first lessons as he received them from that very able manipulator, and as he now practises them for ten minutes three days a week, together with some of the plank-exercises.

The clubs which he uses are the "Ober-

holzer," and he has also invented a very pretty "juggling" club for advanced work such as he exhibited with great success at the International Fête in Antwerp (1903). But the pupil should begin with something plain.

Let the pupil have his feet about twelve inches apart, and imagine himself to be surrounded by a large hoop, as in Fig. 22,

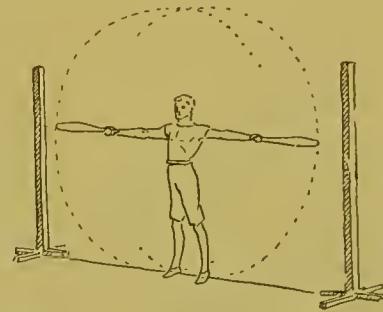


FIG. 22.

where the uprights show the line near which the club ought to keep for the circles; the shoulders should also be in this line, so that a spectator standing beside one of the uprights while you work, would see your clubs, your shoulders, and the other upright, *almost* in the same line.

Now hold the club—do not grip it tensely, as if it were a spring dumb-bell—somewhat as you would hold a foil. The three fingers (little, third, and middle) support it, the thumb and first finger support and direct it. The knob is not



FIG. 23.



FIG. 24.

in the palm, but as in Fig. 23. The three fingers are along the handle (Fig. 23) rather than right across it; the thumb is nearly straight along the handle

(as Peter Latham's thumb always is at Racquets); the first finger supports the club by its middle joint. The grasp is sensitive



FIG. 25.—WRIST “OVER.”



FIG. 26.—WRIST “UP.”

and pliable, allowing the fingers to relax, and giving the wrist enough work and play.

Preliminary position for correct style.—Stand with firm feet and straight legs (it is not a bad idea to “suggest” to yourself that you are pushing your feet through the floor. The doctrine of “self-suggestion” is, we believe, on the increase). Keep the shoulders square to the front, the chest out, the head erect, with chin in, and eyes to the front. Do not swing from the hips, for our particular exercises, since we want to practise *poise* and *équilibre* by resisting the temptation to sway. The pupils of Mr. Oberholzer at the Northampton Institute, and the members of the Orion Club (the great performer Cobbett is a member of it), and

of the St. Bride's Gymnasium (Mr. Vardon's) observe this method of holding the club and carefully avoid all body-swing.

v. For the *Outward Front Swing* the club starts as in Fig. 27, and swings outwards to the right, when the back of your hand turns towards you (Fig. 23) and your thumb turns away from you; then it swings down and across—keep the shoulders square to the front—and, as it ascends, the hand turns round again, and then the circle is completed along

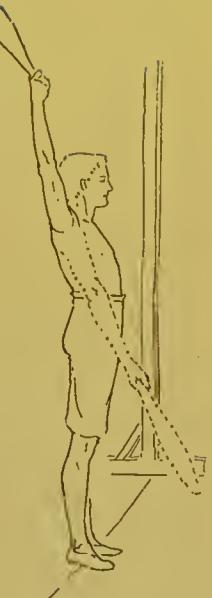


FIG. 28.

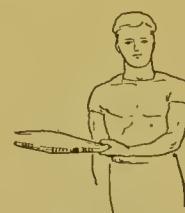


FIG. 29.



FIG. 30.

what we may call the large hoop line (Fig. 22). Fig. 28 shows a bad movement, with the club out of that line.

w. The *Inward Front Swing* is the reverse of this, the right hand moving first to the left and across the body, when, to preserve the smooth circle, the back of the hand should be turned down, as in Fig. 25, and not up, as in Fig. 26.

In both these front swings the shoulder is the centre and pivot.

x. The *Outward*

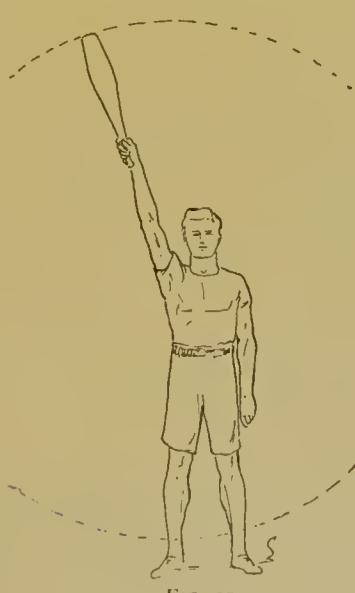


FIG. 27.

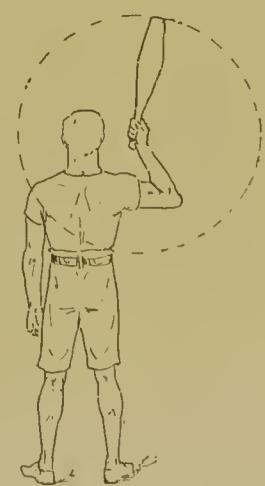


FIG. 31.

Back Twist begins as in Fig. 31, with the right hand not far from the right ear. The club swings out to the right, then down, then across and to the left, the finger-nails facing backwards, the grasp relaxing slightly, and the wrist remaining still, as one does the circle.

In this, as in the inward back twist, the hand is the centre pivot.

v. *The Inward Back Twist* (Fig. 32) is the reverse, the club circling inwards and across the back of the head towards the left. While doing this circle bend the elbow well to the front, but do not move the shoulder from the "squared" position.

The pupil should master the correct form of these four circles for the right hand, and then should master similar circles, *mutatis mutandis*, for the left hand. It has taken the Editor many hours—which he considers excellently spent—in beginning to master them singly.

z¹. Then let him try the *Outward Cross Front Twist*, as in Fig. 33. Start thus, and, pressing the elbow close to the side, swing the club down. During the swing, which will pass outside the elbow, the back of the hand will turn towards the ground.

z². *The Inward Cross Front Twist* is the reverse of this, the club swinging up.

The pupil should now combine the various circles and twists, doing an outward front swing and an outward back twist with both

arms separately, then with both arms together, then an inward front swing and an inward back twist similarly.

(vii.) Various Alternative Exercises.

(These each reader must choose for himself. We should suggest, for example, skipping with the rope sent backwards; swimming or imitation of swimming movements; walk and run, the runs being about thirty to thirty-five yards, with intervals for walking till the breath is easy again. In case of "staleness," we suggest either rest, with relaxing, or some complete change to your favourite play.)

III. At night. Chest Expansion with Stretcher. Relaxing.

(viii.) CHEST EXPANSION WITH STRETCHER.—Robert Fitzsimmons, the great boxer, condemns all "strength and strain" work, but gives a high place to the chest-expander as a developer for back, shoulders, and arms. *Within proper limits* it is an excellent aid, especially because it gives a measure of progress (according to the number of strands used), and localises the exercise, "touching the spot," as most of the other portable exercisers fail to do. It is particularly good for strengthening the back muscles in general, and those dorsal muscles (below the armpit) for which the fashionable military tailor is wont to substitute artful padding.

There are many kinds to be had. One of the best, because it has a good device to strengthen the fingers, is the new Whiteley chest-expander, with double handles. (The

rest of the exerciser is unnecessary for our Course.) Absolutely different is the one which (see Fig. 34) keeps the hands from gripping. It is likely to be far



FIG. 32.



FIG. 33.

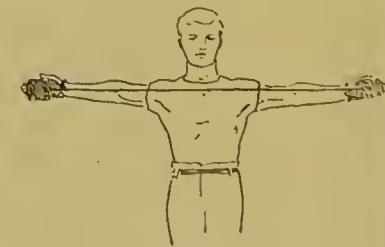


FIG. 34.

better, in many respects, for most people who are at all stiff or cramped, or nervous, or over-tired, or depressed.

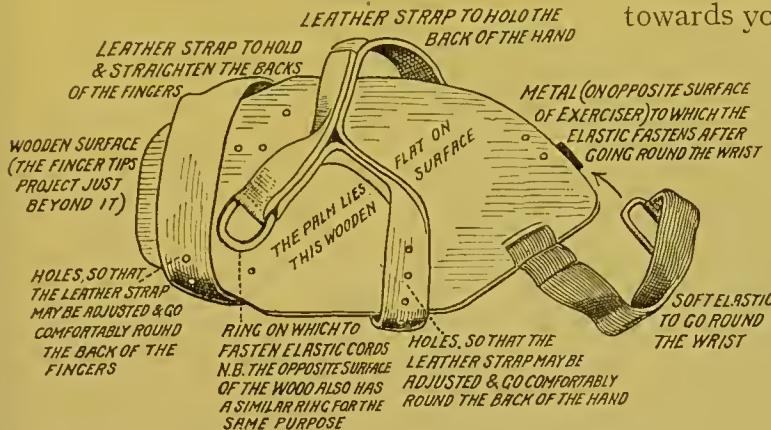


FIG. 35.

a. FIRST EXPANDER.—With chin in and trunk erect, extend the arms outward, with the knuckles in, as in Fig. 36, at the

same time bending forward with the trunk from the hips. Make the movement back again

slowly without strain.

Do the same exercise with the thumbs down (Fig. 37).

b. SECOND EXPANDER.—Keeping the left hand and arm stiff, as in Fig. 38, move the right hand out along the dotted line, and turn the head (chin in) to the right. Begin with the right-hand thumb up.

Do the same exercise, but as a variation begin it with the thumb turned down.

Next move the left hand similarly,

keeping the right hand stiff, and turning the head to the left.

c. THIRD EXPANDER.—Hold the hands up, as in Fig. 39, turning the thumbs in towards you. Then bring the hands down to the dotted-line position,

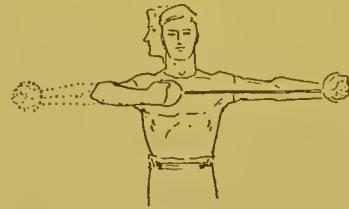


FIG. 38.

while you send the head back, and look upwards.

Do the same exercise, but begin with the thumbs turned away, as in Fig. 40.

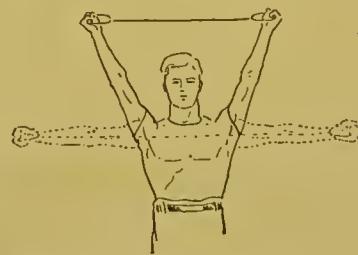


FIG. 39.

d. FOURTH EXPANDER.—Beginning with the thumbs in (see Fig. 41), extend the arms outwards, so that the expander comes not across the chest (as in the third exercise), but across the back of the

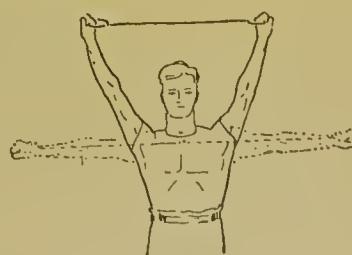


FIG. 40.

shoulders, while you bend the head forwards, with the chin in.

Do this with the thumbs out (Fig. 42).

e. FIFTH EXPANDER (FOR BICEPS, TRICEPS, and SERRATUS).—Take up the position of Fig. 43, then send the head and trunk well back, the left arm up, the right

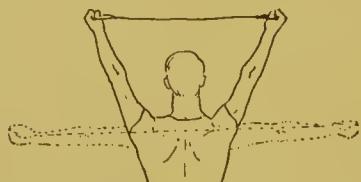


FIG. 41.

reason why it should be treated too seriously. There is about it not a little that is ridiculous, and an exercise to develop the sense of humour is as important as one to develop the biceps. Many exercisers take themselves too pompously. The face must not frown, and may smile or even laugh.



FIG. 44.

g. To SIT RELAXED. (This exercise is quite unnecessary for those whose nerves are in a perfect condition.)

Sit well forward on an armless chair, with the feet even, but slightly apart, and having the toes turned rather outwards, and with the hands hanging loosely at the side. Take in an invigorating deep and full breath (*see* the first two breathing exercises before), and, as you take it in, let it bring up and back the chest, the head, and the shoulders. Hold it for a moment, then let the diaphragm down, and let the breath ooze out of its own accord, as slowly as possible. Do not force it out. As it goes out, relax. Already the hands at the end of the loose arms should feel limp and heavy, like lumps of lead at the end of pieces of string. Now let the eyes

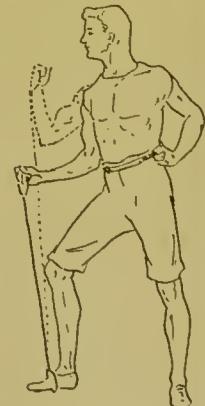


FIG. 45.

arm down, so that you are bending over the right knee. The mirror would show you the attitude of Fig. 44. Then come back to Fig. 43.

Do this with the sides reversed.

f. SIXTH EXPANDER.—Exercise the biceps as in Fig. 45, which explains itself. Press the foot firmly and securely down on the handle to prevent a slip.

Then do this with the other side.

(ix.) *Relaxing*.—N.B. These exercises are likely to have a good effect on nervous, sleepless, restless, overworked, and many other people. A fuller system will be described in a subsequent chapter. If the exercise is not done in private, we see no

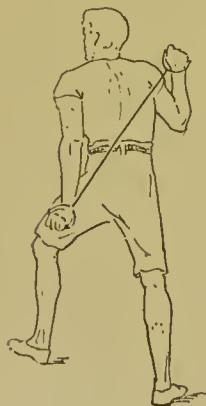


FIG. 43.

head down, but let it down. The result may be somewhat as in Fig. 46 (which shows the Editor when he began to learn from Mrs. William Archer). After a

again, but gradually—the exact process will be suggested in a later chapter—sink to the floor and turn over upon the back and stretch out the arms, as in Fig. 47.



FIG. 46.
(Photo: Mason & Basebe, Cambridge.)

short rest, rise slowly up by sending the hands backwards. First the spinal column will straighten itself, then the head will begin to lift itself. Just while you are regaining the upright position, take a deep and full breath upwards, and open the eyes.

h. To LIE RELAXED.—Stand straight, and practise the above exercise in letting the trunk sink down. Then do not rise

All the time take in slow, deep, and full breaths, and relax while you let them ooze out. Now stretch in various directions, and relax again. Try to imagine yourself sinking (not pushing) into the floor. After resting for a few minutes, and thinking quietly, rise very slowly from the floor to the attitude with the head down. Let the head be the last point to rise, as in the sitting exercise.



FIG. 47.

CHAPTER II.

WANTED : MOTIVES.

NEEDED, an Appeal to Emotions as well as Reasons—Why People make Mistakes—Variety of Motives—Comparison between Interest of Exercise, etc., and Taste of Food—We must Associate Exercise with Pleasant Feeling—Group Motives for Anglo-Saxons—To Excel in Play (Male)—To be Attractive (Female)—Other Incentives—Sense of Responsibility—Hints about First Inducements.

STRICTLY logical arguments and indisputably humanitarian ideas are great and noble things, and are a sufficient appeal to some. Thus you may tell a man fifty reasons why he should not take beer, and you may force him to admit that many of these are quite sound, and you may induce him to give up beer. Or—you may not! Because a person thinks that "we eat too much," that "we ought to take more exercise," it does not follow that he himself will eat less or move more.

The one thing needful is the emotion and the incentive. In the case of the beer-drinker, we must find what has been called the new affection, the stronger attraction, to expel the undesirable and compel the desirable. If we miss the point of contact (however trivial or even low it seems to be), we have not really convinced the person.

It is important for us to know what are the influences that are proving the more powerful, the more convincing and compelling. The extreme case of the dipsomaniac will throw light on the question of why a person does what he apparently knows to be in some way not good for him (or for anyone else).

Having examined the pronounced case and found a cause, we shall then be less unprepared to think why A, who is too fat, simply refuses to reduce his fat by proper exercise, and why B,

who always feels healthier and happier after his short Course, soon gives it up.

First of all, the dipsomaniac *remembers* that the drink has given him pleasure and comfort (or removed pain and discomfort) for the time being; he does not or will not remember that the later and fuller effects may be unsatisfactory. He has not been educated and trained to judge things by their fuller effects. He has not been taught to estimate things in true perspective, in the light of all-round results.

Secondly, habit has established, as it were, a deep groove, along which his thought instinctively runs. The desire to feel happy or easy, or less uneasy or less unhappy, is a decidedly right desire; we have called it elsewhere the divine tendency to restore poise. The beginning of that deep groove, then, is healthy. But the groove now goes on in a wrong direction, as in Fig. I, the unpleasant

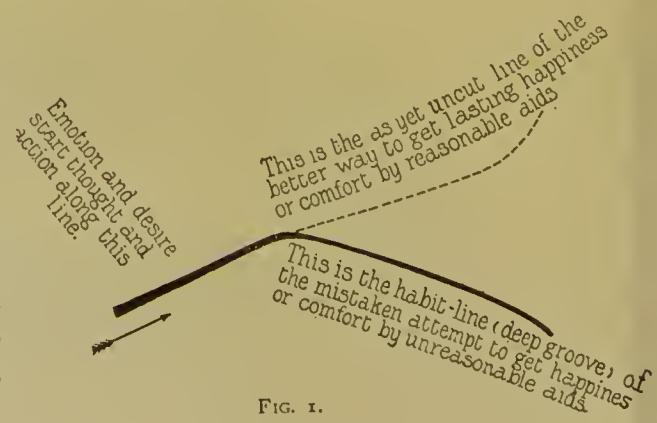


FIG. I.

feeling being removed only for a time and in an unreasonable way. It is a deep groove, and the difficulty is to turn off out of it, and to cut one's path over unknown ground, then, having found a fairly reasonable track, to repeat and repeat it until it becomes a deep groove. The trouble and failure is due to this—it takes patience and some effort to find the better track, and still greater patience and perseverance to go over it again and again until, dot by dot, one has turned the dotted line into a thick black line.

The value of the attracting charm is to stimulate one to this patience and perseverance, until the new habit is established and associated with a more satisfactory happiness than the old one was.

To convince an individual reader, then, so that he or she will not only try some exercises but will also continue those that are good, we must mention the right motives, and urge people to keep these in mind as tonics to the will.

Now, some people seem to have no motives to which we can appeal. Mr. Monsell has sketched two types (Fig. 4). How are we to connect any reasonable exercise with any of their aims and ambitions? Other people seem to have nearly all the motives. With these it matters little what we say to justify Physical Education. By a kind of instinct they are almost sure to try the right thing when once they hear of it. Most people, however, have only a few motives, perhaps only one that is positively strong and compelling. And this motive differs with different individuals.

The Editor remembers an excellent example. In America he wrote several articles about simpler foods, showing how often they, when properly selected, tended to health, and self-control. He re-

ceived no letters of inquiry. Then he wrote one called "How to live on a dollar a week" (the title, which should have been "How I can live," etc., was altered by the Editor), and in this article mentioned milk proteid as a cheap food that he himself had found nourishing. At once he received dozens of letters of inquiry, many of them from rich managers of large businesses. The appeal to money-saving, and the mention of a definite food, had succeeded where the higher appeals had failed. On the other hand, a paper like *The Herald of the Golden Age* induces numbers of men and women to try a change of diet for humanness' sake, without insistence upon economy. That same very outspoken appeal to humanness has alienated hundreds who have eventually found the simpler foods helpful, having tried them because they thought they would improve, let us say, brainwork or athletics. Truly, to everyone his motive.

The most striking comparison which science offers is that of the taste of food. We might almost say that attractive taste is to the digestion what attractive motive is to the mind. Pleasantness is largely an individual matter. What's one man's pleasure—for instance, a classical concert or Gorgonzola cheese—is another's *ennui* or abhorrence. *Ennui* and abhorrence are literally and chemically poison to the blood and therefore to the whole body. But Pawlow has conclusively proved that certain pleasant tastes invariably arouse a strong digestive juice in the stomachs of dogs, a valuable juice which perhaps nothing else arouses. Tasteless or unpleasant foods, therefore, do not secure this juice. His general conclusions—referring to experiments with the gastric juices of dogs—may be summarised thus :—

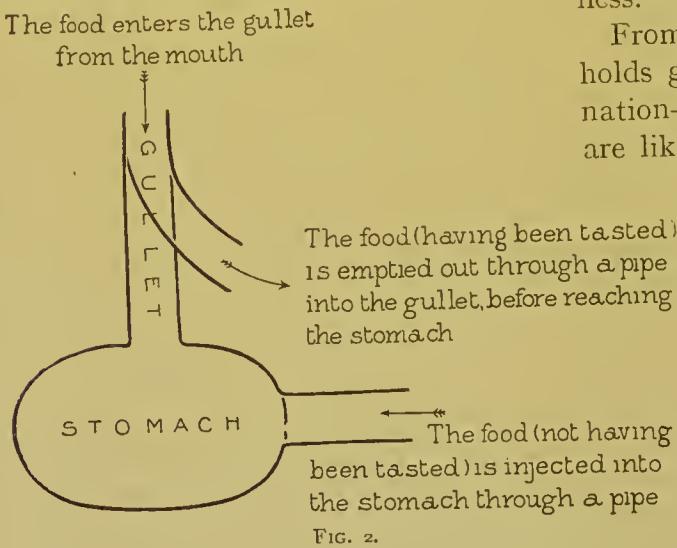
1. Pleasant taste arouses strong gastric

juices very soon. (Everyone knows how it encourages one to eat.)

2. Pleasant taste may be in the food itself, or may be added to the food (*e.g.* as a flavouring).

3. Reasonable hunger as the result of a stomach-holiday also arouses strong gastric juices quite soon.

4. Some foods, however, such as milk, arouse a gastric juice (not at all soon) apart from taste—*i.e.* when they are



injected directly into the stomach and not through the mouth.

Apply these results to exercise, and we see the *possible* value of motive, etc., in ensuring proper effects of exercise, as well as (like taste) in attracting to exercise. It may well be that, correspondingly :

1. Attractiveness may help us to take exercise, and to digest and assimilate it —*i.e.* to get proper benefit from it.

2. Attractiveness may be in the exercise itself (as in games for some, gymnastics or swimming for others, etc.), or may be added to the exercise (*e.g.* the desire to have a large biceps, to be healthier, and so earn more money, to be better-looking).

3. Reasonable intervals as the result of muscle-holidays may have effects similar to fasting (*see 3*).

4. Some exercises may produce some benefit apart from attractiveness—*e.g.* right breathings, good trunk-movements, certain relaxing exercises, etc.

With regard to 4 especially, it may well be that habitual use will associate these otherwise unattractive exercises with attractiveness—for example, if they help to cure fatigue, constipation, or nervousness.

From this last principle, in so far as it holds good, we have a vital rule for the nation—namely, that such exercises as are likely to be decidedly healthy *per se*,

for nearly if not quite everyone, should be made into *habits associated with satisfactory feelings* as early in life as is safe and feasible. Of course this applies to mental and spiritual, as well as to physical and hygienic exercises (such as regularity in going to open the bowels).

But what of people who are no longer young? Well, either they must drill themselves as if they were ungainly recruits, or else they must find interesting motives. There are many examples of movements admitted by all authorities to be very healthy when rightly performed, but in themselves uninteresting (except, *e.g.*, to children as part of a drill set by a sensible and keen teacher). But what will induce a weak-willed man or woman to practise them?

Now we come to the opportunity for the added flavouring, the attached motive. Let us suppose the man or woman to be a Lawn-tennis player, and the woman to be one who has seen R. F. Doherty serving at Wimbledon, and has admired the gracefulness of the positions. Here

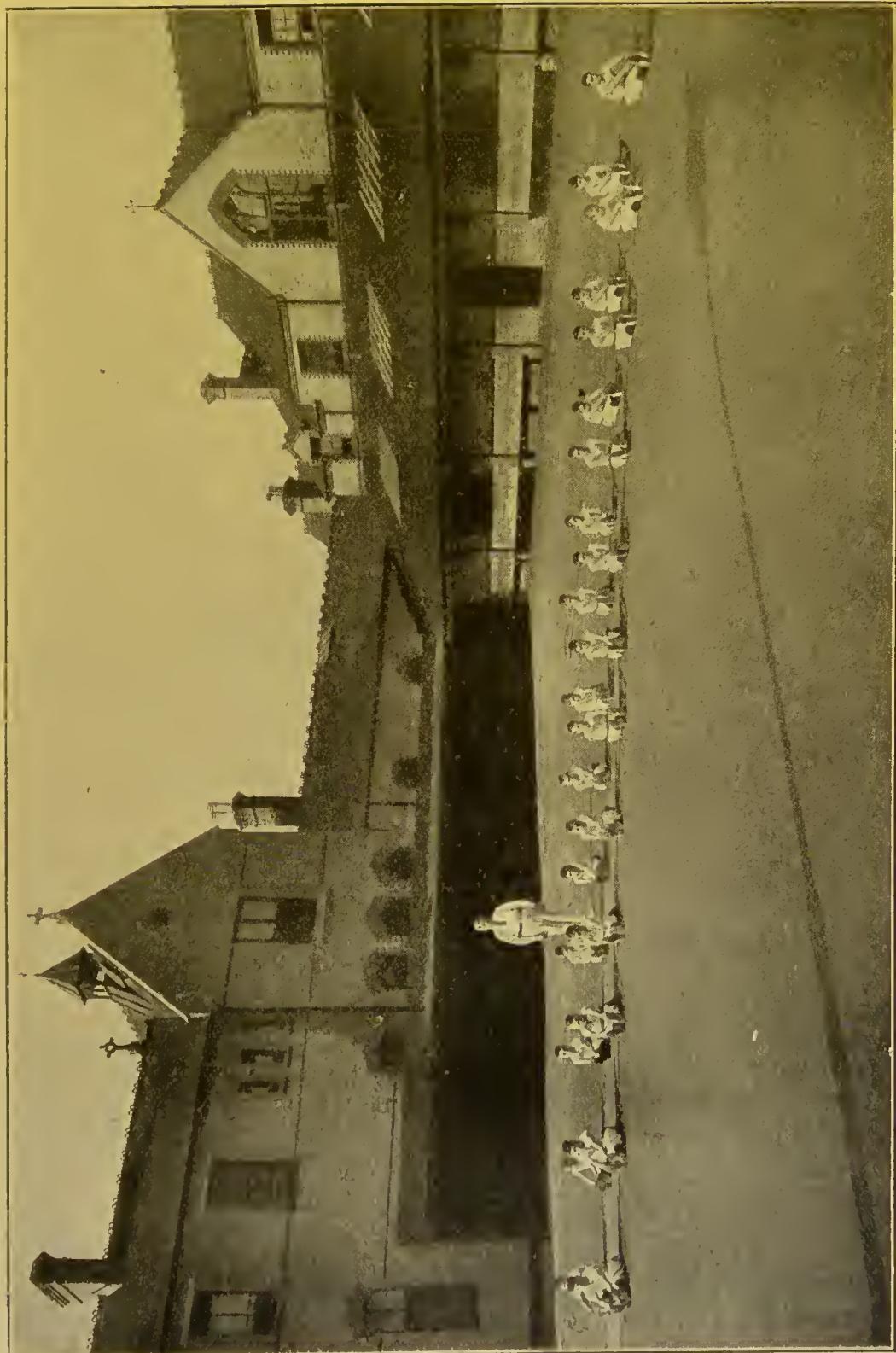


FIG. 3.—ROWING DRILL AT ST. VINCENT INDUSTRIAL SCHOOL,
SUCH EXERCISES MIGHT NOT INTEREST MANY ANGLO-SAXON MEN AND WOMEN.

we have a similar exercise with an attraction—and, for the woman, two attractions. Another man may be more likely to imitate some bowler, as in the exercise suggested later.

In such cases we have either a game itself, or else the desire for success in a game, as an incentive to a Physical Education. This is not the best, but is far better than nothing. It would be

the exercise-habits become part of the self. Or else they have become unnecessary owing to his perfect physical health.

Now, in our search for compelling motives we shall find what may be called *group-motives*. Among human motives all the world over are the tendency to imitate either a crowd or a leader, and the desire to overcome some obstacle, and, more

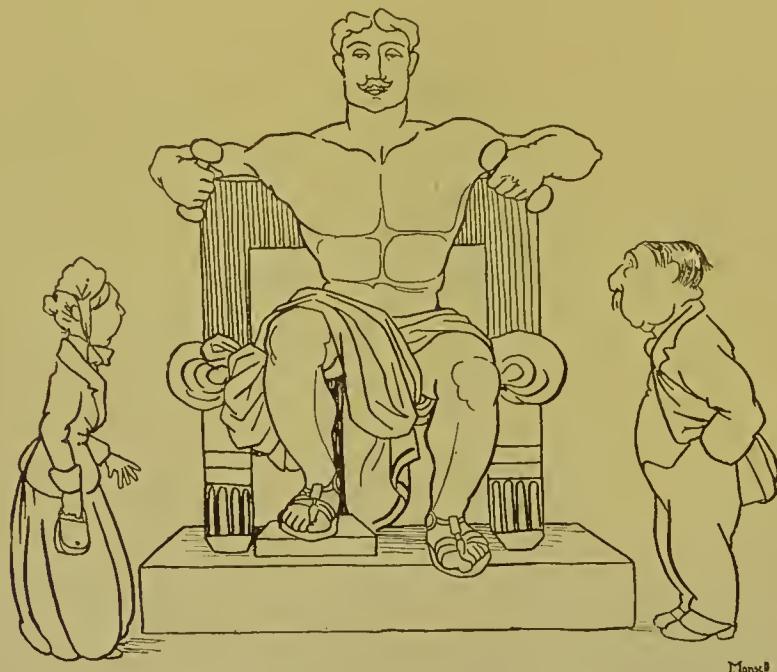


FIG. 4.—PEOPLE WHO TAKE NO INTEREST IN PHYSICAL CULTURE.

easy, in these two instances, to induce the persons to do a similar exercise with the left hand and side also.

Others may wish to succeed in rowing, and would willingly do the exercise in Fig. 3. For others drill as *drill* is sufficient inducement.

Our task, then, is either to offer good physical habits direct to children and their elders, or else to offer to the elders motives for similar habits—habits perhaps slightly modified by judicious compromise. Only, we are sure that there is something wrong about them for that particular individual unless after a time

widely, to be a cause and to experience an effect.

Among what may almost be called Anglo-Saxon male motives one might suggest the love of competition, at first against others, then against the present self and its standard, or against an imaginary opponent. The golfer who plays against bogie is an example of the last. Among American male motives often is the yearning for more money. In the most active type of Anglo-Saxon boy and young man, we may see the strong liking for athletic success. In many girls and young women the craving rather is

to have an attractive appearance, and more than a dozen teachers of Physical Education have recently secured most of their female pupils through promises of beauty and gracefulness. Individuals—and, indeed, increasing numbers of associations—are striving to raise the standard of the world's self-control or health or happiness. This is the match that lights their fire.

According to the motive, so will be the beginning of Physical Education for the majority of those who are no longer little children, and will not obey the commandment to become like them. There are hundreds of starting-points, some perhaps positively ridiculous or even dangerous in the eyes of theorists. Future years will see the number of starting-points increase rather than diminish. Some day there will be some real and telling appeal obvious to every person and leading towards the same goal—towards easier self-control and pleasanter self-expression. But that day is far off, and space would forbid us to cite them all, even if we knew them. The best we can do here is to select a few of the commonest and strongest, and try, as it were, to switch Physical Education on to these.

One of the finest is the feeling of all-round fitness, of energy well in hand to be turned in any good direction, in contrast to the unpoised energy which clamours for expression in directions that will hurt both self and others. But how few remember the feeling so vividly—how few have experienced it so often—that in order to regain it, or never to lose it, any and every sacrifice is worth while—even a ten minutes' "Course" !

Where this appeals to tens or units, the earning of more money appeals to hundreds or thousands, either for its own sake or for the sake of what it can bring—food, clothing, housing, rest, enjoy-

ment, culture, help for others. We shall show in the PHYSICAL EDUCATOR that "health is the first wealth" (for the healthier the man the better his work and pay), and also the first economy (for the healthier the man the smaller his expenses in doctors, drugs, stimulants, pleasures, holidays, and angers and worries).

On two other incentives which, though perhaps not so common, more often lead to training and health than does the desire for money we have already touched. The first is athletic success, or, rather, some particular athletic success. It would be useless to tell a typical Eton or Harrow boy that a certain exercise would improve his Baseball, or a Groton boy that another exercise would improve his Cricket, or a cyclist racer that another would improve his gymnastics, and so on. We must find the special form of athletic play which attracts, and then devise for that play such exercises as may lead to improvement in all-round athletics as well as in health. That must be the starting-point, which, however, we hope will lead to a more harmonious development afterwards, when once the plunge has been made.

Then there is that most neglected or, at any rate, disavowed motive, the pride in the appearance. Why disavowed? We have such silly shame! On Sundays we hear without a blush that our bodies are the temples or churches of the perfect Spirit; we do not shrink from decorating our churches with costly clothing. Our bodies have an equal right to clothing that is tasteful as well as clean, and—thank Heaven!—a better plan of ventilation. Our skin should be clean; our whole outside pleasant to look at, as beautiful and graceful as we know how to make it. This is no plea for distortion by clothing, but a plea for all that is *both* charming and healthy—or at least not

very unhealthy. Of course, there is a terrible extreme of foppishness and vanity, more odious in males than in females, but one may doubt if it be a worse fault than that utterly gloomy unattractiveness or even repulsiveness which is a blasphemy against the true idea of religion.

There is little harm if a woman seeks health—good figure and carriage, lovely complexion and expression, athletic fitness—primarily in order to win or keep a man's admiration ; or, *vice versa*, a man to win or keep a woman's. In either case the result—fine children—will justify the first incentive. But it would surely be well if we taught *responsibilities* far earlier than we do. Too frequently the mother and father do not realise them till the first child is born—perhaps born to misery.

Why this idiotic prudery ? Its main result is to breed carelessness. The girl and the boy think—if they think at all—“ Well, it's only myself who will suffer if I make this mistake.” The young man who is going to be a sculptor or an author does not blush when he tells what he is going to make ; neither does the architect and builder, nor the engineer. They can simply say they are going to make or create something. But when it comes to the most important creation that most of us expect to make, *nous avons changé tout ça*. Even to hint at it calls down the abominable “ Hush ! ” of the ignorant elder. As to answering that it was partly for the sake of your possible children and their children that you trained and took care, can anyone conceive it said in society ?—

“ Why do you go through that Course, Mr. Jones, and not drink wine, or smoke (or whatever it is) ? ”

“ Partly because I may be a father one day.” Imagine the consternation in a middle-class drawing-room !

We know well enough on whose conduct the future of the race depends. We know where all the coming generations are already in the making. We know, also, how the privilege of responsibility appeals to those who are touched by no other plea. We know how a boy or girl in the slums seems hopelessly degraded till we put a younger brother or sister in his or her charge. We know that the paternal and maternal instincts are there, and would be a saving help. But when it comes to applying this principle more widely, so as to induce people to train by appealing to the highest of all human motives, we become worse than mute.

Indeed, one might almost say that the more important any given thing is for the real happiness and welfare alike of individual, of family, of society, of the nation, the less carefully the State and the home train children for it. Even if the matter is considered from the fear side only, were it not worth while to reflect that if a man and woman are going to be to all intents and purposes multiplied by five or ten within a half century, it will be a terrible thing for them to be betrayed and have their weaknesses exposed to the public gaze ? As it is, we never consider that to crowd the land with unhealthy children is an offence to be ranked on a par with slow murder, and in no way above suicide.

But to return to what are considered “ practical ” inducements to Physical Education in one or more of its many good forms, let us conclude with a few hints.

1. Get ambitions, and especially at least one physical ambition, whether it be athletic success or a healthy appearance, etc. It is not the real end, but if it leads in the right direction, and if it is your motive, imagine that it is

the real end—for the time. Realise the responsibility.

2. Keep a record of progress.

3. This may be easier if you buy—or, better still, make for yourself—some apparatus which will be a reminder and incentive, and perhaps a help to correctness. A personal teacher at first will serve a similar purpose.

Eventually, however, you must become as independent as possible of external props, either because the exercises have ceased to be necessary (*e.g.* restoring the trunk-muscles to normal strength), or because they have become almost automatic habits (*e.g.* deep and slow breathing), or because they are in themselves so attractive as to be pleasanter to do than not to do (*e.g.* games well played), or

because they are regularly and habitually associated with satisfactory after-results (*e.g.* the trunk-turning, with an easy movement of the bowels).

Only—find motives, and strong ones too. Depend upon it, man will not get to Heaven without exceedingly strong motives. If you have not a strong enough will to drill yourself, then find and constantly call to mind the desire to win some good thing to which a sensible Physical Education is seen to be a real means and help. For where the desire is, there will the heart and the mind be also. And if the heart and the mind are set upon sensible all-round health, no one in the world can possibly be the loser by it.

Against such motives there is no law.



Highbury Truant School: THREE LEADERS IN GYMNASTICS.

SIZE AND SENSATION OF MUSCLES AND THE RESPONSIBILITY OF LEADING ARE USEFUL MOTIVES.

CHAPTER III.

GAMES IN GENERAL, AND BRITISH GAMES.

What's in a Game? Depends largely on the Player—Games must be played keenly—The Play of Animals, Babies, Men—Value as Outlets of Energy, Recreations, Mental Training, Moral Training, Physical Training—Cricket Movements as Physical Culture—Objections—Suggested Reforms, especially better Preparation and Practice—Games not complete Physical Education—Must be Supplemented by Special Exercises—Must be Adapted to People in or near Cities—Tests of Good Play.

TO some it will seem waste of time to say anything about games except that many people play them too much, since “a game is only a game, after all.” But that leaves us undecided as to what a game really is, what it does for us, what it might do for us.

“A stick is only a stick, after all.” Yes, but what is a stick? That mostly depends on the possessor and user; the ordinary person has no conception of the many values which it may have as a means of Physical Culture; he has no idea that it may be used as a wand for wand-drill, as practice in Fencing (especially lungeing), as practice for strokes at Lawn-tennis and other games (as Mr. H. S. Mahony and others have used it), and so on. Until he is told, he will not believe.

So it is with other athletic games—for example, with Cricket. The diagrams in this article show a few positions and movements of cricket experts. It is probable that simply as *physical culture* they are not far inferior to those of gymnastic and scientific drill. It is probable that the *correct* positions and movements for the best six games (played left-handed as well as right-handed) would be nearly equal to Physical Culture, as those of gymnastic

drill, except for remedial purposes. But the public does not know this.

So with the inclined plank. It may give good practice in foot, leg, shoulder, and trunk movements, in balances, extensions, jumping, vaulting, and so on. But to most people it is “only a plank.” We are forced to explain at great length what may be the value of athletic games, before we proceed to suggest how the reader may improve his standard of play and increase his opportunities of play.

Is this necessary? you ask. Is it not a commonplace that games in moderation are good? We call attention to the crowds that watch the few who play Cricket and Football, but do not themselves play. Their laziness is by itself proof enough that they do not value Cricket and Football at all highly; if they did, they would certainly play and train for play. *The vast majority of Anglo-Saxons do not play athletic games.* And we believe that they have never seriously considered the possible merit of reasonable play. They have taken far too low and narrow a view of it. If we can justify play and practice for play, these few pages will not be wasted.

“What's in a game?” is a question discussed and “decided” from time to

time in the newspapers and elsewhere, and almost invariably the many different forms of games and athletics are classed together *en masse* and then praised or blamed as if they were some simple and more or less homogeneous thing, like all-woollen underwear for the body. As a matter of fact, in so far as we *can* speak of games in general (without asking "Which games?" and "For what classes?"), are they frivolity? Are they acting or an art in some way akin to acting? Are they an outlet for superfluous physical energy? Are they Physical Education? Are they preparation for "serious" life? Are they a kind of mental and nervous food and tonic? Or are they a blend of two or more of these things?

There is, indeed, very great doubt and haziness as to what our games in general are or should be, and what they do or should do. It is possible for games in their due place to be the exercise ground for nearly the whole of man's best and most useful nature and faculties; it is possible for games to be an education, physical and hygienic, æsthetic and

individual appeal: "Are your games, or could they be, or should they be, *to you* either this or less?" It seems undeniable that the whole national attitude towards games must eventually depend on how the majority answer this question.

For not only the critics but also the admirers of athletic games—and we shall deal only with such games in this article—are wont to forget this one thing: that the merit or demerit of play depends chiefly upon the player—that is to say, upon the way in which he regards his play, the way in which he prepares for it, the amount of time and money he gives to it, the way in which he behaves during it, and afterwards. If the player manages to keep a reasonable poise, letting the game occupy his mind and body in proportion to its importance *for him* (since it is always an individual matter), then the game is one of the very best of inheritances, and a field to be cultivated with carefulness and pleasure and pride. But if the player loses that poise and sense of proportion, so that, for example, he either thinks that success in play is success in life, and abundance of play is abundance of life, or else thinks that play is a thing to be performed often indeed but without preparation, without concentration, without spirit, then real censure is perfectly fair. Yet it must be censure of the player, not of the play.

The sight of the latter person, the "slacker," is disgusting to a true sportsman, but meets with less of the practical world's contempt than does the sight of the man who has "slackened" in the sphere of money-making. It may be that the average game-player—say the Cricket amateur or the Football professional—is useful to the nation because he has a healthy body and an honourable mind. The same cannot be said of the average

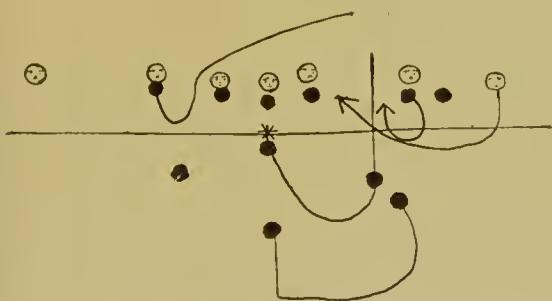


FIG. I.—THE BUSINESS OF AMERICAN FOOTBALL.

One of over fifty diagrams of team-tactics, showing the elaborate co-operation mapped out for each player.

artistic, recreational, intellectual and commercial, social, and others besides. In the face of this possibility, we are driven to explain just what they *have been to us*, and then to make the in-

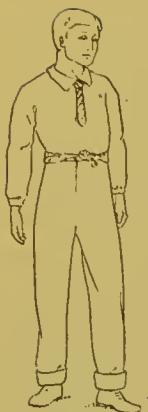


FIG. 2.—THE SLACKER.

millionaire of commerce. But whether the pursuit be commerce or athletic games, the fault rests mainly with the person and his way of regarding and treating his occupations.

Hitherto people have applied curious standards to play, and have been guilty of much loose thinking. A few examples will show the need of new evaluations.

Chess—played perhaps in a badly ventilated room—is considered worth preparing for, and doing with heart and soul at the time. So is Bridge, thousands of hours being devoted to it by many men and women. Singing and acting are also thought to deserve methodical practice and concentrated attention, even when they are not going to be the means of earning a living. This is still more true of piano-playing, of which one of the "serious" or financial values, at least for a woman, is that it may (like good dresses) help her to marry.

These few out of many instances will show that orthodox and conventional people do not grudge much time and trouble spent in practising to get correct mechanisms for pursuits which, except for well-taught singing, have no great physical value. It must be noticed that the practised mechanisms will eventually become easy and half automatic and nearly unconscious—a point never to be forgotten. To the above list we might add the learning of foreign languages as accomplishments which may afterwards have no "serious" or financial use.

The Editor went through a little of all the above courses when he was young, and enjoyed none. Indeed, it almost seemed as if "serious" life, with which play is so often contrasted, was

that which is not to be enjoyed. Its aims and effects may be *nil* or else positively harmful, but if it is customary and unpleasant, like black clothing, then it is "serious" life. In it there must be no *abandon*, nor any distraction. There must be spent on it as much time and drudgery as possible.

Now we believe that no healthy animal or child treats a game as a thing worth doing badly. The photograph on the next page shows the typical expression of a dog ready for play. The dog would not enjoy himself—not get even the physical and muscular satisfaction out of the play—if he "slackened." The animal is for the time devoted to the play, even if that play be, as Sir Lauder Brunton said in the *Manchester Guardian*, "abrupt, erratic, and constantly varied."

And the play is worth doing for its own sake: that is a second feature.

Yet the play soon begins to have rules that enjoin restraint. The dog must not really bite his hardest. Already the art of play has its canons.

As Professor Karl Groos has said in his "Play of Animals," we cannot understand what play is until we study the games of animals and children. Whatever their play has, he says, our play is likely to have also, but in different proportions, with more intricate regulations, more self-consciousness, and, we may add, better adaptation to the needs of the life of adults to-day and to-morrow. For there is in play a prophecy of fairer and wiser competition than yet prevails anywhere else.

The play of animals resembles both our athletic games and sports and our Physical Education in the narrower sense. When a puppy plays, he enjoys himself (if only to the extent that he is practising excellent movements to prepare him for health and life. Professor Luther

Gulick's remarks may be tabulated as follows :—

I.—PLAY OF ANIMALS :

1. Simple.
2. Instinctive.
- 3: Centring in self.

II.—EARLY PLAY OF MANKIND :

- More complex.
- Less instinctive and more consciously arranged by intellect.
- More in relation to others, by co-operation as well as competition.

What the previous generations have

that in Physical Education (in the narrower sense) there is less freedom and *abandon*.

CHARACTERISTICS OF SOME PLAY
(AS DISTINCT FROM SPECIAL PHYSICAL EDUCATION IN THE NARROWER SENSE).

1. Attitude of mind. Play more often recreative and sought for its own sake rather than in order to develop faculties, etc., consciously ; play also nearer to acting, in so far as there is in it an unconsciousness of make-believe.



FIG. 3.—A DOG READY FOR PLAY.

(Photo : Mason & Basebe, Cambridge.)

done in real life, whether fighting or courtship, etc., this the young tend to do in play, which thus is a valuable inheritance, a fascinating preparation for life, a healthy, conservative influence, and with men not the worst form of hero-worship.

Now, however, among men we find that play and Physical Education—generally so indistinguishable among animals and primitive peoples—can often be distinguished, especially by the fact

2. In play, greater freedom of self-expression and less obedience to word of command to execute a clearly defined movement.

3. In play, less completeness of development, even if certain muscles are of the right kind.

Needless to say, if we accept these distinctions we must re-classify much—for example, compulsory Cricket, if it is a bore, might be classed as (very inferior) Physical Education, whereas Swedish

drill, if it is a pleasure, might be classed as play. But whatever definitions we adopt, *our play*—in contrast to the play of animals and of natural children unhampered by wrong air, wrong clothing, wrong food, wrong thought, etc.—*is never a complete Physical Education.*

This does not mean that it is to be despised and neglected. It is just as important as any “serious” occupation. It means that it is to be recognised at its value. If we would understand some of its value, we can hardly do better than study healthy babies and note how their natural actions are a training for life, especially for physical life and health and hobbies. Professor Gulick alludes to

“the spontaneous kicking of the baby, the movements with the whole arm—often symmetrical—the bodily squirming and movement of the baby; the hand-movements, the clasping movements, the movements of the head; all seem to form the play-life of the baby. The baby,” he says, “rapidly progresses to playing in more complicated ways; to pick things up and drop them, to play with sand—piling it up and digging in it with the fingers, scooping it with the hand, digging it with a stick, sticking little sticks in it, covering things up with sand, and a marvellously numerous group of things—burrowing, digging, making little imitations of things. He soon loves to play with blocks, pieces of wood, sticks, straws, anything out of which he can construct something. He will take delight in running, running from one thing to another, running and throwing his arms at the same time. Throwing a little later acquires interest, and to throw a ball engages his passionate interest. To cut things with scissors or with a knife is the basis of a whole group of activities of a play-nature. Swinging in various forms he loves to do. See-saw interests all children. . . . These activities, these plays, having once entered into the life of the individual, remain throughout life of a greater or lesser degree of interest, and further interests of a similar character come in. . . . He will build . . . he will row and swim and run and jump.”

It is the variety, the variety in the play and in the mind and body of the player, that makes it so hard for anyone to speak generally about play without arousing in readers the thought, “With *me* this is not so—or, was not so.” The play of different nations, different classes, different sexes (though some games are good for both sexes—e.g. Lawn-tennis and



FIG. 4.

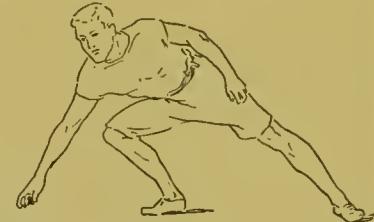


FIG. 5.

CRICKET. CORRECT FIELDING AS PHYSICAL CULTURE.

Vigoro and Golf), different ages, and so on, present vast varieties; indeed, one sees little connection between the child’s attempt to throw a ball and a Football match between Harvard and Yale, except that both are exercise.

Luther Gulick, continuing the ideas summarised in the table on page 25, defines the later play of mankind as:—

1. More complex, and admitting finer and more elaborate work for body and intellect.
2. More consciously sought and practised, though the ultimate aims may not be understood.
3. Less self-centred (this does not apply to “single” competitions; the individual is a co-operating member of a group, and some self-sacrifice is desirable).

He says:—

“These group activities involve not merely the subordination of self and the elevation of the group, but the pursuit of a distant end by means of definite steps, usually indirect, having a more or less definite program; they involve obedience to a leader, even when he is definitely mistaken; involve self-control, loyalty to a group as a whole, and, in varying degrees, the despising of pain and of individual discomfort. These qualities appear to me to be a great pulse of beginning altruism.”

It must be remembered, by the way, that animals also have group play that includes self-sacrifice.

These are some of the varieties of athletic games. In face of them, is it profitable, or even possible, to define games and athletic play in general? It may help to clear the reader's mind and enable him to judge better for himself, if we offer not a definition, but a few common characteristics.

1. Play is usually an imitation of a "serious" reality. It is almost felt to be a serious reality at the time, but if it is entirely felt to be so, if self-restraint is lost in the direction of violating laws or etiquette, then the exercise passes out beyond the borders of play.

2. Play is usually a preparation for a "serious" reality—physical health being a serious reality, if ever there was one. Good play is training—physical and hygienic, artistic, intellectual, social, and moral.

3. Good play is in itself and for its own sake so interesting and attractive that, even while it may be nearly an all-round education, this aim need not be present. Its attraction is partly the instinctive pleasure in moving, in altering things, in overcoming obstacles or opponents, in expressing one's self, in "being a cause."

As to whether we shall play or not, and, if we shall, what we shall play and for how long; how much we shall practise for play, how much we shall think about play; how far Government or private philanthropy shall encourage play and provide for it; and so on. The answer to all these questions depends on the all-round value of play. Let us, then, away with false scales and price things fairly.

Somehow, it is considered to be highly "improper" to allude to the future life

in polite society; it is almost as indecent as to allude not to the headache, but to the constipation which caused it.

Now all orthodox people admit that an important question is, What shall we take out of the world as parts of ourselves? Perhaps not—What muscles? but certainly—What qualities? Well, *if we cut out from these qualities those of which play has been, or should be, the chief and pleasantest developer, we cut out much of our very best.* The Editor, for his own part, would be reluctant to start any life without the qualities which he has extracted from play and from play alone. Let us not be ashamed to imagine ourselves, with Plato, as we may be after physical death. Then, looking backward, decide what is or is not worth while *now*.

From this point of view it matters more that we have won a game fairly by getting over bad habits (such as bad temper), or have lost a game fairly, and then have set about getting over them, than that we did not double or treble our income and so hand down to our children what might be called an easy incompetence. Excessive play may lead to loss in money and morals as well as in health and intellect. But deficient play may lead to still greater evils, including a state of mind unhuman, un-animal.

As to the loss of money, it must be remembered that there are other ways of making money (and what money can bring) besides "serious" occupations. and other ways of saving money (and time and energy which can bring money) besides so-called "economy." If good play has taught a man or woman honour, pluck, patience, poise, sensible obedience with sensible open-mindedness, promptitude, thoroughness, concentration, and perhaps something of organisation and tact, then that individual, in addition



FIG. 6.—CATCHING.

to attractive appearance and a certain air of gentlemanlike self-respect, has a certain money-earning asset, as the heads of commercial houses have often proved by their choice of employés. Besides this, it is in play that one most easily meets the influential people whom one wishes to meet.

The harmless outlet for physical energy, the tonic of the enjoyment itself, tends to better health and therefore to better work and fewer bills from doctors and druggists and others.

Many of these fine and useful results come from play even as it is, with all its obvious excesses and other faults. And, whatever these faults may be, we must remember that it is generally not a choice between play and church-going or between play and museum-visiting or play and free-library reading. The individual who plays—as distinct from the loafing watcher who watches every competition except a dangerous battle—is not, as a rule, the individual who would otherwise choose to hear sermons or read philosophy, or even practise Sloyd. As to the failures of many churches to attract the best of these young men, a very outspoken American has said forcibly, though with noticeable exaggeration :

" We have demanded of childhood the thought and religious expression of adult life. We have expected young men to have the same religious life as old women. In our prayer-meetings, churches, and religious writings we hear chiefly of rest, joy, peace, temptation, prayer, trials, resignation, trust, sense of sin, atonement [repentance], love to God, hope of Heaven . . . all involving first introspection and analysis of feelings. . . . Whatever the individual members may be and do, yet the Christian [orthodox] life has not been regarded as involving loyalty

to one's city—*e.g.* her streets, her sick [and deformed and physically uneducated]. Yet . . . the instant response that young men give to occasions of objective need is superb. To rescue life, to save a sister's honour, to right wrongs, calls for and secures enthusiastic devotion from real men. . . . The religious life and thought of the last twenty-five years [this was written in 1900] has not, save in a single direction (the missionary), laid emphasis upon the capacity for that heroic subordination of self to the group, that we have seen to be one of the chief characteristics of the Anglo-Saxon young man. We must appeal for high activities if we want high qualities. Capacity for devotion, heroism, self-sacrifice, nobility, is not dead. It needs the adequate objective demand."

We quote this at length, because too frequently the leaders of a Church as well as the leaders of "Education" have inveighed against play. We are not going to defend excessive play. We are not going to assert that in the millennium there will be play, though Swedenborg says he saw tennis in his vision of the real heaven. We do, however, maintain most strongly that if representatives of a Church, or of "Education," or what not, really desire to remedy excessive play, *they must provide an equally or more attractive outlet and expression* for the young and middle-aged Anglo-Saxon's most characteristic instinct. Results prove conclusively that hitherto they have failed to do this, and careful reflection will show that, of all *attractive* outlets and expressions for such characteristics as the lust for competition and mastery, play is among the least harmful.

We should also urge these reformers to beware lest, while they stop some of the exaggeration of play by the few, they also stop moderate play by the many. Would it not be far



FIG. 7.—TURNING AT THE CREASE.

better logic, far better policy, to appeal to mankind and womankind thus: "We, the representatives of such-and-such a Church (or Education), include *all* harmless helps towards the development of certain qualities. If play really develops these qualities, then so far are we from tabooing such play that we admit it to our religion (or Education), not as a resident alien, but as a true-born son of the land. What we call prayer or praise is, of course, religion ; but this play is religion also."

Only by such a manifesto can any scheme to-day hope to appeal to the most "healthily aggressive" Anglo-Saxons, though it should be made clear that the competition should eventually be not so much against an external opponent as against the internal one —the self at its present standard.

We may, for argument, assume that play, chiefly in the form of British games and athletics modified to suit existing conditions, is "worth doing." An entirely different question is whether this play is worth doing badly; and, if so, why? Why should this play be so, and not chess, piano-playing, or, let us say, painting or sculpture or dressing or catering for the taste? In playing games, we surely *are* catering for nearly the whole man and woman—even for their digestion. We must decide that play, if it *is* "worth doing," is worth doing well, and therefore worth sensible study, preparation, and practice. *After* such carefulness we should probably play so much more successfully, with so much more of ourselves, with so much more satisfactory and pleasant self-expression, that the

small tedium at the beginning would never be regretted. To practise very carefully is not the same thing as to play too seriously.

But, though it has been necessary to meet and answer such general objections to play and its supposed effect on the finances, the intellect, and so on, it is as Physical Education that we must especially estimate it here. Is the ordinary play of the ordinary player good Physical Education for muscle and nerve in particular? We must state at once that in our opinion it is *not*.

Though, as Mr. C. B. Fry remarked, our play generally produces the right sort of muscle (and nerve), the sort we want people to have, yet it leaves too many muscles unused or insufficiently used, and especially the muscles of the left side, and—when the movements of the play are

half-hearted or inaccurate—even of the trunk. The benefits are to a great extent either incidental (the good air, green turf, surrounding scenery, etc.) or mental (the discipline and habits of mind) rather than physical (symmetry, permanent breathing capacity, muscular repose, etc.). While we admit that the genius-player profits much, the duffer-player profits comparatively little.

For example, contrast the magnificent movements involved in the correctly performed backhand-stroke at Lawn-tennis (Figs. 10 and 10A show R. F. Doherty at the start and finish of the stroke) with the feeble wrist-stroke of the average player: a stroke made with the wrong position of the feet and trunk, and without the healthy, graceful, powerful body-swing.



FIG. 8.

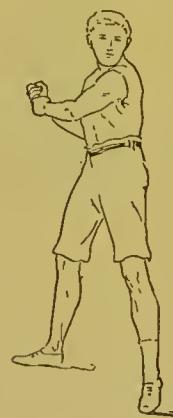


FIG. 9.

PLAYING FORWARD AND PULLING AS PHYSICAL CULTURE.



FIG. 10.—BACKHAND DRIVE (TOP BEING PUT ON THE BALL).

(From "Lawn Tennis," by R. F. and H. L. Doherty).

Let us, then, take up a brief for British athletic games not as they usually are to-day, but as they could and should be—*i.e.* as play prepared for by certain exercises that are pleasant and healthy enough *per se*, and which become interesting when they suggest to the imagination parts of the play itself. One or two of these exercises (from "An Alphabet of Athletics") are cited elsewhere. Let us suppose all-round cricket (not mere batting and fielding) to have been prepared for by such exercises (which would take only a few minutes a day). In other words, let us *analyse the movements of good Cricketers, as exercises in Physical Education*, leaving the mental education on one side as far as we can. The corresponding positions at Cricket itself will be seen in photographs in "The Cricket of Abel, Hirst, and Shrewsbury," published by Messrs. Hurst and Blackett.

We might say here, in a parenthesis, that preparation for play need not be



FIG. 10A.—FINISH OF BACKHAND DRIVE.

carried to an American college extreme: there a few men spend hours in rehearsing little sections of the Football play, as well as tackling the dummy figure, somewhat as British footballers practise dropping, punting, placing, passing, heading, and shooting, or as cricketers practise batting at nets, bowling at nets, catching and fielding. We allude rather to the muscular movements that all-round Cricket involves when played correctly and vigorously. Anyone who visits a good gymnasium, or sees a good display of those free movements which (see Fig. 11) research and

experience have agreed upon as useful, will realise how similar are the following movements (of Figs. 4 to 9):—

1. Alternations of exercise and rest, for batsmen, bowlers, and fielders. This obviates strain.
2. Variety. Even in fielding alone, there is the change at the end of the over, and the different places have differences

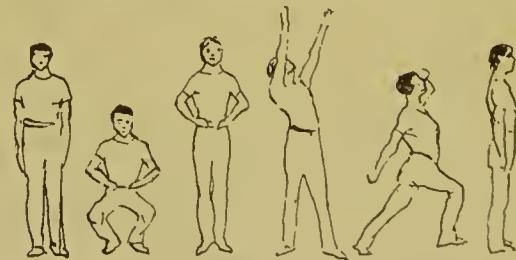


FIG. 11.

connected with them. Wicket-keeping requires pluck, constant alertness, timing, etc.

3. Squatting (for the wicket-keeper), and stooping down (for the fielders).
4. Extensions in all the play—*e.g.* in

forward-play, in bowling, in a catch nearly out of reach.

5. Readiness to start and back up (in batting and fielding), and recovery of poise after action (in batting and bowling).

6. Accuracy, rapid judgment, and pluck, throughout the play, in timing, catching, throwing, etc.

7. Finger-play in bowling, which also encourages checking (and feinting with) part of the mechanism.

8. Running, but not for exhausting long-distances, throughout the play.

9. Movements of the trunk-muscles (trunk-twist, etc.) throughout the play—*e.g.* in a pull to leg. In general, the use of large muscles without prolonged strain.

10. Weight-shifting from one foot to the other, in most of the play—*e.g.* in bowling.

11. Breathing, as a result of these movements, in the open air.

It does not seem to us that those who condemn play, whether they themselves take little exercise or take some other kind of exercise, have ever considered these excellences of *correct and full play*. Before the Government decides on anything that might in any way discourage our great games, it would be well to think whether these could not be improved and made more general.

They certainly need much improvement, for, against the above defence of correct and full play, we must set the following disadvantages :—

1. The movements are not performed thus by most players, who in ignorance or slackness take only partial or half-hearted exercise, and do not make any attempt to play the all-round game—bowl fairly well, keep wicket fairly well, field anywhere fairly well, play back and play forward, and drive and pull and cut and glide, fairly well.

2. A long time is taken up, much of it being wasted in watching or loafing.

3. A large space of good turf is needed. This and the time are expensive.

4. Good weather is needed also.

5. The left side receives far too little movement.

Somewhat similar objections apply generally, *mutatis mutandis*, to Football, Lawn-tennis, etc.

But they are not unanswerable.

That only a few of us, comparatively, spend much time and money over badly performed movements that are not as complete a drill as, let us say, the Ling system, while even this poor exercise seems beyond reach of the masses, is an evil not beyond repair. Here we need only outline some of the suggestions which will be worked out in the subsequent chapter. We think :—

I. That most Anglo-Saxons, male and female, would play enough if the games were adapted to their capacities of money, time, and enjoyment, and if facilities for play were provided—as they should be—by Government. Of the children of our elementary schools, for instance, Mr. C. E. B. Russell says :—

"The lads are turned loose into one large playground, and what happens is that the smaller lads are excluded from the real games by the bigger, and they squirm off into corners and play marbles. Let us have smaller schools and smaller playgrounds, and more of them, and regular supervision of games. There ought to be more playgrounds and more organised and supervised athletics. Organise inter-school, inter-standard games. Excite the same emulation as we have in the public schools. Let a boy fight for his colours, for his cricket cap, for his football cap."

II. That the rest would take other exercise if facilities were provided—as they should be—by Government: *e.g.* gymnasia, swimming-baths, city athletic clubs (see the special article on City Exercises), and so on. There is need of a vast

variety for choice. Much is already being done by private individuals which should have been done by the State.

III. The players (I.), and those who took other exercise (II.), would spend less time over actual play and yet would get more advantage—and, we believe, enjoyment—if they were duly and sensibly prepared for both play and other exercise by a short class-drill when very young, and by private practice afterwards. The players, if they were previously trained to perform the correct and full movements, would need to play less, and when they did play would be likely to play better, and to play with heart and soul during play-time, but less likely to think of play during hours of work.

IV. To remedy the one-sidedness of play, there would be not only the preparatory drill (III.) and the other exercises (II.), but also the fact that people would be ready to do more things fairly well. In addition, left-handed play should be encouraged by special matches.

"The waste of so many hours over games"—that is the common complaint which we have read a hundred times—is one matter. To spend time in preparing and practising for play (whereby a person might make the right play-movements easy and his very own, and not be obliged actually to play so often) is another matter. To spend time in appropriate play (cheap, brief, interesting, and active) is yet another matter. To put it concretely, let us cease from loose thinking; let us cease to confuse—

(a) The boy who on Tuesday, Wednesday, Thursday, and Saturday spends a large part of twenty hours in watching, loafing, and slack fielding, and a small part in batting (because he does it badly and gets out), and no part in bowling (because he has never been trained to bowl).

(b) The boy who on Monday, Wednesday, and Friday spends fifteen minutes altogether in preparing and practising for all-round play (see "An Alphabet of Athletics," which points out the all-round effects of these movements and compares and contrasts them with the Ling system), and on Tuesday, Thursday, and Saturday plays a more all-round game, bowling and batting fairly well and fielding quite well and very keenly.

(c) The boy who on most weekdays spends, say, ten minutes a day on exercises that will supplement the deficiencies in his play and play-movements, and who occasionally plays in a left-handed cricket-match, and who, during the holidays at any rate, tries other forms of exercises, including Squash and adapted games like indoor Hockey.

For the boy in (b) and (c) would be likely to continue his play during after-life, in moderation, and his play-movements for the sake of his play and fitness, and his supplementary exercises for the sake of that health and physique in which he is now old enough to take a wholesome pleasure and pride, if only for the benefit of his possible children.

In conclusion, let us outline the attitude which we, in this PHYSICAL EDUCATOR, shall take towards athletic play. We wish—

To find the best athletic play that is popular (e.g. Cricket) or is existent (e.g. Vigoro);

To adapt this, when necessary, for the use and enjoyment of the majority, and also to adapt it for different ages and sexes (e.g. to suggest indoor or room Cricket with lighter implements);

To add or revive or spread other forms of athletic play (e.g. Fives);

To suggest obvious opportunities and facilities for such play (e.g. clubs built upwards, storey above storey, in or near

cities; Fives-courts and Squash-courts in old buildings, on flat roofs, etc.) ;

To insist that Government is responsible for the play and recreation as well as for the work and "education" of the nation, and hence must provide facilities *for all* ;

To insist also that athletic play is incomplete Physical Education by itself, and therefore needs to be mated with Physical Education in the narrower sense ;

group to take an all-round view of the present and the prospective life, including the life as a possible parent, and to test athletic play (and preparatory and other exercises) in the light of this all-round view ; then to prepare for, practise, and perform athletic play according to its merits, but also to supplement it according to its deficiencies.

It is not by the mere size of a few muscles



FIG. 12.—RUGBY FIVES: A LEFT-HAND STROKE.

(Photo: Mason, Cambridge.)

To insist that this Physical Education shall be such as to prepare for a more successful and enjoyable and useful daily life, especially physical life and health, to prepare for all-round and more successful and enjoyable and useful play, and to supplement daily life and play, and correct their faults of deficiency and exaggeration ;

To urge each individual and family and

that we must test athletic play ; it is, among other criteria, the beauty and symmetry and sensitiveness and—if one may say so—*poise of the muscles, their habit of responding promptly and co-operatively, correctly and pleasurable and persistently to the varied calls of a pure heart and intelligent reason ; and their art of repose and recreation when they are off their active duties.*

CHAPTER IV.

EXERCISES FOR INDIGESTION AND CONSTIPATION.

General Notes on Remedial Exercises—Need to Seek the Opposite Extreme—Features Common to the Two Complaints—Common Causes—Common Remedies—Water—Relaxing—Trunk-movements—Massage for Indigestion—For Constipation—Foods—Individuality—The Mischiefs must be Removed, as in every way Intolerable.

GENERAL INTRODUCTION TO REMEDIAL EXERCISES.

WE have never yet seen a perfectly symmetrical person. Everyone has some excesses and deficiencies, not a few of which seem to be the rule rather than the exception among civilised Anglo-Saxons.

By nature the organs and the blood-supply in the two sides of the trunk are different, but, beyond this, the two sides of the face and the two hands generally differ considerably. This may do little harm. The harm begins when man, as a standing and walking animal, has unequally long legs, which tend to an unhealthy kind of spinal curvature. These and other undesirable deformities will be considered in subsequent chapters. Here we offer only a few of the simplest helps against indigestion and constipation.

Some of these helps are for good physique and health in general. Others are corrective. One might compare the latter with the extra practices and rehearsals that are necessary for the backward actors in a company, when it would be waste of time to make the whole company perform. One must, at the same time, remember the need of special relaxation and rest for those members who have worked too hard and perhaps have forgotten how to relax and rest, and may have become what athletic trainers would call "stale." Anyhow, there is need to exaggerate in the

opposite direction, just as—to repeat a time-worn illustration—there is need not merely to unfold a piece of music that has been rolled up, if we wish to keep it flat, but actually to roll it up in the opposite direction.

It would be better never to have made the mistakes, or else to have had them remedied long ago, when neither our organs nor our bones were so "set," in the wrong positions. But, things being as they are, the next best plan is to start at once, as gently and safely as possible—*e.g.* to do certain exercises on the floor (for that tends to keep the organs in the right positions)—after obtaining the advice of a medical man. The causes of both indigestion and of constipation are many, and therefore the cures must be carefully chosen. The following are useful only in general cases. If after a fair trial you find they do you no good they must be given up, and the remedy sought elsewhere.

Indigestion and constipation interact. Some kinds of indigestion increase constipation. But, more frequently, constipation increases, and may actually originate, indigestion, as is proved by cases in which the proper flushing of the rectum and colon has removed not only the constipation, but the indigestion also. And sometimes indigestion (*e.g.* caused by quickly eaten nuts or coarse wholemeal bread)

may remove constipation, thanks to fermentation and irritation, and perhaps to sheer bulk.

Indigestion and constipation are alike in many respects : (1) They are undesirable, as being causes and signs of untidiness, uncleanness, over-acidity; and the mind and character cannot but be affected. (2) They are partly dependent on the mind, especially the emotions. The will and regularity are other mental causes. (3) They are partly dependent on the muscles that hold and the muscles that move the organs. Prolonged pressure of the diaphragm upon and into the organs deprives them of free action, while stillness due to weakness of the abdominal and trunk muscles prevents the organs from churning the materials properly and then passing them on. The nerves are largely responsible for this mischief. (4) They are partly dependent on the deficiency or weakness of the organ juices (including those of the liver, which sends out its juices best when it is squeezed by the diaphragm above, and the abdominal muscles in front). Therefore (5), they are partly dependent on wrong food or wrongly eaten food, wrong drink, or drink at the wrong time, general uncleanness, etc. (6) They are to a great extent individual problems.

Some of these causes are dealt with in a special work on "Good Digestion" (George Routledge and Sons); here we shall confine ourselves chiefly to :—

(2) The emotions and will and regularity as affected by pleasant exercises and general health (which also affect (4) the juices, and (5) the cleanliness of the body.)

(3) The muscles and their careful exercise and repose.

Now, as there are certain identical or similar causes for indigestion and constipation, there are, as we should expect, certain identical or similar treatments.

For both soft water is useful, as a drink at the right time, and to flush the stomach and the colon and rectum, and to keep the skin pure, and to give warmth. Some simple uses of water will be considered in a later chapter.

For both it is good to relax muscular tension, as by the special breathing and relaxing exercise suggested on page 13. For it is well known that worry is a cause of both complaints, and this repose-movement helps to remove tension, and to remove worry with it.

For both it is good to strengthen the trunk-muscles so that they may (a) hold the organs in place ; (b) move the organs and churn and then pass on their contents. Moreover, some movements (c) massage the organs. The diaphragmatic or lowest breathing is among the best of these. We need to stretch and stoop and twist in various ways. For those who are not sufficiently interested in the exercises below to practise them regularly, the imitation lawn-tennis service (page 56), the imitation bowling movement (page 57), and the inclined plank exercises (page 8) will be better than nothing. The latter are so varied and so easy that they serve a number of other purposes at the same time.

1. Lie down flat on your back upon the floor, or the inclined plank (which prevents the blood from running in excess to the head), then lift and lower each stiff leg alternately as high as it will go without strain.

Then lift and lower the two legs together.

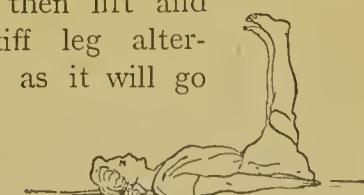


FIG. 1.

(See Fig. 1.)

2. Lie flat on the floor, but with the hands clasped behind the neck. Keeping the legs stiff and the head back, roll over upon the stomach first to the right, then

to the left, somewhat as in De Laspée's exercises.

3. Stand with your back to the wall, and keep the back of your head just touching the wall. Now lift, and pull up with clasped hands, each leg in turn, sending it down again with a sharp, but not too violent movement. An alternative exercise is

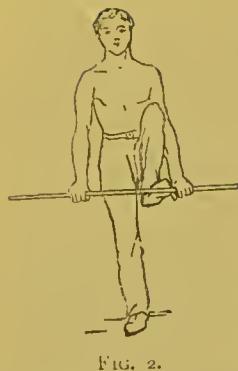


FIG. 2.

may be kept on the hips, or else swung freely.

5. (a) While breathing in through the nostrils, send down the diaphragm, and, to help this movement, send out the abdomen. Then, as you breathe out, let the abdomen come in and the diaphragm come up. Repeat this a few times. (b) Next, while breathing in through the nostrils, draw the abdomen in and the diaphragm up, and expand the chest in every direction—fowards, sideways, and backwards. Then let the breath out, with

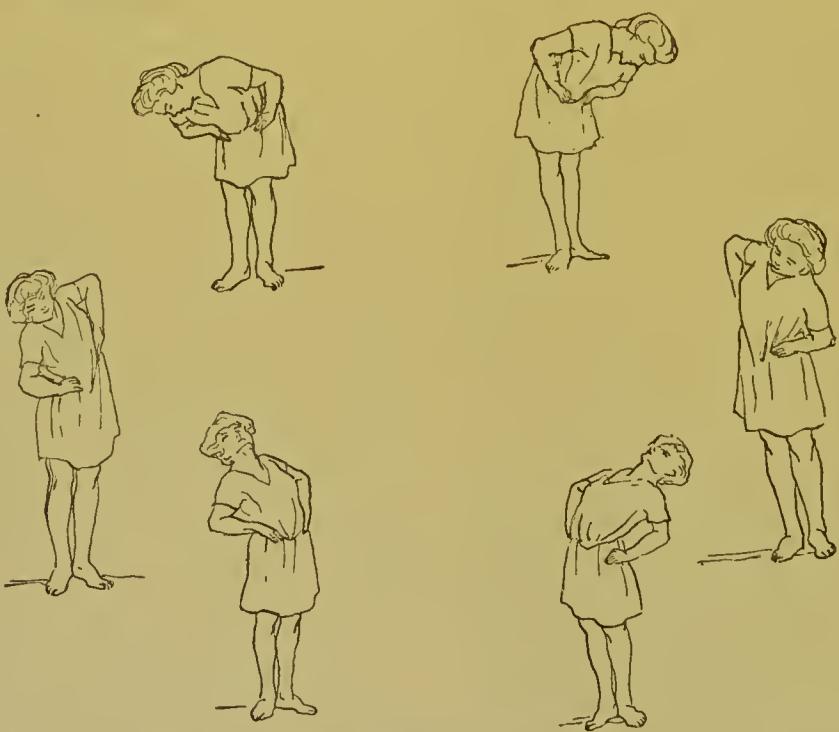


FIG. 3. A SERIES OF DE LASPÉE'S MOVEMENTS (Note the bad position of the hands).

suggested in Fig. 2. Skipping (in which one should send the rope backwards), and jumping (which should be both forwards and backwards), and mountaineering are somewhat similar exercises.

4. Standing firm on the feet, let the trunk twist with a good swing either as at Golf (*see page 7*), or as in pulling a ball at Cricket. But swing with equal vigour in both directions, from left to right, as well as from right to left. The arms

increasing speed and effort day by day, but still keeping the diaphragm well up. By these two exercises you will massage the stomach and liver (*a*), and will raise them, and relieve them of pressure (*b*), and, if the air is fresh, you will help digestion and excretion by breathing in more oxygen, and breathing out more carbonic acid gas.

6. Slow eating and thorough mastication is the best exercise during meals.

7. Relaxing, in private, is one of the

best exercises both before and after meals.
(See Fig. 46, on page 13.)

8. One of the most orthodox movements is represented in De Laspée's exercises, copied in Fig. 3.

For both indigestion and constipation massage is good. But it is not identical

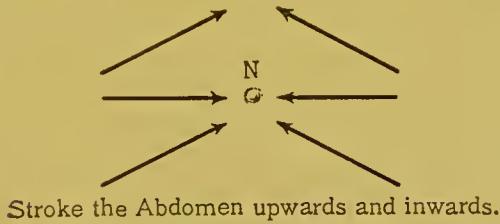


FIG. 4.

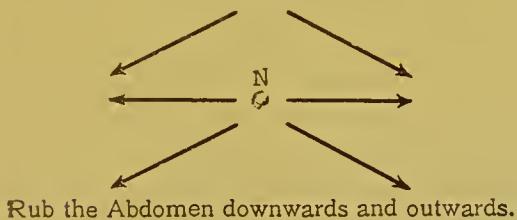


FIG. 5.

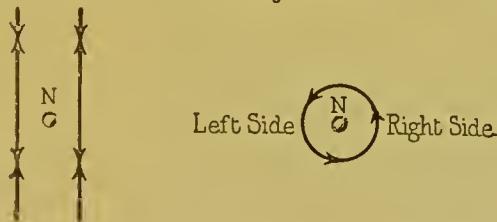


FIG. 6.

Knead the Abdomen up and down the Rectus Abdominis muscles. Knead the Abdomen round the Navel up the right side and down the left.

FIG. 7.

.2 inches
N
.2 inches

Lie relaxed on the back, then draw up the knees. Press the Abdomen at two spots distant about two inches from the Navel on each side

FIG. 8.

for the two complaints. Kellogg's massage movements for indigestion are summarised in "Good Digestion." The following figures will need no particular verbal description :—

1. Gentle stroking of the abdomen, in Fig. 4.

2. More forcible rubbing of the abdomen in Fig. 5.

3. Kneading up and down the *rectus abdominis* muscles, and round the navel, in Fig. 6.

4. Pressure on both sides of the navel, about two inches to the right and to the left of it. The body should lie flat and relaxed, and then the knees should be drawn up before the pressure begins.

For constipation in particular, the movements round the intestines and up the right colon, across the body, then down the left colon, are among the most effective

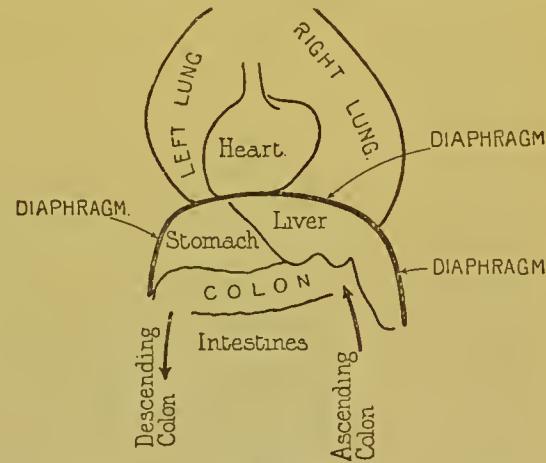


FIG. 8.

as hastening the contents of the intestines and colon towards the rectum, as in Fig. 8.

Another massage, exercise is given in Fig. 9, and another in the Course on page 3.

For both indigestion and constipation diet is an important factor, and the slower eating of simpler foods than usual is a good general rule. For slower eating gets through more of the preparation and digestion of food in the mouth, and so leaves less to be done afterwards. And, though it may not have any immediate effect in curing constipation, yet consti-

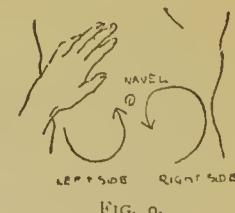


FIG. 9.

pation will now bring less harm, because well-masticated and "insalivated" food is likely to do less damage if kept too long. Another help to many is not to drink at or near meals, but to drink, if at all, before them or long after them.

As to the actual foods, we know of not a single one that suits everybody, though we could mention several that suit nearly everybody. As a rough and ready help for many, might be advised toast of a good bread (not white nor yet a coarse wholemeal, but of a type of which Hovis is the best known) with a little butter and some milled nuts sprinkled on it; or a dry grain food according to individuality (some prefer Shredded Wheat or Triscuit, others Force, others Grape-Nuts, others a not too moist helping of Quaker or Provost Oats, and so on); or a milk-proteid (Plasmon) blancmange, with a very little lemon or vanilla flavouring, and some fruit which agrees—especially prunes or figs or raisins or apples.

But special cases need special remedies, and, as we have said, what may remove constipation may produce indigestion by irritation, etc. In some cases the stomach-juices are too strong or too weak; in others, the liver-juices; in others the organs are in the wrong positions; in

others the organ-holding and organ-moving muscles are too weak. These general hints are for ordinary cases. With regard to details—as to whether the food should be moist or dry, or whether oil should be taken or not, or whether certain other exercises or massage or position (*e.g.* lying on the right side) should be tried, a successful specialist should be consulted. We believe the above instructions to be safe, if only the patient avoids strain, and increases the extent and pace and number of the exercises only by slow degrees.

Anyhow, the two mischiefs ought to be removed. Otherwise only a little of energy *in* the food can be added to the body and mind. For a fermenting food is to a great extent wasted material, and has to be either kept or got rid of at great expense of nervous energy. Meanwhile, the clogged system is working at a disadvantage, as a clogged engine would be.

As we have said elsewhere, a man's physical and mental wealth "consists not in the multitude of things that he possesses," but in the number of clean and valuable things that he possesses ready for use. To be filled with excessive or undesirable or dirty materials is in no sense an advantage, in every sense a burden hard to bear, harder to remove.

CHAPTER V.

HOW TO GET EXERCISE IN OR NEAR CITIES.

Need of Co-operative Institutions to Lessen Initial Expense—A Manchester Society—An American City-club Built Upwards—A Suggested Improvement—What has been Done in Small Spaces—Workhouse Schools—Reformatory Schools—A London Gymnasium—The Polytechnic—The Birmingham Institute—Girls must be Catered for—Useful Lines—Open-Air Exercise-ground—Streets, Roofs, and Rooms—Small Gardens—Adapted Games—Mass Drill—Apparatus.

ELSEWHERE will be found Courses for men and women who are busy, and some motives that may induce a certain number of people to train—to train if not for athletic

for exercise or play, most of the flat roofs in London remain unutilised. The Editor has played in the roof Squash-courts of the Bath Club; he has some friends who enjoy roller-skating on



FIG. 1.—PLAY AMONG THE CHIMNEY-POTS.

success, then perhaps for an improved appearance, or for greater money-earning capacity and economy. Here we shall consider rather the facilities for exercise that already exist in various cities and suburbs, and we shall show how easily and cheaply these might be multiplied and extended and improved.

For example, while thousands are complaining that they have no space

the roof of their flat, and the illustration of "Play among the chimney-pots" shows what might be done.

We shall return to the roof facilities directly. This and other opportunities must certainly be grasped at once, now that most of us have no longer country space and air, and now that most of us need space and air and exercise more than ever before in the nation's history. In



FIG. 2.—A WORLD'S CHAMPIONSHIP RACQUET MATCH IN A FIFTH-FLOOR COURT.
(Photo: J. C. Hemment, New York.)

this age of intellectual and nervous competition, when so much healthy body-work for thousands is done by machinery which a touch of the hand or finger controls; when unscrupulous and unpunished advertisers impress upon our minds and bodies literally *ad nauseam* the symptoms of all sorts of diseases, and then promise a perfect cure, but at the best usually give a temporary relief, followed by a worse state than the first; when the physical forces throb for an outlet, and find it in vile and expensive ways when they might find it in some cheap manly and social play; when we have wrong standards of success, as if a pile of money secured a means by which man might climb to his divine nature and form—we need exercise in or near cities as no people ever did before. And the first help towards it is the more or less co-operative institution.

The advantage of the institution is that it saves money to the individual, and also saves him the trouble of too much personal experimentation. Here is an instance. Ordinary hard-working men

and women want more fitness for work and life; a few grope for a way; they meet and discuss means; they hire a small but well-ventilated room in the city of Manchester; they subscribe for (or ask for) books which they lend out, apparatus, and lectures; they print some of their aims—to prevent or



FIG. 3.—SWIMMING BATH IN A NEW YORK CLUB.

and less dull than solitary practice in a bedroom. In the summer holidays certain members co-operate to camp out. The Manchester "Physical Health Culture Society" is a small thing, but a seed is a small thing too.

Let us see a somewhat richer and a far larger club, after years of growth—namely, the Boston Athletic Association, with up-

track in the gallery, the Turkish bath, the swimming tank, the bowling alley. The New York Racquet Club is somewhat similar, and it is now creeping out and spreading Tennis and Racquet courts over flat roofs. The New York Athletic Club has no Racquets or Tennis or (we believe) Squash, but it provides for fencing and boxing, has a fine bath (Fig. 3), a roof

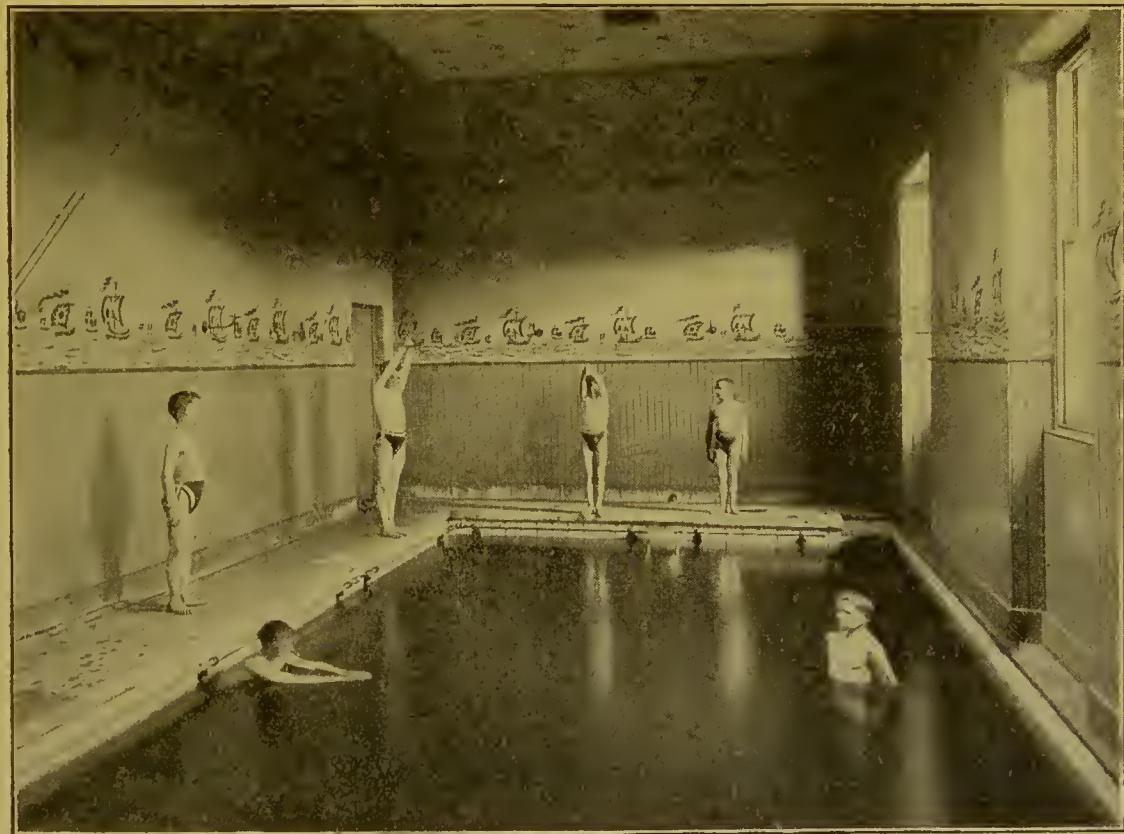


FIG. 4.—FECHNEY INDUSTRIAL SCHOOL, PERTH.

wards of two thousand members, and a great building storey above storey. *That is the secret of co-operative exercise in cities.* For thus rent is saved, and the lift-service annuls distance. There is a real Tennis-court on the fifth or sixth floor, and (see Fig. 2) a Racquet-court too, and good baths. Both are nearly always being used. Above these are Squash-courts; evening play is by electric light. Down below is the gymnasium with its running-

garden, and sleeping rooms which do what General Booth would call Salvation work for the young men. At the top it has a lovely roof-garden. For the less well-to-do there is the Y.M.C.A., of which the centre and core of first attraction is not the hymn, but the exercise—the swimming, gymnastics, and so on.

Coming back again to England, we see that we could quite easily "go one better" than anything which America can

yet show. We could quite easily start a club with storey above storey (see p. 47), and well lighted for evening play and fine exercises, like fencing. We could include more facilities for more games and exercises, we could secure far superior ventilation, and we could make more use of the roof. Also, we could organise the exercise more sensibly, and make it nearer to an all-round system.

This sounds like theory, but let us see a system—not complete nor perfect, but constantly improving—actually in full swing among the very poorest and the most deformed and degraded and diseased—among those, too, who are compelled to work hard with their brains. We allude to the children of the excellent Poor Law or Workhouse Schools, of which two descriptions by the Editor appeared in the *Manchester Guardian* for August, 1903; and the Reformatory Industrial Schools.

Here see the dirty scum float in from the gutter, the spawn of hooligans, criminals, loafers; the starving, the ought-to-have-died, the prostitutes. Next see them not only taught lessons, but also sufficiently fed, and drilled with free and musical and gymnastic exercises in the big hall or the little open playground not much bigger than some large London roofs. See them playing organised games (devised and helped by the teachers voluntarily and without pay) in this or in the open spaces around; see them swimming, running, and so on. Then read a report of what happens to these boys and girls, whether collected in the big buildings of such suburbs as Wandsworth, Isleworth, Hammersmith, or scattered in the cottage homes, and compare the children trained in Truant and other schools at Perth, etc. Out of 961 Poor Law School children placed out in the Army (205), Navy (52), as indoor and outdoor servants (112 and 57), and in

trades (e.g. boot-makers, 47), over 75 per cent. are working satisfactorily, and 9 per cent. fairly, while less than 4 per cent. are unsatisfactory.

Now if this has been done with the rotten wood, what could be done with the sound? We have to consider the small expense, or rather the great saving, to the nation, since there are fewer decrepits and criminals to be kept alive and in order. The children are healthy and happy and active, yet well-disciplined. They have learnt respect for self and its body; they have learnt *esprit de corps*; they have learnt some ways of controlling the passions, or else of "outletting" by harmless exercise.

This problem of how to get exercise near a city, and how at the same time to teach mastery of the emotions, has been taught to another class difficult to deal with, the boys or young men who want to enter the Army. We all know the reputations of most Army-cramming establishments. There is no need for this want of discipline. There is, indeed, as the Greek athletes were aware, little craving for vice if the body be drilled. As an example of concrete success, one may cite the Military Training College at Richmond. The drill and gymnastic exercises are not ideal; but they are demanded by the Army system and must be gone through, and anyhow they teach orderliness. In addition to these there is riding—an excellent idea—for all pupils, and miniature target-shooting. For, as Mr. Trippel says, "properly to use a rifle requires nimbleness, coolness, and quick judgment, and demands steadiness and regularity of life."

There is plenty of fresh air, and games are not despised as they too often are by certain enthusiastic but narrow-minded gymnasts. There is plenty of work. Above all, there is plenty of sleep, and early hours are insisted on. This keeps

the boys from mischief. Further, in order to help self-control, by every possible means, Mr. Trippel, the Principal of the above College, has offered a simpler food training-table for those who would like to try it. He does not know—who really does?—whether it will succeed, but he steers on the safe side, thanks to carefully kept registers of

to the well-to-do, because private teachers must earn their living and charge reasonable prices, could be made to appeal to most people of all classes if Government defrayed, as it should, some of the initial and later expense, and if, meanwhile, rich people began the work. Here is a case in point. A fairly good athlete and game-player, a Public School and University

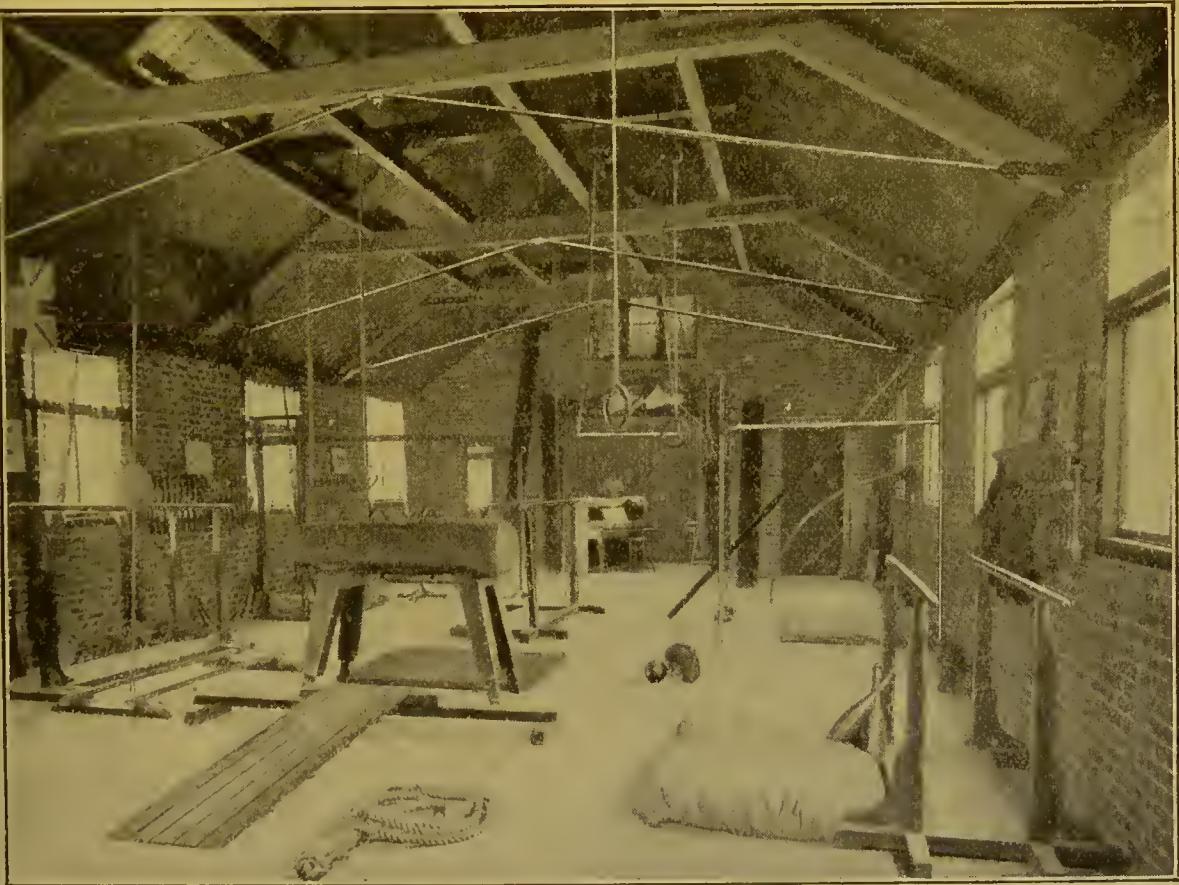


FIG. 5.—A WELL-ARRANGED GYMNASIUM (ST. ANDREW'S, EALING).

health. There is no reason why every city should not have many buildings offering similar facilities to young men—and others to young women—who have no homes. That is a work for Government to extend to the poorer classes. Till something of the kind is done, how *can* we expect physique and health and purity in sunless slums?

That which at present appeals chiefly

man, who has been through and taught various systems, takes a house in London, at Ealing, and in the garden builds a well-aired and well-lighted gymnasium, and at the end of it intends soon to have a court for Fives and Squash with artificial light for evening play. The photograph of this gymnasium and the description will give some idea of the number of people who might be

physically trained in a small space, if only such training were arranged on the squad plan, times being appointed and the pupils taken in relays. If such a place were built on a top storey, let us say, in Whitechapel, and given a staff of *all-round* teachers like Lieutenant Flynn, many hundreds of children might get fine exercise every day. We will ask the reader to note how many forms of apparatus there are here, the apparatus being the best that we have yet seen. For example, note the Quarter Circle for

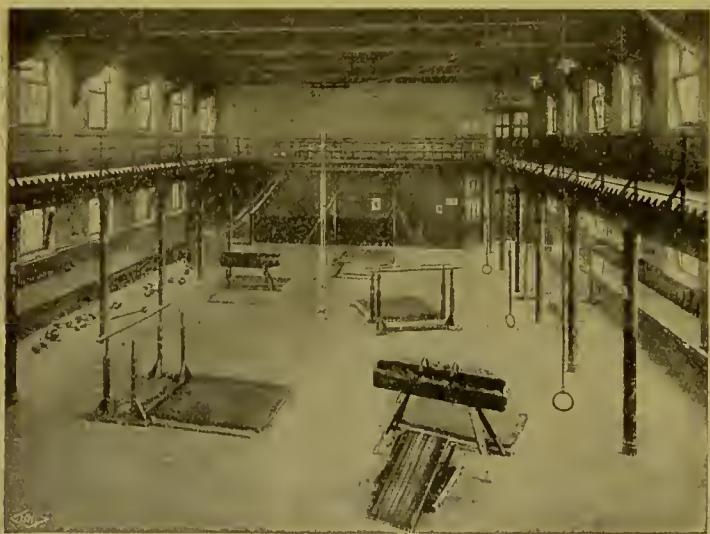


FIG. 6.—BIRMINGHAM GYMNASIUM.

spinal curvature—of which more in a later chapter—and the many sets of good parallels, ladders, rings, etc., so that few pupils need stand about. Both these improvements, by the way, are the rule on the Continent. The photograph does not show the long-jump space in the floor, as it is here covered by a plank trap-door. There is plenty of space for “mass” work with or without music.

Nearer the heart of London is a far larger institution with its intellectual training as well as its physical and moral. Into and out of the Polytechnic—again due to private enterprise (of the late

Mr. Quintin Hogg, not to the Government)—there pour in the evening and night, when Regent Street is one of the plague-spots of England, clean, orderly boys, young men, and a few young women. In the centre of the great building, with a gallery along which the students are constantly passing to and fro, is the gymnasium, with Mr. Elliot and its other experienced instructors, its musical and other drill, its apparatus-work, boxing, fencing, etc. The membership fee is only half-a-guinea a year. This gives the *entrée* to the magnificent swimming-bath also.

Other athletics and games are organised by the members within the Polytechnic, but carried on outside, especially in the grounds at Wimbledon. There is Football for eight or nine Football teams; there is Cricket, Lawn-tennis, Rowing, running, cycling (the Polytechnic has magnificent cycling-teams), walking (the Polytechnic initiated the great walking races for institutions), and the cheap tours abroad. Within the building are technical lectures and practical workshops

in many departments, including engineering, carpentering brass-work, and other “manual training” (of which more in a later part).

There is the social side also, and the self-control side, cases of drunkenness or misbehaviour being practically unknown, though there are about 17,000 members and students, entering between the ages of 16 and 26. The girls’ gymnasium is elsewhere. The good work done, especially by the exercise, is incalculable. But, let us repeat, there should be at least a hundred such institutions, or, at any rate, gymnasias, and, we must add,

facilities for evening *play*, in London alone.

The same applies to the provinces. We choose Birmingham as offering one of the best examples of what can be done by private capital and kindness, and what should be given by Government free to the people. When will the authorities realise that it is as much their duty to provide chances of exercise and sane recreation for the body and mind as it is to provide sanitation, Police, Army, Navy, and—Government officials? It was not the municipality, but Councillor Kenrick, that started the Birmingham Athletic Institute eleven years ago, of which place the Athletic Club is a tenant and ally. It was a brewer who created much of this centre for Physical Education in the Midlands.

Before showing what the Institute is, let us suggest one or two hints which future societies would do well to consider: (1) Let the storeys be piled up as high as the law allows, to provide for more people at smaller rent; (2) let facilities for games be added—*e.g.* Fives courts and Squash courts and plain rooms, artificially lighted for evening play; (3) let there be a swimming-tank, and perhaps (cabinet) Turkish baths.

Already there are baths and douches and dressing-rooms, a fine gymnasium (Fig. 6), with a gallery (part of which gallery might be used as a running track, we think), a private gymnasium, a small staff of instructors, lectures on health and training (now given by medical men to the Board Schools), and so on. Although alcohol can be had in the club-room, there is here, as at the Polytechnic, practically never any disorderliness. This club of 250 members is, by the way, famous for its rowing (practised on a reservoir, not a river). The large gymnasium, of course, has its bars, ladders, rings, horses, dumb-

belts, weights (a fine collection), etc., and instruction is also given in free drill, with or without music, boxing, fencing, high-jumping, etc.

The private gymnasium has remedial apparatus for those to whom the doctors recommend it—again a hint to Government. There is the punch-ball, the rowing exerciser, elastic and other exercisers, rings, equipment for fencing, boxing, skipping, etc. There are ladies' classes—about seventy attend—every Thursday evening.

The Institute trains and teaches people to teach others, and under the able and energetic guidance of Mr. E. Lawrence Levy, does a great deal of valuable work in the way of directing and encouraging squad-work, all kinds of gymnastics, athletics, cricket, football, and swimming in the elementary schools of Birmingham, and offering reasonable prizes and rewards (*e.g.* free admission to the municipal baths, etc.). It grants certificates to instructors in gymnastics, athletics, and Physical Culture. It promotes athletic meetings, but not for gate-money.

The expense is, of course, large, as there is the rent, the attendance from 9.30 a.m. till 10 or 11 p.m., and so on. Something like it is the Dolobran Athletic Club, again due largely to individual philanthropy, Mr. George Cadbury in giving the Friends' Hall. Outside, at Aston, is a fine open-air gymnasium, divided into two for the two sexes, and with special apparatus for children. This also is private work by Mr. Ansell, a brewer. Besides these, the public-houses have helped to train most of the great amateur boxers of Birmingham, and this without making them drunkards.

And there are other encouragements to exercise, but only for the comparatively few, because of the expense,

which should be borne by Government. For surely clean and straight and reasonably strong men and women are as important to the nation as clean and straight and reasonably strong streets and houses.

Ten thousand pounds for a building and its equipment and a thousand for rent would be a small item if that building could help to give health and fitness—as it would do if the relay system were organised—to at least ten thousand citizens. But Government is not managed by men with a knowledge of physiology or hygiene or business principles. It neglects the physical and moral welfare of most of the present and future men and women, boys and girls.

The girls have been neglected most of all. The home does not educate their bodies; it has only recently become "proper" for girls to co-operate and educate themselves by societies and clubs, and then too often the education is what is called intellectual. To give, again, a definite and concrete example of what can be done among the very



FIG. 8.—LEAP-FROG.

poorest, we shall merely mention the work done amongst the Reformatory Industrial School girls, and then cite what has been done among those who are well-to-do. The school which we choose out of a number that are all good is a home school at Lyndale, Winchmore Hill, where special attention is paid to hygiene. Delicate girls have a good opportunity of gaining strength. The air is good, and is enjoyed as much as possible, the small but beautiful and well-turfed old garden being used constantly, while the rooms and gymnasium are well ventilated and not over-crowded.

The girls all wear a sensible gymnastic dress, as on page 47, and their "Course," besides their walking, Lawn-tennis, adapted Cricket, and Hockey, includes breathing, relaxing (very important), balancing, running, hopping, free movements, floor work, and work with apparatus (including clubs). We were most pleased with the way in which the instructor varie-

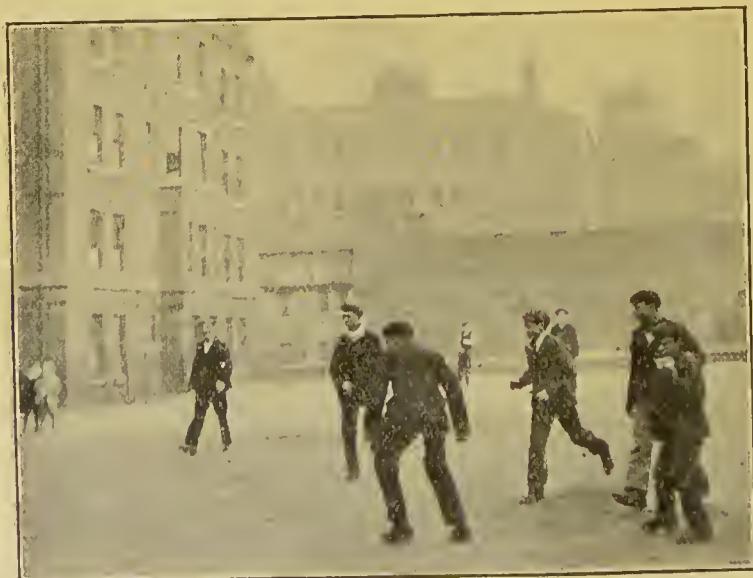


FIG. 7.—STREET FOOTBALL.

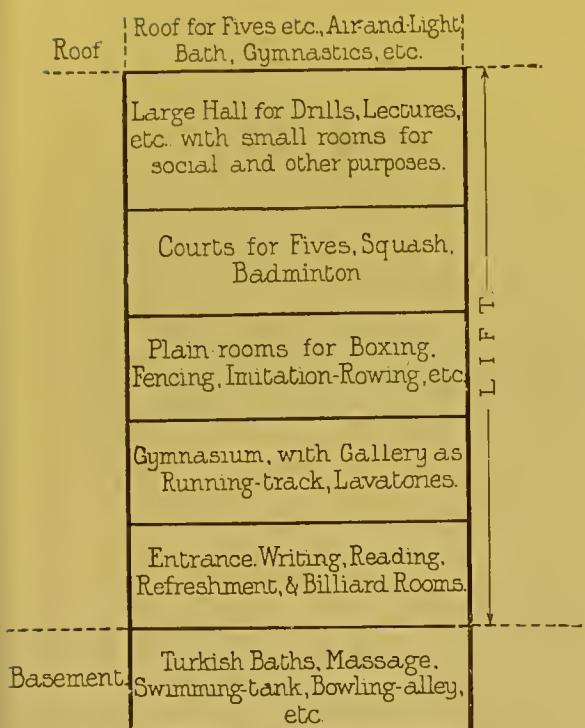


FIG. 9.

his work and regulated it to prevent over-exertion, while the girls enjoyed themselves, looked healthy, and walked and ran really well.

What was done here should be done in open spaces and large halls in cities. The photograph (Fig. 10) will shew how little space and apparatus is required.

Most of these examples are of exercise in or near cities, made possible at first chiefly by individual kindness or co-operation. Such work should be extended widely, and should be subsidised by Government as well as by philanthropists at the start. In order

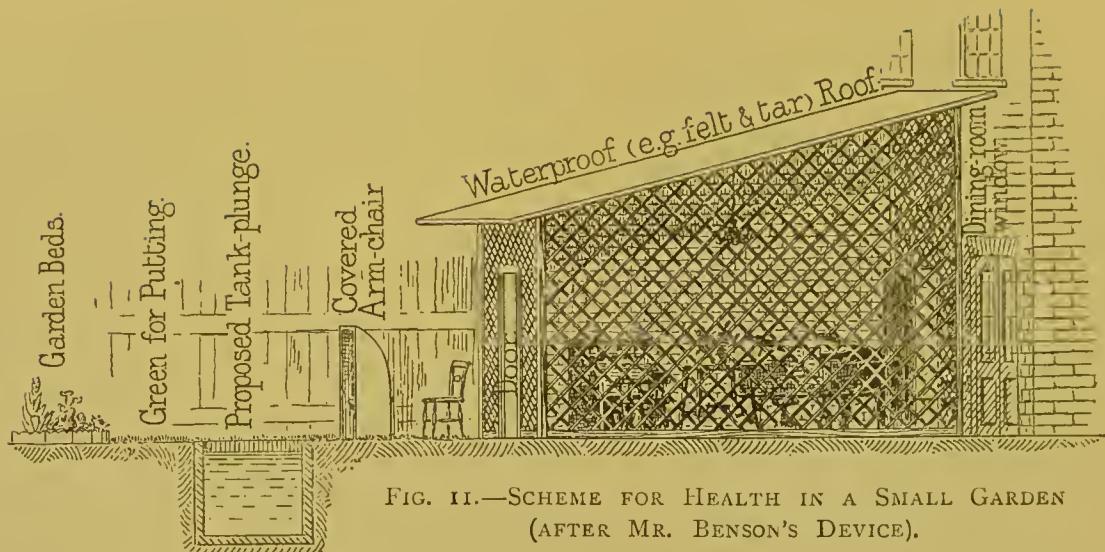
to give a clear idea, if only as material for criticism and amendment, let us map out, as in Fig. 9, a city club built upwards, storey upon storey, on the American plan. It should be open to different classes, ages, and sexes at different times of the day, or on different days of the week. This increases the capacity fourfold.

Besides the building of such clubs, there is the adaptation and use of spaces. We spoke just now of the open-air gymnasium at Aston. There is one at Boston (Massachusetts), in America. There is an air-and-light bath with some apparatus, and a very fine swimming-bath, at Dr. Kellogg's Battle Creek Sanitarium (Michigan). The pedestrian Karl Mann has one close to Berlin. There are several similar enclosures, but without much apparatus, at Broadlands, Medstead, Hants. Societies like the National Physical Recreation Society, of which Mr. Eugene Sully is the honorary secretary, are doing a great deal. Local government has been more active here than in any other department of recreation.

But ever so much more is still to be



FIG. 10.—GIRLS OF LYNDALE SCHOOL AT DRILL.
(By permission of Miss Bridges).



begun and done, not only in preserving or making spaces, but also in equipping them and providing play and exercise in them. Here, for example, in Fig. 7, is a space being used for a healthy game of Football. The leap-frog group (Fig. 8) will soon be hampered by passers-by, to say nothing of dangerous runs off the pavement into the road. The many fine open spaces are not being used at all. No wonder the East-Enders have a morbid love of funerals! The roof (*see* Fig. 1 on p. 39) is being used, and so is the roof of St. Paul's Choir School in London, and we believe that Mr. Robert Bacon (one of Pierpont Morgan's partners) is building a Squash court on his house in New York.

We repeat that roofs are left far too idle. So are corners, walls of houses (which, like the Harrow Squash-racquet courts, give excellent chances for ball-play), drawing-rooms in the morning (!), bedrooms, bathrooms, barns, etc.

So are small gardens. Why do not people use them ever so much more? Mr. E. F. Benson, at Winchester, has roofed in a part of his little garden, leaving two sides with open trellis-work, and the whole of another side open. Here he can work, play the piano, have meals, take

exercise, or sit with scanty clothing, but unseen, in the air and sun; beyond it he gardens, practises putting for golf, and even talked of sinking a neat little swimming tank. This is an object lesson in the use of brains.

Besides this, however, we need cheaper fares to parks and the country, and in the country more clubs for the people. Philanthropists should do more in opening up not only their whole grounds for cheap trippers to walk through or picnic in, but special parts of them for health-seekers to play and practise gymnastics in. The large grounds for the employés of such firms as Reckitt's, Huntley and Palmer's, etc., should be copied on a small scale everywhere. A well-equipped acre here and there, partly roofed in for boxing, fencing, ball games, punch-ball, etc., in wet weather, would be a national blessing.

For the problem is far less than one imagines—a problem of where to get the spaces, and, far more than one imagines, how to get there (though cycling and motor-cycling are one answer), and what to do there. Most British games (Golf, Cricket, Football, Hockey, Croquet, etc.) need a large room or fairly even ground, or

both. However, Squash, Fives, Badminton, etc., are fine exercises, especially if left-handed play be encouraged by tournaments.

Then there are adapted games, such as Football and Cricket and Hockey in a large room. These are magnificent exercise, and—owing to the play off the walls—great fun. The Editor reckons them amongst the best games he has ever enjoyed.

Practice for games, etc., is also easy to arrange. Cricket nets with cocoanut-matting as at Rugby School, throwing and catching, Football punting and dropping and heading, American exercise in the "Cage" (e.g. for baseball before the play season begins), imitation-rowing with apparatus, imitation-swimming, etc.—all these and others will be considered in a special chapter later on.

There are also the thousands of free movements for individuals or for groups.

Group drill has the advantage of interesting certain types of people, and of securing fairly good movements for many (Fig. 12) in a short time, and on a comparatively small ground, where some squads can rest while others exercise, as was arranged at the great International Gymnastic Fête in the Antwerp Vélodrome in 1903. Such group drills can easily be made competitive.

Last of all, there is apparatus not especially for games, but mostly either gymnastic or gymnastic remedial. We have mentioned among other implements, the elastic stretcher (p. 10), the anti-tension exerciser (p. 6), the foot-holder (p. 10), the inclined plank (p. 8), the punch-ball (p. iv), clubs (p. 10), besides the ordinary equipments of a gymnasium.

Till the people have these things, either as private individuals, or as members of societies or clubs, or as both, what had



FIG. 12.—HIGHBURY GROVE TRAINING SCHOOL AT DRILL.

they better do besides such exercise as they can and will take? Simpler food, more nourishing and less stimulating food, more soft water to drink, more Turkish baths, more massage, more open windows—these are a few obvious helps. But all the time we must be gradually working on the right principles to promote good exercise in cities.

To sum up, we need common-sense and ingenuity and organisation to find and equip spaces for exercise, to build upwards, storey above storey instead of spreading over a large space and incurring a large rent as Prince's, Queen's, and Lord's have done); to map out times for different groups (*e.g.* men, ladies, boys, children), so that the spaces are seldom unused; to put before the people motives for exercise (prizes in competitions, medals for a health standard, etc); to co-operate and federate, and to get Government support at the start.

Till then much must be left to individuals, who can help not only by temperance reform, by libraries, by technical institutes, by hospitals, and so on, but also by personal examples of well-used rooms and (like Mr. E. F. Benson's), small gardens, etc.,

and of well-developed and well-controlled bodies, in all of which they can take the greater pride because these things are made in or near cities. But we are firmly convinced that as soon as, let us say, a club of clerks or factory girls can take to their employers and others a clear plan and scheme for an athletic club in or near their city, the richer brethren will give them a send-off, so long as they know for certain that in the building or open space which they provide the employés will be found regularly after working hours, and will practise good games and athletics and physical culture, in moderation.

Finally, then, we should say to our readers: Take exercise in your own home or in some open space, until you can get together enough people to form a club for such games as Fives and such exercises as boxing and wrestling. Having got them together, choose business managers and a secretary, map out a scheme, make an estimate, collect funds, appeal to the well-to-do, and report progress to the Editor, whose advice is at your service, both as to the forms of exercise, and as to the rooms and places in which they can be practised.

CHAPTER VI.

WHAT TO DEMAND FROM SYSTEMS OF EXERCISE.

Misleading Advertisements exaggerate the Merits of Systems—Need of All-round Tests for the Public to Apply—Exercises and Systems Judged by these Tests—George's "100 Up"—A Lawn-Tennis Exercise—A Cricket Exercise—A Macdonald Smith Exercise—Sandow—De Laspée—Apparatus—Plank—Interesting Starting-points—Ideals—Variety, Order, etc.—What the Systems Demand from Us.

NEARLY every month sees the birth of a new system of exercises. It has often been remarked by scientists that the lower we descend in the study of animal life, the shorter do we find the period of the animal's infancy, the jelly-fish being mature quite soon after it begins to live.

Almost every new system of exercises to-day is born complete and incapable of improvement. It is advertised as the only scientific course of Physical Culture ; it is advertised as original, and unlike any other system that ever was ; it is advertised as sure to produce perfect health and beauty ; it is advertised as the final knowledge, beyond which no man can push or pierce. Above all, it is *advertised*. And, if it is advertised sufficiently frequently and blatantly, a large part of the public is hypnotised, and fails to use its own critical faculty.

This is a mistake, but a natural one, in so far as the system has in it some real good, as all systems have. If only the advertiser could see his exercises impartially—side by side with other (and equally or more important) exercises or relaxations—and if only he would then tell the public what he has seen, we should safely leave the public to his teachings, perhaps even to his drillings. As it is, however, he poses as an omniscient speci-

alist, and claims too many merits for his system (and perhaps, also, as in the rare case of W. G. George, to be quoted below, he claims too few). The public will believe the specialist rather than exert its own common-sense.

It is the object of this chapter to train the public to use its own common-sense, and to trust itself. Our readers will live to have many cure-all or panaceatic systems offered to them. It is hoped that after reading (and criticising) this article they will be better able to estimate any system, old or new or middle-aged, one-sided or two-sided or motley. The public can easily decide for itself if only it remembers what tests to apply.

What are these tests ? What should we demand from systems of exercise ? Provisionally let us say (1), *the most all-round benefit (and the least harm) at the smallest expense of money, time, and energy, and with the greatest independence of external conditions*, and (2) *a fair advertisement to show the interests and advantages and the limitations*.

These and other important points will be made clearer by actual instances of exercises belonging to different systems. The first is from W. G. George's useful book on "Training," regarding his celebrated system of "100 Up." I quote



FIG. 1.

pp. 8-13 verbatim, altering only the illustrations (since they do not show clearly enough which are the right and left arms or legs). Otherwise his plain-line drawings (Fig. 1) are good, resembling Mr. Horace Hutchinson's diagrams of golf (Fig. 3), and Sir Lauder Brunton's of positions of the body (Fig. 2). From all systems nowadays we demand clear illustrations. The

Editor will try to introduce an improvement in these skeletons, by distinguishing the right and left sides, as in his drawing of Fig. 4.

"Some of the advantages of this splendid exercise briefly are these: The short time and the little space required for its practice; it brings into play the entire muscular system; the heart and lungs are *reasonably* exercised; the reduction of adipose tissue, especially that designated *fatty inside*; the particular strengthening of the muscles of the back and abdomen; the non-necessity of stripping (although it is better to do so when time permits), and the fact that any shoes or boots, and even stockinginged feet, will serve. The '100 Up' can be practised on any ground floor, the space required being no more than six square feet.

"A. Preliminary practice for preparing the leg-muscles for the strain required of them for the '100-Up' exercise.

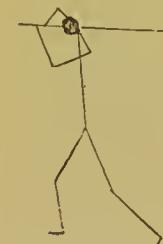


FIG. 2.

Fig. 3: A line drawing of a human skeleton standing with arms raised and bent at the elbows, hands near the shoulders, and legs slightly apart. This diagram is similar to Fig. 2 but shows the skeleton from a different perspective.



FIG. 4.



FIG. 5.

"Draw two parallel lines on the ground eighteen inches long and eight inches apart. Place one foot on the middle of each line. Stand flatfooted, the feet lying perfectly straight on the lines. The arms should be held naturally, loosely, and nearly straight, with a slight forward inclination, the body being upright and straight (see

Fig. 5). Now raise one knee to the height of the hip (see Fig. 6)—that is, precisely in the same way as in walking, only the knee action is higher—and bring the foot back and down again to its original position, touching the line lightly with the ball of the foot; repeat the raising and lowering of the leg ten to thirty times; and repeat with the other leg. Practically this amounts to balancing the body on one leg, while exercising the other. Care must be taken that the knee comes to the level of the hip every time. This may not be found easy at first, but practice will soon bring about the desired result. Great attention must be paid to keeping the body upright and the legs and feet quite straight while exercising. Practise slowly until the necessary balance is acquired and the exercise accomplished with ease. Otherwise the '100 Up' will be found unsatisfactory. Having thoroughly mastered the correct form, the student may turn his attention to—

"B. The major, or '100-Up' exercise.

"Before giving particulars, I should like again to impress the necessity of maintaining form in every practice. My advice is—directly the correct form is lost, stop. Beginners should start the major exercise

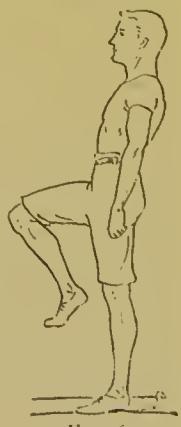


FIG. 6.

slowly, and on no account strain or over-exert themselves. Nearly all breakdowns and failures are the result of hurried and injudicious training, or fast work while the system is unprepared for it. On the other hand, slow, well-considered, steady practice rarely—I might almost say never—is injurious; while breakdowns are practically unknown amongst those who start their training slowly, gradually increasing distance, time, or pace, as the heart, lungs, and muscles grow accustomed to the strain which is put upon them.

" Prepare lines as for the preliminary practice. Stand on them as before, except that the body must be balanced on the ball of the foot, the heels being clear of the ground, the head and body being tilted very slightly forward, and the hands down by the sides. Now spring from the toe, bringing the knee to the level of the hip (*see Fig. 7*)—as in the slower exercise—letting the foot fall back to its original position. Repeat with the other leg, and continue raising and lowering the legs alternately. This action is exactly that of running, except that instead of the legs moving forward, the foot drops into the original position on the ground.

" The main point to remember is, *correct action*. The knees must be brought at each stride up to the level of the hip, while

as the knee comes down, the foot behind should be carried further backwards and level with the back. When the knee is brought higher than the hip, the body is thrown out of its perpendicular backwards (*see Fig. 8*); when the foot is thrown out behind further than level with the back, the body is correspondingly forced



FIG. 8.

forward (*see Fig. 9*). Either is a hindrance to form and pace, the two objects striven for by those who train, whether for health or competition. All such will undoubtedly derive more benefit from doing their practice correctly than the reverse.

" While doing the '100 Up,' use the arms as in running—*i.e.* hold them almost at full length, and swing them half-way across the chest, forward and backward a few inches behind the back as each stride is taken. A good practice is to stand still on the lines and use the arms as in running, putting plenty of force into the work, so as to loosen the muscles of the shoulders, and make the upper part of the frame active and pliable, in order that it may act in perfect union with the legs when the '100 Up' is performed.

" I advise nobody to attempt more than twenty up at the start—ten for each leg. Very few can manage even so many in form at the outset; but practice makes a world of difference, and once the twenty has been accurately accomplished the number may be steadily increased. Let me warn you, however, against too rapid progress. This may result in a strain, or, what is even more likely, loss of correct form. The knees will not be parallel to the straight lines, or the body will be dragged forward. Do not expect to

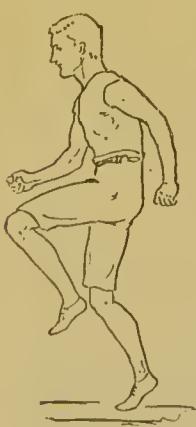


FIG. 7.



FIG. 9.

get true action in a moment. Probably the first few attempts will be disappointments. Be not, however, discouraged. Keep steadily on, and the correct action will come sure enough. Once proficient in that, you can work gradually to the '100 Up,' and by judicious variation of pace and number, according to the distance of the race in which you desire to compete, you will get as fit as you can possibly desire.

"Finally, '100 Up' stands unrivalled as an aid to training for walking, running, cycling, rowing, boxing, football, and cricket, and, in fact, every kind of sport; while for general health's sake it is absolutely *the best*."

The reader should now jot down on a piece of paper the pros and cons of these paragraphs, setting the pros on the left of the paper and the cons on the right. He should do this before going on to our ideas. We want him to be able to criticise any and every exercise for himself, *after trying it for himself*.

Then let the reader compare his notes with ours. We first give—

SOME OF THE PROS.

1. The exercise comes with the authority of a champion runner, who genuinely practises what he preaches. He is not a writer whom we have never heard of. He himself is a fine example of the merits of his system.

2. The exercise is definitely described, and fairly well illustrated.

3. The exercise is simple, so that a person can easily concentrate attention on it, and say: "This *one* thing I do now." It is brief, can be done in most places, and needs no apparatus.

4. The lines on the floor serve the purpose of an apparatus, in that they remind and encourage one to practise.

5. These lines also help the correct form. George's words about form are admirable. As he says (on p. 16), "it does not so much matter about the quantity of exercise taken, but it does matter about the quality."

6. The movements involve a training in balance and poise.

7. As a preparation-exercise for violent games and athletics which tend to overstrain, the exercise is a preventive. It is true especially of girls, that they indulge in games which in themselves are good, but are bad "without a proper preparation." George realises the beginner's difficulties and dangers not only in games themselves, but also in this exercise.

8. He urges moderation and gradual increase from gentle beginnings. On p. 16 he says: "If delicate or weakly, do not practise oftener than every other day. . . Do not start too fast in any practice." The tests which he would apply are sound —viz. correct form and the feelings.

9. He adapts his exercise—its severity, etc.—to different individuals and different conditions.

10. The looseness and freedom of the arms tend to economy and grace, in contrast with the perpetual-grip habit which is becoming increasingly common.

11. Explanations of the reasons why, and why not, are given—e.g. he tells us why we should not send the foot or tilt the body too far forward or backward.

12. The interest—that all-essential element—is given by the testimony of the great runner himself, and also by the many advantages which he mentions, and by the vigour and pleasure of the movement.

13. Interest is also maintained by the variety of pace, etc.

SOME OF THE CONS.

1. All the interests are not mentioned. For example, the value in helping to

prevent or cure indigestion or constipation, and improve the figure and carriage, and the general attractiveness of the person when he (or she) is walking or running. Besides, it would have been good to advise readers to register the effects of the exercise on their speed and endurance in walking or running.

2. The idea could be enlarged, the leg being raised in other directions also, so that the Football-player, for instance, might be better able to start in any given direction (and not only straight forwards) at a moment's notice.

3. Too much, however, is claimed in the last sentence. To say that this exercise is "unrivalled for . . . every kind of sport" is going further than the facts warrant. (On p. 91, again, George says that, for the suppleness of hip-joints, etc., most essential for Cricket, the "100 Up" each morning can *alone* supply the necessary exercise.) But for the Golfer the imitation of the golf swing (*see* p. 7) may be more important; for the Cricketer the imitation of stooping to pick up a ball, then bowling it (*see* p. 57), then, after the full extension, bringing back the arm in a half-circle, together with correct breathing; for the Lawn-tennis player, the adapted service (*see* p. 10). These exercises may with equal justice claim to be "for health." It cannot be agreed that the "100 Up" is unrivalled!

4. Neither is it an exercise for "all the muscles"—e.g. for all the muscles that move the arm and the wrist and the fingers! Certainly it is not a full movement for all the muscles, and fulness of movement is a most important feature of Physical Education, as we shall see when we come to the Macdonald Smith exercise.

5. The right position of the head and the right curves of the spine are not mentioned. They are important considerations.

6. The matter of breathing is still more important. Correct breathing is at the very foundation of correct exercise. The statement on p. 15, that "no special preparation is required," is so far from right that we should prefer to say that "correct breathing is required as a preparation for any and every form of exercise or repose, if the person does not already breathe correctly by a natural instinct."

But if these emendations were attended to, we might search for a very long time before we found any single exercise that came so near to satisfying the conditions which we suggested just now—namely, "the most all-round benefit (and the least harm) at the smallest expense of money, time, and energy, and with the greatest independence of external conditions, and a fair advertisement to show the interests and advantages and the limitations."

Before we give any fuller abstract statement as to what we should demand from systems of exercise, before we philosophise about various physical and mental effects, about the need of incentives, about the need of moderation and graduation, about the need of corrective exercises for individuals, let us take a second example—an exercise adapted from that singularly clear and (if the word may be used) business-like book (published by "Lawn Tennis") on Lawn-tennis by the world's champions, R. F. and H. L. Doherty, who have kindly given me leave to reproduce here the photographs (Figs. 10 and 11) of R. F. Doherty before and after service.

Now, to adapt this exercise to daily use in a small space without apparatus, stand as in Fig. 10, with the weight on the back foot, with the head right back, as if looking up at a ball thrown (by the left hand) almost directly above the head, the empty right hand gripped, and the right shoulder as far back and down as it will go without



FIG. 10.—A DOHERTY SERVICE, FIRST POSITION.

strain. Keep the left hand easily relaxed.

Now, with a good body-swing, which will bring the weight forward upon the front foot, send the right hand and arm well up, and then across the body, and then down to the position shown in Fig. 11. Here, the right hand having as it were, brought the right side and head itself down to the left,

and forward with it, is stretched out flat, and no longer gripped.

As to the way of breathing, in the actual game it will depend partly on whether one means to run up to the net after service or not. But for the purposes of this exercise it will be useful to breathe in as the right hand goes back, to breathe out as it comes forwards.

After the exercise, bring the right hand back to the first position as fast as you brought it just now to the second position. In other words, do the movement with equal vigour in both directions. But do not overstrain.

Next do a similar movement with the left arm, as if serving left-handed.

After these two exercises have become comparatively easy, one might add others to them—*e.g.* before them the preparatory little leap into the air, as in smashing a ball overhead, and after them the prompt starting forwards to run up to the net

immediately after service, as you would in a four-handed game.

Once more, the readers should try the exercise, and write down what they consider to be its pros and cons.

The expert will say at once that the muscles which are used are not all used in the ideal directions for perfect Physical Education; that the exercise is not a complete Physical Education; that perhaps it is not interesting to everyone—especially to those who have never seen the gracefulness of the two brothers at home or abroad. All these criticisms are correct, and have been candidly admitted in the above-mentioned book. Let us now see the case for the exercise when it is offered only for what it is worth—viz. as a practice likely to be attractive to many, but as only one exercise out of many, and not an ideal exercise either.

We must mention here, by the way, that the Dohertys are not responsible for the exercise (especially of the left side), but are only responsible for a lucid description and photograph of the right-handed service with an actual racket and ball.

The exercise, together with others taken from the play, would have an advantage over play itself in being available anywhere, in using the left side, in training



FIG. 11.—SECOND POSITION.

the imagination, and so on ; but it is inferior to Lawn-tennis, because it is not a game, it does not involve timing of the ball or rapid adaptation of one's play to the opponent. It is inferior to the best gymnastics and free movements, because it does not exercise the muscles in the theoretically ideal directions. But it would have an advantage, for many people who play Tennis, in being more interesting.

Like Lawn-tennis, this movement is good for both sexes. It should further the health, if only because it helps the digestion and excretion (strengthening the muscles, and, as it were, massaging the organs), and develops the lungs, and improves the circulation.

It improves the appearance also, not merely because it is in itself a graceful movement, but because it sends back the head and encourages a better carriage, while at the same time it does not neglect repose, without which there cannot be true grace. While one arm moves, the other arm relaxes. Moreover, it trains the two sides to independent action—a most essential point.

It involves the transference of the body's weight from one leg to the other, balance being preserved (or, by the more elaborate exercise, quickly recovered).

It involves the raising of the body on the balls of the feet (and, by the more elaborate exercise, the quick start forwards after the service, and other foot movements).

There is some turning and bending of the trunk, strengthening abdominal and other muscles.

Many extensions are made, and some are held for a short time. The hand is alternately stretched and gripped, the arm is stretched, the shoulder moves back and down, then up, then forwards and down ; the legs are stretched, and some spinal

and back muscles and abdominal muscles are stretched.

If done sensibly, the exercise is neither violent nor jerky. It needs little time, small room, no paraphernalia.

It may be of considerable use for a good many forms of athletics besides Lawn-tennis—*e.g.* for putting the weight, throwing, and bowling.

A bowling exercise, with somewhat similar advantages and limitations, has been devised by the Editor, from the three positions of George Hirst, which Messrs. Hurst and Blackett have published in

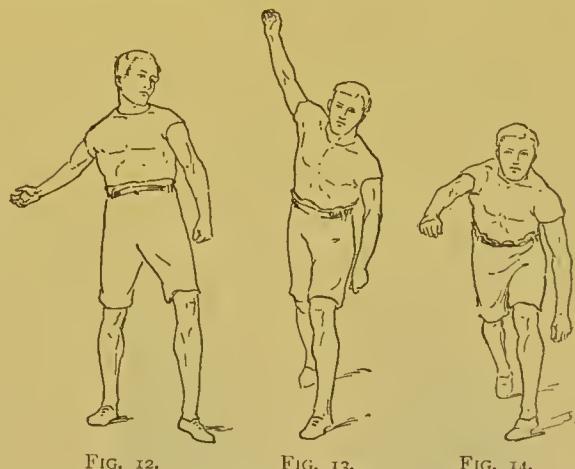


FIG. 12.

FIG. 13.

FIG. 14.

“The Cricket of Abel, Hirst, and Shrewsbury.” Fig. 12 shows how, after a short run, the gripped right hand—for the original has been adapted from the left-handed bowler—goes back and down, the body's weight being upon the back foot, and the head being bent back and to the left. Then the right arm sweeps round and up to its fullest extent and height, and the weight is transferred to the left foot while the trunk swings round, and, finally, the full extension of right arm and hand and right leg is reached, as in Fig. 14. Next, the right thumb is turned downwards, and the right hand and arm sweep back again out and away to the left, eventually ending up in their first position.

The left side has a corresponding exercise.

(“An Alphabet of Athletics” adds to this exercise, when mastered, a preliminary stooping to pick up an imaginary ball, and a subsequent recovery of poise and readiness to start forwards, backwards, or sideways.)

The next sample is from Macdonald Smith’s system of what he calls “Full Contractions”—a misleading term to many readers, since the word “contraction” conveys to most people no idea of any expansion or extension. I quote the following from his “Physical Education of Brain and Body” :—

“For the *Trapezius*.—This is performed practically thus (*see Figs. 15 and 16*) :

“RIGHT SHOULDER-BLADE.—Place the right hand behind the back, keeping the palm turned towards the body, and brace the right shoulder-blade towards the spine.



FIG. 15.

(By permission of Mr. W. Macdonald Smith.)



FIG. 16.

pull down the shoulder-blade (first position). Now, keeping arm still behind the back, and shoulder-blade braced, raise the shoulder-blade as far towards the neck as possible, bending the head backwards till it feels to be meeting the top of the shoulder-blade (second position). You will observe that this second position is precisely that made by a child on being tickled in the neck. Pass quickly from the first to the second position, and back again, and repeat the double movement eight times.

“LEFT SHOULDER-BLADE.—When quite familiar with the above exercise, it will be found easy to perform it similarly with the left shoulder-blade, repeating the movement twelve times as before.”

A special chapter later on will be devoted to an estimate of the Macdonald Smith system of brisk full movements. Here we can only consider briefly how far such a specimen exercise (perhaps not very clear to the reader in the original and without the illustration, which Mr. Smith has kindly lent me) satisfies our tests. Mr. Macdonald Smith himself, whilst rightly insisting on “special deep breathing now and then,” and on “some active exercise, such as walking, running, cycling, or, better, athletic games at least once a week,” says that the advantages of his system are these :—

- “1. No apparatus whatever is required.
2. Two persons may use them together, one ‘setting’ exercises to the other, or a class may be of any size.
3. They afford endless variety and combination, thus giving the element of interest so necessary for nervous development.
4. No fatigue is involved, even by beginners, in a proper performance of the exercises.
5. Independence of control is acquired at the same time, and this is the essential point in acquisition of grace of movement.
6. Rapidity of control is gained, whereas

The hand must be kept behind the back, and the shoulder-blade braced to the spine throughout the whole of the exercise. Now push the right hand straight downwards as far as is possible, which is effected by the full contraction of muscles which

in ordinary gymnastic work this is lost.
 7. No work being done, no poisons are generated. 8. They take up a very little time. 9. They clear the intellect instead of dulling it. 10. They lead to a perfect balance of the body, and therefore conduce largely to perfect balance of mind."

The reader, in reviewing these claims, will find most of them very fair, but may ask whether (3) the system would have enough interest for the British public or the solitary exerciser; and whether (4) no fatigue is involved and (7) no work is done. As to this latter point, Macdonald Smith more correctly says elsewhere that "full contraction completely removes from the muscle the venous blood charged with waste products which accumulate there from a multitude of causes, and leaves it replenished with the best nutritive fluid circulating in the body at the time."

In criticising the system as a whole, one might say that the directions of the various movements are decidedly good, and the way of doing the movements tends to alertness and independent control of unexpected and elaborate movements, as we have shown, but that there are other kinds of useful exercise besides fast and brisk full movements, one of these other kinds being slower movements for the trunk-muscles (and, in many cases, for the neck-muscles also), and exercises in relaxation and repose.

The disciples of Delsarte, however, who realise the importance of these latter exercises (two of which are to be found in the "Course for Men"), as well as the value of steadier trunk movements, do not insist on any brisk exercises at all. Here is an instance, from page 18 of Le Favre's "Physical Culture" (Fowler and Co.):—

"In relaxing the vertebral articulations, begin with the joint next to the skull, and

relax each following joint in its order, until you have allowed all to tumble down slowly. When down, bend your arms and head down towards the floor. The legs and knees are straight and firm, and the thighs serve as reservoirs for the energy which has been withdrawn from the spine. . . . In the accompanying cut, the twenty-four beads represent the spinal articulations, and the large bead the head. . . . Standing, withdraw energy from entire head; drop eyes; drop head; drop top vertebral joint, second joint, third joint, and so on until all are relaxed and eight is counted. Now return steadily to upright position. . . . After practising this exercise four times or dips to the front, four times obliquely, and four times to each side, you may cautiously relax backwards as far as you can comfortably."

Here we pass over minor points—*e.g.* the non-mention of the fact that relaxing should regularly be practised while the breath goes out, and come straight to the point which we hope we must have made already clear. It is this: The exercise, to be done either in private or in a class (where, surely, the humour of the relaxing need not be denied or laughter checked), is decidedly valuable, especially for nervous and highly strung people. But, even when combined with the extension and balance exercises which also belong to Delsarte's system, it is not Physical Education; it is only a part or member of it. Our complaint is not that the exercise is recommended; it is that the system is too often offered as "Physical Culture," as if India were to be called the world. There is wanting a certain accuracy of definition.

When Sandow's book ("Strength, and How to Obtain it") first came into our hands, we thought it might have avoided this inaccuracy. For undoubtedly San-

dow was strong, and so (in a sense) were most of those who practised his exercises.

But when we came to the end of the book, we found a chart which professed to show "*The Exercises for Physical Development*" (the italics are our own); and in this chart was not only no exercise whatsoever for developing or encouraging free extremities (as Delsartean systems do), but only one exercise without a hand-grip. Indeed, on p. 17, "all pupils are advised to use the [grip] dumb-bell." The chart includes no special practice either in full breathing, or in liteness and versatile and rapid adaptation to unexpected demands, or in muscular relaxing and economy.

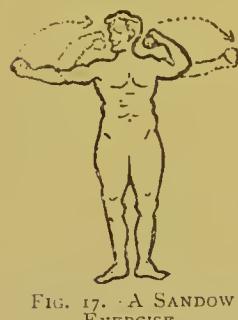


FIG. 17. A SANDOW EXERCISE.

The system has proved itself interesting to many, because the apparatus serves as a sort of taskmaster and reminder, and the sight

and sense of an increasing biceps and weight-lifting capacity give pleasure. But the chart is wrongly named. It comprises exercises not for the development of the body but for the development of a certain type of strength by a course which, from beginning to end, involves strain, and is devoid of lightness, *abandon*, and independent control of this or that unexpected combination of muscles at a moment's notice.

At the same time the Sandow system, however undesirable or even fatal it may prove for a would-be cricketer or racquet-player or golfer, does comprise some really good exercises for developing trunk muscles and for reducing obesity, and for other purposes which a later chapter will describe.

In recent years we have had what is called a Danish system brought before our notice by a teacher in London, who tells

us that it has practically no exercise which can safely be recommended to the majority of people. We find that not a few of its movements (*see below*) were practised and taught as early as 1835 by De Laspée, who published a second edition of his book ("Calisthenics," Charles Griffin and Co.) in 1865. We therefore demand from the "Danish system" that it should not



FIG. 18.



FIG. 19.



FIG. 20.



FIG. 21.

SOME OF DE LASPÉE'S ABSURD MOVEMENTS.

claim entire originality. Here, once again, in considering De Laspée's exceedingly careful work, we agree that many of the movements, absurd as they look, are not bad, especially for the trunk-muscles (*see chapter on "Indigestion"*). De Laspée's system is better than Sandow's in so far as it often leaves the extremities more free. But it lacks interest and attraction, except for people who wish to be funny without real wit, and—to a smaller extent—for ladies who wish to improve their figure and carriage. It is altogether unlikely to be practised steadily by an average Anglo-Saxon, however good it may be for developing many muscles, and correcting many deformities.

The next example is from a most elaborate system, which has been designed by a number of workers for correcting deformities with the help of apparatus. Fig. 22 represents a stretching apparatus for remedying certain abnormal curves of

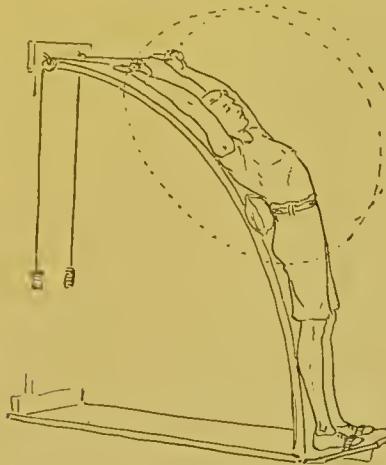


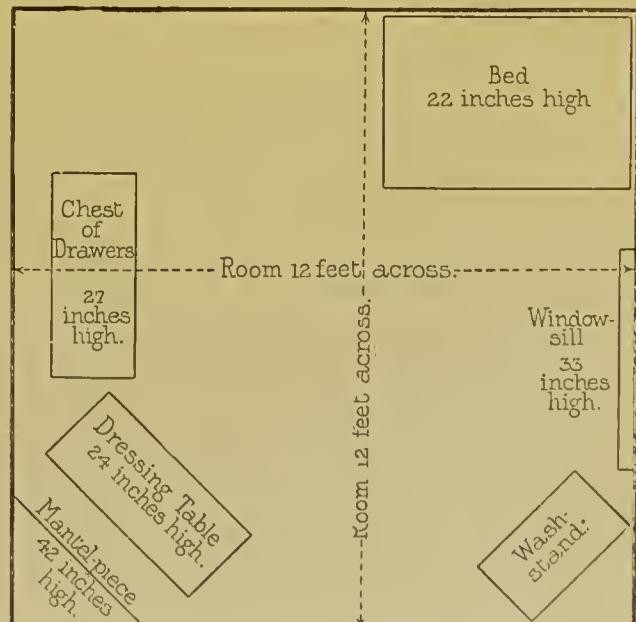
FIG. 22.

the spine, etc., and so improving the appearance and health. It is one of the many remedial helps to be found in gymnasia on the Continent (*e.g.* at the Zander Institutes), in America, (*e.g.* at Kellogg's Sanitarium), and in England. This particular stretcher (manufactured by Heath in England) is in use at the St. Andrew's Gymnasium at Ealing. It achieves what some of De Laspée's exercises would achieve if they were practised, and what the inclined plank (below) and a cushion can help to achieve. The apparatus entices one to the quiet and easy positions and movements as if it were a friend and fellow-worker. It seems to say: "Come and let's get rid of this mistake together." The apparatus, however, is perhaps somewhat too cumbrous for an ordinary bedroom.

The same objection might apply to a system which the Editor himself has now used for a considerable time, in

addition to parts of other systems. Some time ago there was a gymnasium and school of arms kept by a famous swordsman named Kioso. His assistant, "Professor" Hall, who taught boxing, had a tendency to obesity, and was wont to remove his superfluous fat very rapidly by "mountaineering" up a plank inclined at a very severe angle, then turning round—a difficult process—on a narrow platform at the top, then coming down again very slowly—a feat that required enormous restraint.

The Editor has in his bedroom (Fig. 23) a large and smooth plank which generally rests inconspicuously beside the dado of the wall, but for a few minutes on most days is tilted against the bed, the chest of drawers, or the chimney-piece, the latter giving the steepest climb. To walk barefooted up and down this plank in various ways—*e.g.* on the toes or on the heels, looking as much as possible at a mark high on the walls in front, helps to get the big toe back to its proper line (Fig. 24), is an exercise in carriage and in balance, is

FIG. 23.—THE PLANK USED IN THIS BEDROOM IS ABOUT $1\frac{1}{2}$ IN. THICK, $10\frac{1}{2}$ IN. WIDE, AND 130 IN. LONG.

a developer for many muscles that hold or move the neck, the trunk, the thighs, and the legs. As practice for walking in a straight line and getting a firm hold with the feet, as a remedy for "flat feet," as a

help against obesity, as a gentle exercise for the muscles of breathing, digestion, and excretion, as well as a graduated exercise for the sound heart that has too much fat round it (compare the Oertel treatment, as practised in Germany, and, we believe, somewhere in Wales), it has many advantages. It can also be used

for other objects—e.g. as a rest if one lies flat on one's back and lets the arms hang loosely. It admits of graduation from a few slow walks up and down a gentle incline to many rapid strides up and down a steep incline, though the latter should certainly not be tried except after a careful medical examination. But it is not the best exercise for all the above purposes, and it is not a complete system of Physical Culture. It will not suit everyone.

In a word, it is not perfect, and it does not profess to be perfect. It advertises some of its advantages, but it also advertises some of its shortcomings, including its apparent absurdity; though this weakness may be due rather to its newness than to its real absurdity, as we should realise if we could imagine ourselves to be seeing Cricket, Lawn-tennis, gymnastics, etc., for the first time. They would appear ridiculous pursuits, and yet spectators generally watch them in grim earnest. The inclined-plank exercises, with the simple plank or the special apparatus (already mentioned) merely offer themselves as candidates for private-room exercise, in order that certain useful aims of Physical Education may be partially



FIG. 24.

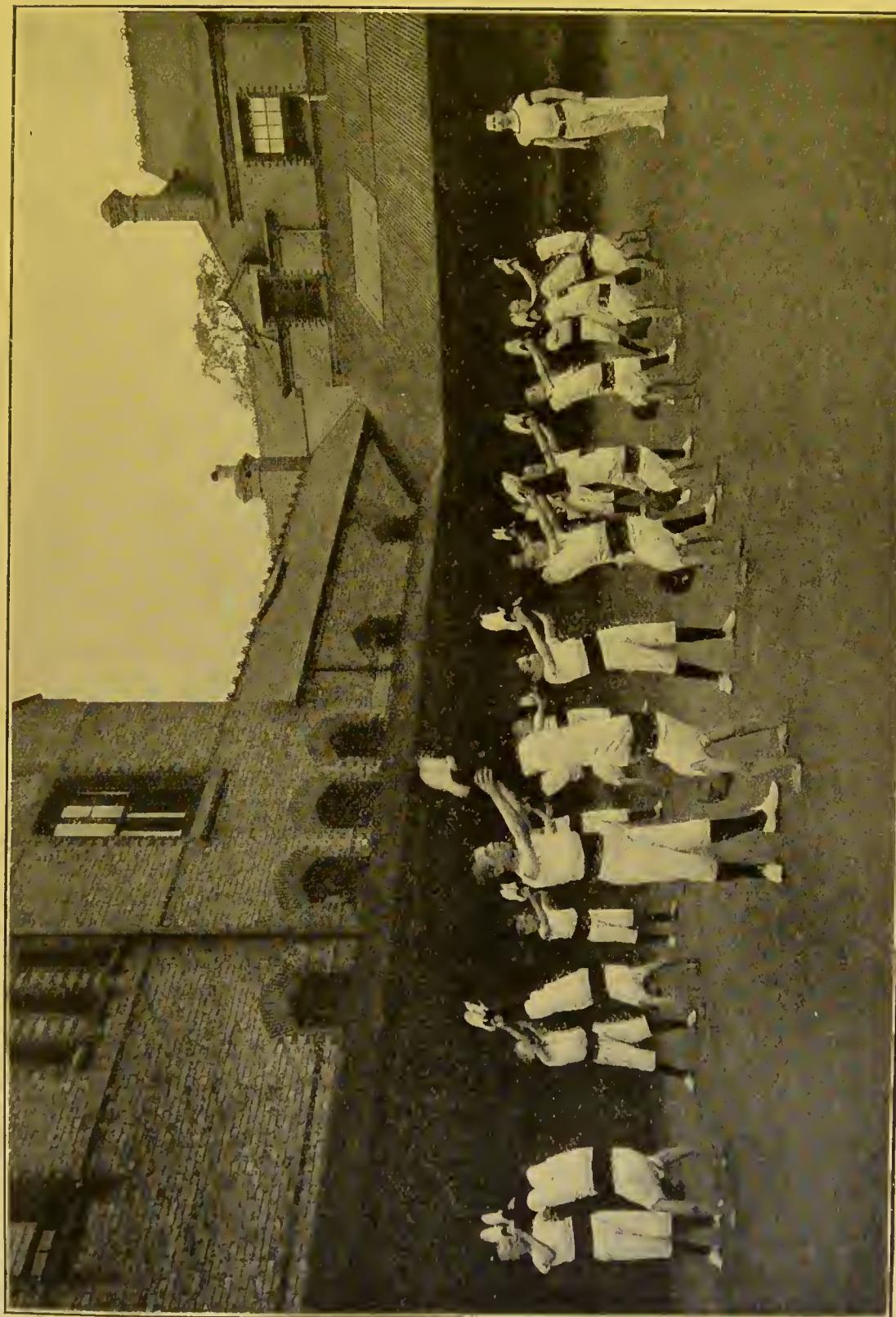
satisfied. They protest that they do not include the whole ideal: they do not give all that we should demand from systems of exercise.

These many examples will now enable us to set down, in a more abstract form, part of what we should demand. And the first requisite appears to be a *fair all-round estimate, made with knowledge and stated with candour*. We want advertisements, but we want them truthful.

Now this fair estimate must surely set first and foremost those things which most clearly "belong unto our peace" or *poise*. To pretend that exercise merely deals with muscles is a gross error. It has a wider province: it deals with the nerves and the general state of the mind, even when it deals with them by means of the use of the muscles. It should bring a tendency to self-control and patience and purity, to alertness and rapidity and power, to health and happiness and helpfulness, to beauty and gracefulness and self-respect. Such excellences *need not necessarily be brought to the conscious mind* by a system of Physical Education; but, unless they are brought to the mind and the body more and more, then that system must be considered not a great success. The system may be one that seems to teem with faults; it may, to the casual eye, be simply the development of the biceps and a few other muscles by tension and stress. But if it works in the right direction to which we have just pointed, especially if it confesses where it falls short, then it is a success: it is giving us what we should demand.

Some systems, which shall be nameless, are utterly unlikely to give us this, tending rather in the direction of the famous Farnese Hercules type, which most of us instinctively feel to be stupid, bestial, degraded. But where they do help to give

FIG. 25.—A SYSTEM THAT INTERESTS BOYS AT DARTFORD REFORMATORY SCHOOL.



it, they are good, while, on the other hand, the theoretically "ennobling" and "vitalising" systems may sometimes fail to produce good fruits. In that event, we condemn the system for those particular people. No amount of theory can bolster it up for those people. We must judge it by its all-round effects.

It may be well to outline some of these effects in a tabular form. We cannot call them simply physical and hygienic and "aesthetic," or simply spiritual and moral, or simply intellectual and economical, or simply social. We must be content to give a list, and then leave the reader to apply the abstract terms as widely or as narrowly as he likes. But, for the sake of clearness, some "physical" examples will be suggested. It will be seen that each merit is related to the next. The headings are not mutually exclusive.

Excellences which a system of Physical Education should help to produce, though it need not make people too conscious of this aim :—

Purity (including satisfactory elimination of the undesirable, or capacity for turning it to a good use).

Versatility (including power to meet and respond to and use new conditions successfully and quickly).

The *sense or senses* to avoid temptations, but to welcome and take in and assimilate helpful conditions.

Activity (including both quickness to start correctly and quickness to carry through correctly, as in a hundred yards sprint).

"*Nerve*" (including courage and grit).

Strength (including ability to endure, as well as to strain, push, pull, etc.; but not including unnecessary effort, which is no virtue, but a mistake).

Economy (including the art of stopping leakages and of not using that which it is unprofitable and perhaps ugly to use).

Such economy is part of—

Beauty and Grace (including the static, kinetic, and dynamic, as when a cricketer stands well, starts and runs well, and hits well). Much depends on— .

Poise, or perfect power kept in repose till it is needed; and even then poise means repose of all power that is not needed. Possibly *Poise* is the word that comprises most of the above ideas, for poise involves—

Satisfaction and happiness, and the bias to help others to satisfaction and happiness. The most important part of this help is—

Help to Posterity, by the tendency to produce a better being than one's past self.

We may look at the matter in what may be called a more "practical" way. By "practical," people generally mean "*connected with money-earning*" (or "*serious life*," as they call it). The desire to earn money for its own sake or the sake of what it may buy is still fundamental. At first an instinct to preserve life by procuring necessities, it now too often is a habit of toiling to procure luxuries which are believed to be necessities. Still, connection with money is a powerful interest and incentive, convincing many that a system is worth while, and perhaps consoling them for the fact that a system is not too pleasant. But the system should, if possible, be pleasant to every individual practiser of it.

Variety, therefore, is as essential as any other interest. This does not mean a large number of set exercises, but a variety of fresh combinations (as in the Macdonald Smith and Ling systems). Particularly should there be *adaptability* to meet the special needs of individuals and their special conditions—e.g. to remedy a high shoulder, so that the general result may be nearer to harmony and balance.

This forbids a fixed system. The system must be varied and adaptable, and its exponents must be open-minded and *receptive* to improvements. The Editor not long ago interviewed a teacher, to whom he suggested the primary importance of exercises in breathing and in relaxing (or muscular economy) for the children,

of whom nearly every one was breathing in through the mouth and frowning with the face (as a few are doing in Fig. 25.) "Oh, no!" said the teacher; "that would be a confession that I had been wrong all this time." Here was a man hypnotised by his

past acts, frightened by his own shadow.

While variety encourages some freedom, *correctness* must come before full freedom. The system must teach us how to do the admitted A B C of the body's work in good form and style quite easily before we can safely express ourselves without thought.

Correctness includes correct *order*, large muscles being, as a rule, developed before small, as when the children are taught by Professor Liberty Tadd (of Philadelphia) to write and draw on a large scale with the arm (see Fig. 26) before they do fine work with the fingers; or when the Delsarte and one or two other systems train their pupils to lift their arm properly when they reach up to get a book off a shelf. The process of raising the arm is described (see Fig. 27) by Mrs Balliet, in "*The Body Beautiful*" (published by the author at 1001, Atlantic Avenue, Atlantic City, N.J., U.S.A.) thus:

"Sit firmly (not upon the end of your vertebræ), with arms lying devitalised in your lap. Allow the energy to flow into your shoulders, then into your elbows, turning them out in opposition to the torso, into the wrist, which it raises, then into the hands to the finger-tips, making them rigid. Drop the hands, draw back the elbows towards the torso, let the hands float to the lap, remembering that the

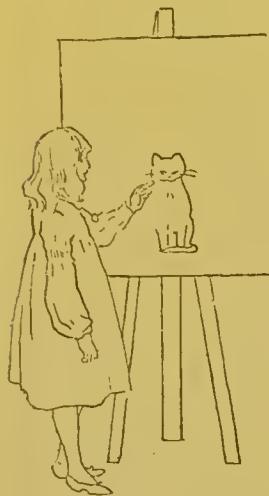


FIG. 26.

wrist always leads the hand—it is raised when active, and sinks when the energy is withdrawn. Think of it as going against the wind in every direction. Count four to raise the arms, and four to withdraw the same. Keep all motions steady to ensure quick progress. When the arms are raised in succession and dropped in the same manner, the elbows move in a circular manner and in opposition to the torso. Never raise the arm without turning the elbow out, or the law will be broken, and a creepy motion will be the result. When the energy reaches the finger-tips, the arm is fully invigorated. Repeat this exercise five times."

As to the importance of correct order, another American writer has said :—

"There is scarcely an organ which be-

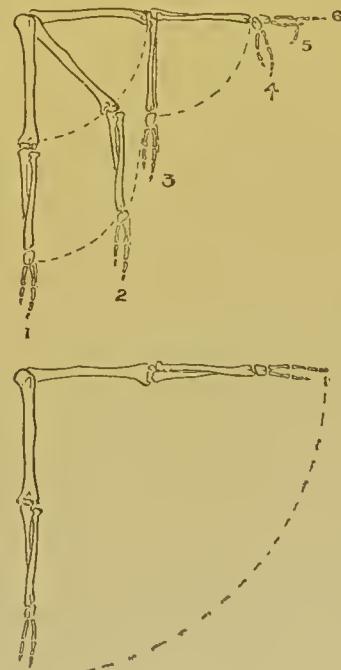


FIG. 27.—THE RIGHT AND WRONG WAYS OF RAISING AN ARM.

haves in the young as it does in later life. They are more delicately organised, and contain a larger proportion of water, and are more easily injured. The bones contain less earthy matter, 'animal' matter predominating. The brain is being rapidly

developed. The arterial pressure is not so great. The digestive organs of infants present many peculiarities. The digestive glands are but gradually prepared for their functions. The salivary glands are only partially active. The secretions of the stomach contain more lactic than muriatic acid. The stomach is less elongated, and occupies a more vertical position than in the adult. The liver is much larger in proportion to the size of the body than it is in adult life."

With children we must allow for periods of growth. The body increases in length first, next in breadth and depth of chest, forehead, and face. The shoulder is developed—and should be exercised—before the finer finger-muscles (for writing with a small pencil). Examinations made upon over 30,000 children show that the age of seven to nine is usually a period of fatigue, the age of twelve to fourteen being another revolutionary time.

Right order also involves a *graduation*, so that one set of exercises shall almost insensibly, as in the German system, prepare for, and lead on to, the more difficult.

With all the above merits we should demand as many good direct and indirect results as is possible in the time, though it is unfair to expect any system to be an Aladdin's lamp or to fulfil the all-comprehensive promises made by the advertisers of many patent pills.

This chapter has been a long one. But the subject is of the utmost importance, since the study of Physical Education is still in its beginning, and we do not for one moment pretend to offer our readers a complete or even a really satisfactory system. We offer them as definite exercises as we dare, but we want them constantly to progress and improve with the times, and not to be tied by any leading-strings.

This being our ambition—an ambition free from false pride and that "foolish consistency" which Emerson calls "the hobgoblin of little minds"—it has been necessary for us to offer to our readers a few criteria by which they may choose for themselves, in future years and decades of years, the best systems or parts of systems as they from time to time appear.

We want the public not to swallow in faith and hope whatever pill or method of "physiological exercise" may be advertised as a perfect panacea for all fleshly, or fleshy, or fatty ills, but to turn upon the professors and their plans a good search-light, or—to change the comparison—to apply to them a chemical test which will very soon precipitate the valuable elements—if there are any—as a deposit, after which action the rest of the water may be thrown away. What we should demand from systems is not completeness, but candour as to their merits and deficiencies. And among their merits we look (perhaps first of all) for interest and attractiveness, and then—to repeat our definition—for the most all-round benefit (and the least harm) at the smallest expense of money, time, and energy, with the greatest independence of external conditions, and a fair advertisement to show the interests and advantages and the limitations.

We demand much from systems. They, in their turn, demand much from us. Some of their claims have been considered in the introductory notes to the Course for Men. Among these claims will be one for attention to, and concentration on, and devotion to the exercises for as long as they seem to be really worth doing at all. There will also be this—that we shall regard good all-round Physical Education as a profession inferior to none that is practised for pay in the twentieth century.

CHAPTER VII.

COURSE FOR MOST WOMEN.

The Importance of Nice Looks—Some of the Charms of Women—Fashionable Clothing and a Compromise—Our Course has Variety and Includes Rest—Graceful Exercises Selected by Mr. Flynn—Other Exercise (Games, etc.) Needed also—Early Morning—Breathing—Bath—Massage—Neck Movements—Floor Exercises—A Few Athletic Exercises—A Few Exercises with Apparatus—Wands—The Night and Relaxing—The Sense of Humour—General Instructions for Use.

THREE is probably something rather wrong, even if it only be a kind of mental flat-footedness, about a woman who does not want to be nice-looking. There is certainly something very wrong about a Course which does not tend to make her nice-looking. In this Course we have tried to help most women to achieve or regain the attractiveness that should belong to every female animal even under a very severe test—when she runs; but equally when she sits or stands or walks or rests.

The sex has been idealised by a never to be replaced master hand as “England’s rosebud garden of girls,” but seldom can either the exquisite imagery of a Tennyson or the artistic compressions and superstructures of a Worth or Redfern produce, without reasonable exercise, more than a transplendent frame to take one’s attention off the poor picture inside it. It is our aim to make women more worthy of the best poetry and the best clothes.

Among the charms of women we men count various particular items, even if we are scarcely conscious of more than a general impression. The complexion (a deeper pink must not be displayed by the nose), the eye, the neck, the bust, the waist, the full swing of the leg from the hips, the free and graceful arm and hand, the neat ankle and arched foot, and a convincing sense of cleanliness, trimness, good carriage, health, and fitness—

these eventually move us more than we are aware. And these are blessings that a good Course will help to bring; while it will help to remove those curses which perhaps the uncritical male has not observed—the nervous restlessness or fatigue, the indigestion, the congestion, the deformity of chest or abdomen or spine or foot.

A word here—though special articles deal with the subject—about the distortions due to wrong clothing. We wish to take no extreme view; but we think we can satisfy both extremists—the absolute slaves of “Nature,” who dare not wear a corset, and the absolute slaves of fashion who dare not do without it. At certain times—notably in the early morning, before and after the bath, and late at night—the body should be free to the air. These are the times when the woman who relies on her dress for her figure should labour out her freedom, and by sensible exercises make for herself and within herself a body of which the corset shall be formed by human muscle. If she must “disfigure” herself in “society,” let her restore a little of her natural beauty in privacy. Let her bare her feet, for example, and, by such exercises as we offer, create a foot which it would be pleasant to see bare or in a sandal. If this does nothing else, at any rate it should make her feel less of a shameful hypocrisy when anyone admires her.

In a word, then, we would say to every woman, "Get beauty, and with all thy getting get health and fitness."

Our Course will, for the sake of variety, include free exercises, several athletic exercises, floor exercises and movements with a wand (designed by Mr. Flynn, whose co-operation in this article, and in choosing various exercises of the Course, has been invaluable), a few with the inclined plank and other apparatus, and some samples from a fuller Course in relaxing, which will be offered elsewhere. Baron Nils Posse, who wrote a large book on the Ling system, insists that "passive repose has no place in gymnastics for the well." We utterly disagree with him. Without such practice the girl or woman who is not naturally perfect will be ungraceful, will lose valuable energy by muscular tension, and may even be hysterical or otherwise morbid and neurotic. So we offer a few simple practices for private relaxation, believing that they may give most women more poise and gracefulness.

We venture also to disagree with this same exponent of the Ling system when he says that "slight heed should be paid

to the appearance of a movement." We have tried to make the movements (especially the athletic and the wand exercises) graceful, and so, we trust, more interesting. There are so many positions and motions of the human frame which are *both* beneficial *and* beautiful, that to exclude the latter would be like collecting lead, when one might collect silver, because the former weighed more and looked duller.

For special purposes, special exercises will soon show whatever value they possess. Thus the slower leg movements may relieve blood-pressure in the brain and cure insomnia.

In addition to the Course, and as alternatives, we heartily recommend, with Sir Henry Thompson, fencing (we should include left-handed fencing), riding, swimming, and (for those who like and can afford it) Golf. The veteran physician does not forget to remind women to walk and stand correctly and gracefully.

And now to business, with a few brief hints as to the use of the exercises, and a short break to describe the merits of the wand-movements. The fuller instructions for use we reserve till the end of the chapter.

THE COURSE

Don't strain; increase the extent, the pace, the number of times, gradually.
Don't use the muscles that are not wanted: especially don't frown or grip needlessly.
Breathe in fully and deeply through the nostrils.
Concentrate your mind on each movement in turn, regardless of what is to come next.

I.—EARLY MORNING : BREATHING, ETC.

1. Directly you wake, blow your nose, wash your teeth, and breathe in fresh air through the nostrils; and practise voice-production, as advised in the special chapter, saying or—if you dare—singing or shouting words that are rich in *m's* and *n's*. The chief breathing-exercises are outlined here; for details, see the chapter on Breathing.

2. Lying or standing straight, but with the trunk leaning slightly forward from the hips, and with the chin in, send the abdomen out and draw the diaphragm up as you inhale through the nostrils.

N.B.—If your left nostril is smaller than your right, occasionally close your right with your finger and inhale only through your left. Then, as you exhale through the mouth or nostrils, bring the

abdomen in and send the diaphragm as high up as it will comfortably go. This inhaling exercise expands your air-room by letting down its floor (Fig. 6, p. 92).

3. Keeping the abdomen in and the diaphragm up, send your lower ribs outwards in front and to the sides as you inhale through the nostrils. Keep your palms upon these ribs to help them. Then draw these ribs in as you exhale, as thoroughly as is comfortable, through the mouth or nostrils. This inhaling exercise expands your air-room by letting out its side walls (*see* Fig. 7, p. 92).

4. First, as you inhale through the nostrils, send your abdomen out and your diaphragm down, then send your chest walls out; then draw your abdomen in and your diaphragm up and your chest walls in, so that the breath is raised to the top of the lungs. Then exhale as before. This inhaling exercise expands your air-room very slightly by letting up its ceiling (*see* Fig. 7, p. 92).

5. Twice a week practise the exercises mentioned on p. 94. These will help some breathing-muscles by relieving them.

6. After the first month, practise the exercises mentioned on p. 94, but reverse them, breathing in instead of breathing out, and *vice versa*. This will develop some breathing-muscles by resisting them.

II.—BATH ; RUBBING AND MASSAGE.

7. In a comfortable but well-ventilated bathroom, wet and soap and rub your skin with warm or hot water, then invigorate and strengthen it with cool or cold water, and rub yourself to restore a fine circulation. Then try the massage, as described in the Course for Men (p. 3); especially the movements that start from above the right leg, go up the right side, across the body, and down the left side to the top of the left leg; and round the navel in the same direction.

III.—NECK MOVEMENTS.

8. Neck movements are of great importance for breathing and chest expansion, as well as for carriage and for athletics. The following are a few of the best known. They should be practised slowly. Here, as elsewhere, we leave it to the common-sense of the reader to decide how often she shall do each exercise. A useful position is shown in Fig. 30.



FIG. 1.



FIG. 2.

9. Taking the position shown in Fig. 1, with the feet firm on the ground, bend the head slowly back, then draw the chin well in. Next bend the head slowly forwards, then draw the chin well in.

10. Keeping the shoulders "square," bend the head to the right and to the left, as in Fig. 2. You should *feel* the neck being stretched (not strained), or else these movements are of little use.

11. Keeping the shoulders "square," turn the head to the right and to the left, as in Fig. 3.

12. This more powerful movement belongs to the Ling system, and is useful in case of "poke" or drooping head. Unless the apparatus described on p. 116 be used by an individual, two pupils, or a pupil and a teacher, stand facing one another, and the teacher puts her hands behind the pupil's head, as in Fig. 4, letting her forearms rest on the pupil's shoulders in front. The pupil bends her head forward and then pushes it back as far as it will comfortably go,



FIG. 3.

while the teacher offers a moderate resistance, to develop the neck muscles. The pupil should draw the chin in as she



FIG. 4.

moves the head back. This brings the chest forward. This exercise, therefore, helps to correct a bad carriage and to expand the chest.

IV.—FLOOR EXERCISES.

Some of the interest of most floor movements lies in their comparative easiness and safety, together with their power of developing the trunk muscles and the sense of balance. All the following movements are good for the large muscles of back, waist, and hips, and for the too seldom used muscles of the insteps and toe-joints, especially if the feet be bare during the practice. The movements offer increasing difficulty.



FIG. 5.

13. Keeping the small of the back hollow, change from the position of Fig. 5 towards that of Fig. 6.

14. By lifting the stiff legs alternately (see Fig. 7) you strengthen the front muscles of the thigh as well as those which we have just mentioned. At first do no more than raise the leg *slightly* from the ground.

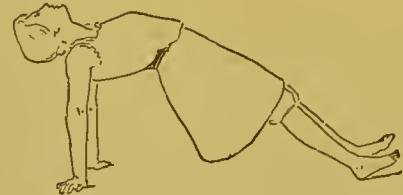


FIG. 6.

15. Fig. 8 shows a movement for developing the abdominal muscles in particular. It should be done with the two legs alternately.

16. From the position of Fig. 9 spring back with the feet to the position of Fig. 10; then spring forwards again.

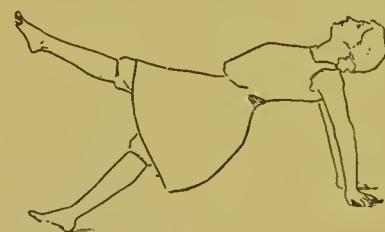


FIG. 7.

This exercises the muscles of back, waist, instep, and arms.

17. To straighten the legs and then lift them alternately, as in Fig. 11, is good for the spinal muscles.

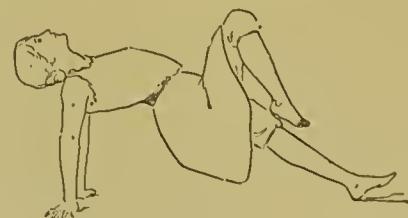


FIG. 8.

18. To lift them, alternately, bent as in Fig. 12, is good for the muscles of the thigh, calf, instep, and toe-joints.

19. For a good balance-movement, start with the leaning forward position of Fig.



FIG. 9.

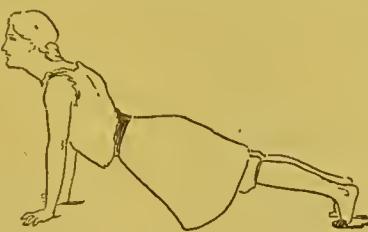


FIG. 10.

10; then, throwing the weight well on to the right hand, and keeping the right hand directly under the shoulders, bring

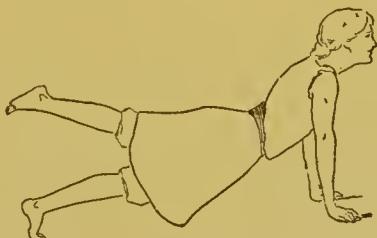


FIG. 11.

the left arm up to a place rather higher than Fig. 13 shows. The hips should be

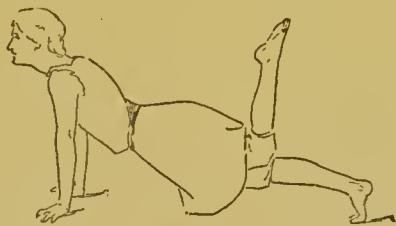


FIG. 12.

kept up, the back arched. Then do this with the opposite side.



FIG. 13.

20. This, as shown in Fig. 14, is another balance-movement, slightly harder.

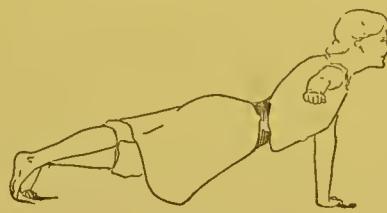


FIG. 14.

21. If the exercise in Fig. 15, on the balls and toes, is found too hard, begin it by balancing on the *side* of the left foot. Then do a similar exercise on the side of the right foot.



FIG. 15.

22. Fig. 16, owing to the straddle position of the legs, develops the adductor and abductor muscles of the thigh. Here also it may be easier to begin on the *side*

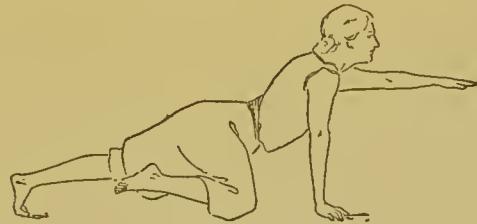


FIG. 16.

of the left foot, but that does not improve the instep so much.

23. Fig. 17 shows a balance-movement that exercises the triceps. The same

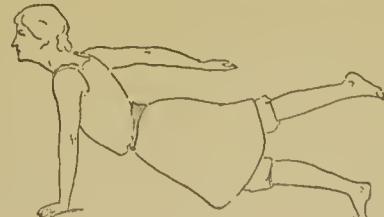


FIG. 17.

remark applies here to the foot on the floor as in 21 and 22.

24. Get the weight well over the spread-finger hand which rests on the floor; then

transferred to your left foot. Do a similar exercise with the left side. Some merits of this practice have been suggested in a previous article.



FIG. 18.

lift the other hand and the leg of the same side, as in Fig. 18. Do this with the left side also.

V.—A FEW ATHLETIC EXERCISES.

If girls and women practised a few athletic exercises, from which these eight are only a selection, they could then play most games with greater safety, success, and enjoyment, and with less need of constant practice at the games themselves.

25. Lawn Tennis Backhand (after the model of the Dohertys, from their book on the game). Keep the left hand loose, and the right hand either flat or grasping some implement (*e.g.* a light club). Start in the position of Fig. 19, sweep round and out with a good trunk and shoulder swing, as if taking a backhand stroke, and finish up in the position of Fig. 20. Do a similar exercise with the left side. This is a useful movement for the trunk muscles.

26. Lawn Tennis Service (after the model of R. F. Doherty). Keep the right hand flat or grasping some light implement as before. Bend the neck and trunk and right shoulder well back, as in Fig. 21, and throw an imaginary ball up above the head, but rather to your right; then sweep up and then down with a full follow-through, till you arrive in the position of Fig. 22, your weight having been



FIG. 19.



FIG. 20.

27. A hit at Hockey (after a model in the Isthmian Library volume). Starting as in Fig. 23, sweep round with a trunk and shoulder swing, and arrive as in Fig. 24. Then make the movement back again with equal vigour.

28. A more violent exercise is the Golf



FIG. 21.



FIG. 22.

swing, which can be made with a light club. From the position with club and right hand and shoulder well up and back, swing downwards and right away outwards and then up again to the position of Fig. 26, which has brought your weight off your right foot on to your left. Now

do this with equal vigour back again. It is not a bad plan to keep your eye



FIG. 23.



FIG. 24.

fixed on a piece of paper or golf-ball on the floor in front of you; but instruc-



FIG. 25.



FIG. 26.

tions from an experienced golfer will help you at the start.

VI.—A FEW EXERCISES WITH APPARATUS.

Put a cushion on a chair, or on a

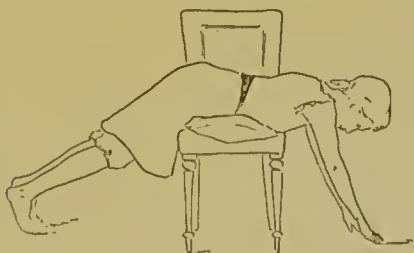


FIG. 27.

plank between two chairs, and, without overstraining yourself, strengthen your

back muscles by 28, and your abdominal muscles by 29.

29. To strengthen the back. Starting as in Fig. 27, throw your arms well above your head, raising both them and your legs and your head as far as you can without strain, as in Fig. 28.

30. To strengthen the abdominal muscles, and also to raise the chest. Lift the

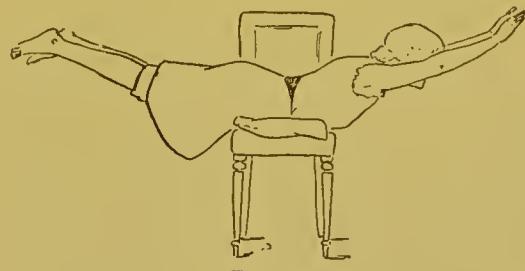


FIG. 28.

legs from the floor towards the position shown by the dotted lines of Fig. 29, but do not strain.

31. One or two of the inclined plank exercises (*see pp. 112, 113*) may be found useful, for a change. They should be practised with bare feet, the cork covering of one of the special planks made

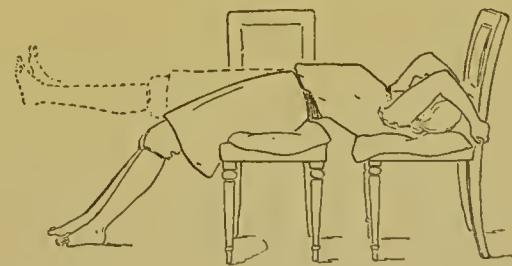


FIG. 29.

for the purpose tending to prevent excessive cold.

VII.—WANDS, FOR TWO OR THREE DAYS A WEEK.

Introductory Notes.—It may be as well, in view of the fulsome flattery of special systems with which nearly every paper now reeks, to say what wands will *not* do, just so that nobody need be dis-

appointed. To begin with, they will not cure "fits" or "Americanitis," or even ensure "perfect health and beauty." But they may help the spine—a woman's weakness—to more normal curves, strengthen the back and shoulders and abdomen, and—to use the "argot" of the gymnasium—give the figure a better "set up" appearance, and a finer balance and poise. And what may most interest the fair reader, or the dark reader, is that wand-exercises, well done, will give their man-milliners and ladies' tailors a much better chance to show the latest "creations"—we believe this to be the phrase—on a form now *svelte* and well controlled, in place of a human block whose sole demand upon our admiration is that it is flabby enough to be moulded by a dress though lazy enough to be groomed by a French maid. Perhaps the "smart set" has not yet imagined how ill-fitted it is in every way, apart from its maid, for the "social" battle of life.

Physiologically, then, the right wand-exercises may give women balance, and power to co-ordinate their movements, and strength in those parts where now they need it most pitifully, and grace in the doing and in the results, if our "artist's model" be followed. We again leave the intelligent reader to find out the best number of times for each exercise.

32. Starting as in Fig. 30, step forward with the left foot, and swing the wand round and up above the head, as in Fig. 31. Then lunge forward with the left leg, and bring the wand down behind the shoulders (Fig. 32). Keep the chin in. Return to the pose of Fig. 31, then to that of Fig. 30.

Do a similar exercise with the right foot and leg.

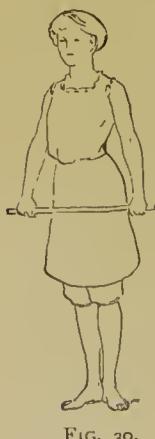


FIG. 30.

33. From the first position (Fig. 30) raise the left leg sideways as in Fig. 33, and lift the wand and send it out to the



FIG. 31.



FIG. 32.

right as in this same diagram. Now lunge to the left side, and bring the wand behind the shoulders, as in Fig. 34; the right arm is bent, the left arm is straight. Keep the chin in. Return to the pose of Fig. 33,

then to that of Fig. 30.

Do a similar exer-

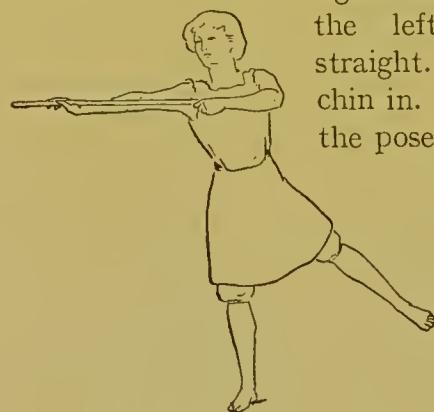


FIG. 33.

cise with the right and left sides reversed.

34. From the first position raise the left leg behind you (Fig. 35), and lift the wand above your head. Then step forward with the left foot, and bend your trunk and head over to your left side (Fig. 36). Return to the poses of Figs. 35 and 30.



FIG. 34.

Reverse the sides.

35. From the first position raise the left leg in front of you and lift the wand

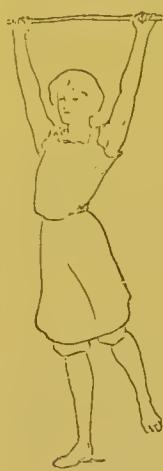


FIG. 35.



FIG. 36.

Reverse the sides.

37. Step with the left leg behind the right, the left heel being off the ground;



FIG. 39.



FIG. 40.

forward to the height of the shoulders (Fig. 37). Now lunge forward with the left leg, and turn the trunk and head to the right (Fig. 38). Return to the poses o Figs. 37 and 30.

Reverse the sides.

36. From the first position lunge to the left, and swing the wand sideways high



FIG. 37.



FIG. 38.

send the wand down in front, then up obliquely over the head to the left side (Fig. 41), the right arm being bent over the head, and the left arm straight sideways to the left. Sink to the squatting position of Fig. 42. Return to the poses of Figs. 41 and 30.

Reverse the sides.



FIG. 41.



FIG. 42.

up to the right (Fig. 39). Now swing the wand down in front of the body and then up to the left, the arms coming above the head, while you kneel on the right knee as in Fig. 40. Return to the poses of Figs. 39 and 30.

VIII.—THE NIGHT, AND RELAXING.

In this age of anxiety and hurry, alternating with breakdowns and wearinesses of the flesh and spirit, we may

not want to eat less or drink less (or smoke less), or go to bed earlier; but we do want to sleep well, and we do want to look at our best and to save our powers for those purposes on which our hearts are set.



FIG. 43.



FIG. 44.

Relaxing is not the only way to this desirable state, but it is *one* way, and a very simple one. It costs no money, little time, less energy. It may save much money, much time, much energy.

The values of the art are realised only by practice of relaxing after deep breathings and full extensions. But those who *have* realised the values will bear us out when we say that, if the exercises suit, they may be able to change every department of life for the better.

The most needful times for relaxing are before a crisis, during pain or discomfort, after bad news, and before sleep.



FIG. 45.



FIG. 46.

As we have said elsewhere, there are three ways of doing the exercises, and each reader must choose her own way, namely :—

(i.) Privately, in which case the complete relaxation (38) may be tried.

(ii.) In the presence of others, in which case it does not seem unwise to be the first to laugh at the practice ; to laugh thus good-naturedly is to do oneself a service.

(iii.) In a modified form, so that those around you scarcely notice anything.

38. The exercise in the sitting position has been described on p. 95, as well as at the end of the Course for Men (p. 13). See Figs. 43 to 46.

39. Stand up where you have a clear space of floor, and take a deep, full breath through the nostrils. Send the abdomen



FIG. 47.



FIG. 48.

out and the diaphragm down, then the chest-walls out ; draw the diaphragm up, and let the raised breathing, as it were, raise your trunk, chest, shoulders, head, and eyes. Your hands hang down limp and heavy at your sides. Now let your breath ooze gradually out, while your eyes close, your face-muscles relax, your head sinks gently forward on your chest, and your spine bends forward also (Fig. 48). Breathe deeply in, and take advantage of each outward breath to relax more and more. Now by degrees "crumble" down upon the floor, as Mrs. William Archer describes the process. An intermediate stage is seen in Fig. 49. Next

the head sinks down between the hands (Fig. 49), and then you lie flat on your face. Be all the time leisurely and gentle—that is the essence of the practice. Then roll over quietly, till you find your-



FIG. 49.



FIG. 50.

self stretched on your back, with your arms out at right angles to your body, as in Fig. 51. Rest thus for a minute or two, breathing deeply all the while.

40. Then comes an important matter. Stretch out each leg in turn, then each arm and hand and finger in turn. Then twist each hand and arm round in turn, first one way, then the other. Then rest and relax still more.

All severe tension ought now to be going or gone from your face, neck, hands, feet, and spine.

Rest another minute or two, and think of all the pleasantest and most peaceful things you know—a warm bath, the sight of children or animals or flowers asleep, a poppy-field—whatever helps you.

Then get up by *very, very slow degrees*. Let the head be raised last of all, with a deep and invigorating breath.

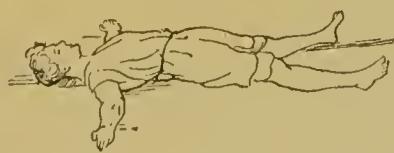


FIG. 51.

Such is a sample of the culture of repose for the mind and body by bodily means. A fuller course will be offered in a later chapter; and Delsarte's theory and principles—so important a contribution to the

art of expression as well as of economy—will also be estimated. They have many exponents and teachers, the Editor's few lessons having been from Mrs. William Archer, whose great help he wishes to acknowledge here. She has supplied the material for this floor exercise, which may be a ridiculous one to look at. But not every ridiculous-looking exercise or animal or plant or building or apparatus is on that account useless. As there is many a true word spoken in jest, so there are myriads of sound ideas expressed in absurdities. The Editor only hopes he has removed the sting from any criticism of such exercises by being the first to laugh at them himself, while still he practises them because he finds them useful in every way—not the least of all for work and for games as well as for prayer and for sleep.

GENERAL INSTRUCTIONS FOR USE OF THE COURSE.

Do not exercise violently very soon after meals, and do not exercise to exhaustion. "Palpitations" are a danger-signal.

Do not breathe in through the mouth (except occasionally, when the air is very fresh), but breathe in through the nostrils, slowly and deeply.

Try to get the maximum of air and light, the minimum of clothes—especially of cramping clothes.

Do not use the parts which you would gain nothing by using; above all, do not strain.

Ensure correctness first, even if this means—as it nearly always has done in the Editor's case—slow and laboured care at the start. Repetition removes the need for conscious effort.

Be regular, especially in the use of opportunities as well as of fixed hours. For instance, practise deep breathing when

you go out, relaxed breathing when you are tempted to be nervous or impatient, and before bedtime.

Concentrate and focus the mind on the movements, either by recollecting their advantages, or by looking at the muscles (directly or in the mirror), or by the use of apparatus, or by keeping records of progress.

The *resumée*-plan may suit some. Master a few movements first, then do these and add some more, then do all these and add some more still.

The exercises may be set by one, and copied by another or others; this is especially useful in a family or a school or club. An experienced teacher, at the

start, will be able to see that you do the exercises correctly.

Vary the Course by your own additions and subtractions. Perhaps George's "Hundred Up" (as recommended in "What to Demand from Systems"), the Doherty Lawn Tennis service, the bowling exercise, etc., may be useful. Adapt the course to your own bodily and daily opportunities. Send your valuable suggestions to the Editor.

As a rule, exercise the two sides of the body separately, if you have time, keeping the unused side as loose as possible.

As a rule, also, move with equal vigour in both directions, though it is not right to do all exercises fast.

CHAPTER VIII.

WHERE PRAISE IS DUE.

The Anglo-Saxon Reserve-force for Time of Need—Foreign Influences—Exodus from Cities—Games—Doctors at their Best—Nature-cure Establishments—Scientific Investigations—Commissions—Private Philanthropy—Competitions—Purer Foods—Apparatus—Some Advertisements—Professional Teachers—The Press—The New Science of Fair Trial and Individual Judgment.

IN much of the recent literature on the need of Physical Education there has been a pessimistic note, and among those who have struck that note have been not a few preachers who do not practise. Too little mention has been made of those

lead to neglect of self-help by sensible exercise; and so on. It is absurdly easy to find faults even in every system of Physical Education, and every teacher of it, and every student of it. If the Editor were now to criticise his own



FIG. 1.—SWEDISH DRILL AT PERCY HOUSE SCHOOLS, ISLEWORTH.

(By permission of Mr. P. Turner.)

practisers who do not preach—except by their example. And on this topic it is absurdly easy to be pessimistic: for example, to say that nine-tenths of our population is physically uneducated; that we are keeping just alive the ill and thriftless, and letting them propagate *ad libitum*; that improved sanitations and operations

honest convictions of 1899, when he edited Dr. Schmidt's "Unser Körper," he could easily make it appear that this early work was one mass of errors: for instance, that it condemned Gymnastics in too wholesale a manner. Yes, it is singularly easy to be virulently abusive.

But our object in this chapter is not to

ask, "What is miserably bad?" or "Has A, who is trying to help, an ideal method?" for we know he has not; but rather to ask, "What is not bad?" and "In what respects is A's method helping (through personal influence, interest, feasibility, etc.), and in what respects could it readily be improved?"

Now to the careful observer and reader who, let us say, visits the Reformatory Industrial, or Poor Law Schools, or who studies the first annual report (1903) of the Twentieth Century League in aid of the boys and girls of London, and notes all the affiliated societies (*e.g.* the National Physical Recreation Society and the Boys' Brigades), or who glances through Paton's book of schools, and sees in how many establishments for girls as well as for boys some kind of healthy exercise is an integral factor, and who then considers the recent spread of Golf, Football, cycling, walking, swimming, and so on, the difficulty is not how to fill up three hundred and sixty-five pages, but how to omit so much that he shall confine the work to ten pages.

Even the crowds of watchers are not an unmitigated evil. He might prefer to have them exercising, but at least they are breathing in the open air and not drinking in the bar-room, and their very admiration of the athletes hints at an underlying ambition themselves to be able to perform. The sedentary crowd on the sands at the seaside watching the rest of the sedentary crowd (or the performing sea) is perhaps a less hopeful sight.

We must omit much, though some of it will be touched on in the chapters on Games, Athletics, Gymnastics, etc., as it was in "How to Get Exercise in Cities," where the magnificent physical work of certain London schools was brought to the notice of a probably surprised

public—a public surprised, but at length awakening and moving.

For the first good influence is that Anglo-Saxon *reserve-force* of which we have already spoken. *Menses profundo pulchrior evenit*, said Horace of another people not unlike ourselves, adding that when you tried to overwhelm that people it conquered you. One might alter the words of the comic song and say, "It's all right when you crush it, but you've got to crush it fust." The crushing has begun. Our love of competition is being stirred in every department. We are being compelled to adopt new ideas from others.

All foreign improvements are therefore—thanks largely to the cheap Press—an influence for good. The work of Jahn, Guts Muths, Ling, and the German drill and gymnastic systems, the physical culture rapidly extending over France, Denmark, Sweden, Switzerland, etc., to say nothing of America—all this is helping us. So are the exhibitions including, or devoted to, this purpose at Paris, St. Louis, Chicago (where it is proposed to have an international congress on athletics), Berne, Antwerp, etc. So are cheap travel and free communication, facilitated by Polytechnic and other trips.

Here we include, on the one hand, the exodus from city to suburb (as in the case of London, Liverpool, Birmingham, New York, Boston, etc.), and, on the other hand, the vicarious or imaginary travel which we can get by lectures, books, pictures, and papers.

Papers, with their free criticisms and their outcry against unhealthy bodies, surroundings, and minds, are an increasing weight in the right scale. Some advertisements may be inserted almost regardless of such considerations, but the editors and journalists themselves are, on the

whole, moving decisively in the right direction.

Other professions tend to good also. There are the game-players (whether of independent means or paid) who, by the law of specialisation, may have game-playing as their special function in the commonwealth—at least, they do far less harm than a guzzling alderman or a swindling financier.

The teachers of games and of gymnastics, etc., form a more or less distinct class. Gymnastics and other exercises, *at their best*, are a great power for better health. They insist on right form, they correct deficiencies, they tend to produce a less incomplete and less inharmonious physique; they deal with large classes as well as individuals in a small space, in a short time and cheaply; they have an element of competition (against others, or self, or obstacles), they have many enthusiastic teachers who practise expertly what they teach, they are interesting to large numbers of people; they are varied, being either free or with apparatus, and the apparatus itself is a help at the beginning as well as—if properly chosen—later on. The very variety of the systems gives hope for the future, when each teacher shall become open-minded enough to study other systems, and, if he finds a good point, to say:

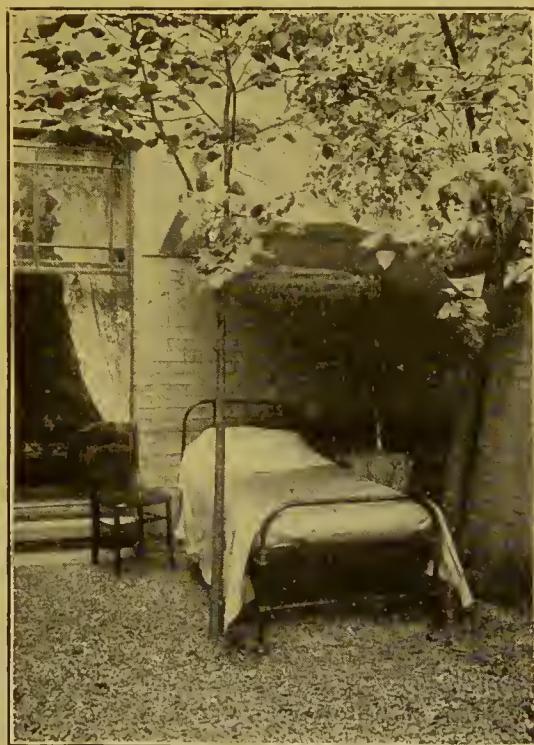


FIG. 2.—AN OPEN-AIR BEDROOM.

(Photo: Mason & Basebe, Cambridge.)

"I was quite wrong here." Directly teachers in general get this *μετάροια*, this change in the point of view, and cease to abuse those games and athletics in which they seldom excel, they will be respected by those in authority. Already their status is higher than it was, and in a special article we shall urge the importance of this profession for many gentlemen and ladies, and the importance of many ladies and gentlemen for this profession.

Then there are the best among the doctors. Formerly to prescribe any form of exercise for any form of consumption, heart-trouble, etc., would have been called dangerous crankiness. Now, however, to take only two examples out of many, Sir James Sawyer, of Birmingham, a leading physician in the Midlands, believes that nine-tenths of the cases of consumption might be avoided by exercises to develop the chest and breathing pow-

ers; and the Oertel treatment for certain heart-troubles includes gentle walking uphill. In fact, the numbers of physicians and surgeons who prescribe physical exercise, and its complement, physical rest, are rapidly multiplying. In a single town the Editor met two doctors who were specialists on air and breathing and movement-cures. But this is still the tendency of the wisest rather than the custom of the majority, though about the

benefits of proper massage no doctors of any real repute have now the slightest doubt.

Professor Schweninger, of Berlin, is going a step further than the rest of the medical profession in proposing to extend natural treatments—air, breathing, exercises, massage, rest, as well as water, heat, electricity, light, and diet—to what are

sleeping—the Editor's Cambridge garden is shown in Fig. 2—the exercise in open air-and-light-baths (*i.e.* on lawns or meadows with high fences round them, as in Fig. 3), the Ling and other drill, the remedial work with apparatus—*e.g.* to remedy constipation (see Fig. 4), the massage, the baths, and the repose.

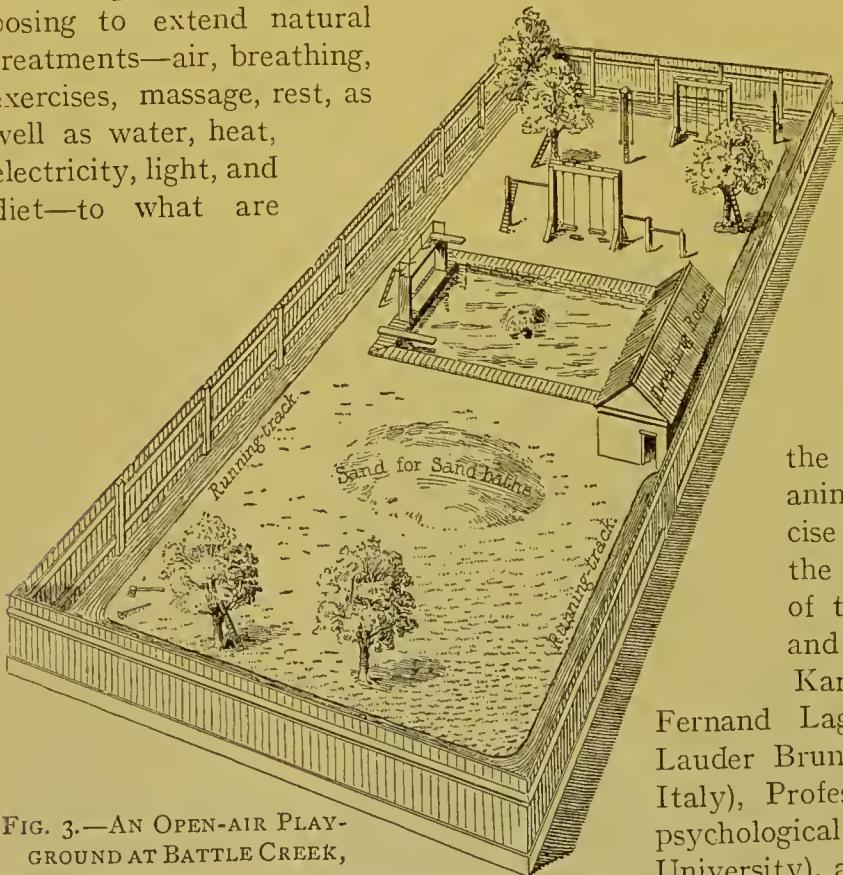


FIG. 3.—AN OPEN-AIR PLAY-GROUND AT BATTLE CREEK, MICHIGAN.

called Ocean Sanatoria, thus doing something to remedy the sedentary gluttony of the average crowd of sea-air seekers. His hospital at Berlin is a concrete example of the success of these simpler ways, an object-lesson in Physical Education.

In Germany we find also the *Naturheilanstalts*, or nature-cure establishments, of those who are not always certified doctors. Here are many good ways of improving physique and health, but with them much experimentalism and often a very unscientific explanation of the reason why the "cure" works. The part of their work which concerns us most is open-air

The more strictly "scientific" investigators are on the increase weekly. Out of a host of those who have published valuable statistics about the movements and play of animals, the effects of exercise and rest, the power of the body over the mind and of the mind over the body, and so on, we may mention Karl Groos (of Germany), Fernand Lagrange (of France), Sir Lauder Brunton, Professor Mosso (of Italy), Professor James (the popular psychological specialist of Harvard University), and Anderson and Sargent (also of America).

Psychology and physiology are both being applied in the teaching of children. The need of interest and self-control and self-expression and exercise are being met by the provision of interesting exercises for self-control and self-expression, exercises more attractive to the present inclinations of most of us than the tamer "plays" of the Froebel Kindergarten.

The work of institutions that include drill and gymnastics and games cannot be overpraised. One has only to see the "Before and After" of the children of Poor Law and Reformatory Industrial schools if one wishes to get some idea of what a pleasant

discipline can achieve. Here are "men in the making," who, left alone, might have been "victims of criminal environment." The Lads' Drill Association, the Boys' Brigades, the Twentieth Century League in aid of the boys and girls of London (to promote camping-out and other healthy amusements and exercise), and the various federated societies such as the Girls' Club Union, the Recreative Evening Schools' Association, and the National Physical Recreation Society, are a few out of many influences for good. Sister Grace's Guild of Child-play in Bermondsey will be described later on.

Then there are the Commissions of Government or Local Government. The Scotch Commission of 1903 is among the most famous, though it dealt rather with the schools of the upper and middle classes than with the uneducated thousands. The questions asked of the head-masters were of a searching nature, as to the facilities for physical training—*e.g.* by games, drill, gymnasium-work, athletics, manual training, voice-training, volunteering, swimming, fire-brigade practice, and ambulance. The report of the famous head-master of Loretto, one of the greatest of all schools, stated the belief that a sound physical training tended to reduce general weakness, tuberculosis, unhealthy habits, intellectual incapacities, etc. The Commission recommends more playgrounds, gymnasia, and recreation-halls, and shorter hours of study. The Swiss already have drill and gymnastics and *play* (ball-games, leap-frog, and so on) as a compulsory part of their school curriculum, organised by Government authority.

In England we leave most of the physical good to be done by private individuals. At the present moment we believe that the whole of the free play, as distinct from the drill (which, as in Fig. 1, is under a gymnastic teacher) of the Board Schools and Poor Law Schools, etc., is organised—where it is attended to at all—by the teachers out of their regular hours, and gratis. This is simply a disgrace to Government.

As to the masses of adults, in these days of city-life for the majority, there is not even a drill or a hall or gymnasium to drill in provided for them by Government. This, as well as the play, has been left to philanthropists. In Birmingham, for example, the Athletic Institute (*see* the article on "Exercise in Cities") is supported, not by Government, but by a few keen and energetic men, like the donor and Mr. E. Lawrence Levy,



FIG. 4.—A BUSINESS MAN'S REMEDIAL GYMNASIUM FOR PRACTICE IN ROWING, CYCLING, ETC. (P. 82).

and by the members themselves. It would be so easy, and in the end—by saving expenses for criminals, drunkards, etc.—so cheap, for Government to extend

the idea to the poorer classes who can ill afford to subscribe.

Among the interests of these institutions are the competitions and prizes, not always for individuals, but more often for teams. Competitions, like the Stock Exchange and other walks, have done an immense amount of good by encouraging the people to train. It would be hard to find a better country than England for walking and indeed for almost any form of play or exercise. The example of leading people is of great importance.

Passing from institutions and individuals we may note next the increasing care to provide not only gymnasiums, but also open spaces and other facilities for exercise. Some will be mentioned in another article, among the best of them being the opportunities for washing and swimming.

In the direction of cleanliness and purity in every sense of the words are the purer foods now becoming so popular; better lighting, and better clothing, especially as regards colour, material, and shape. Thus both shoes and corsets are formed more sensibly than they used to be, one compelling force being the athletic demands of games and cycling for ladies.

The cycle, properly chosen and properly used, must rank among the best forms of apparatus to-day. Other apparatus, "gymnastic" or remedial, is helping considerably to interest and attract people to exercise; only, like the cycle, it should be properly chosen and properly used. The freedom allowed to advertisements of certain apparatus is another standing reproach to Government.

Of advertisements, while some have been a curse through their fraudulent

promises, others have been a real education for the masses. Among the modern forms of advertising is the lecture—e.g. by the "athlete" himself. Whatever may be the faults—and they are many—in the systems of Sandow and others, yet at least the teachers themselves have done much good by offering the public a picture that they can see and admire and wish to emulate. As Athenian mothers before child-birth used to look at statues of beautiful people in order that they

and their children might become like these in beauty, so it is important, above all in these days of atrophied, mis-shapen humanity, that there should be better specimens on view.

The objectionable side of the display—the ridiculous poses, the preposterous muscles of the biceps (as in the Farnese Hercules of Fig. 5), the spindle-shankiness of the legs—is obvious. But the general effect, even of such a monstrosity, strange to say, is to give people more physical ambition, more pride in their body, more hope in its possibilities.

Thanks to these lecturers and teachers, and thanks to the cheap Press also, there is at length being started a popular education in training and health, towards which education, once again, Government has contributed practically nothing.

While leading men can get their Golf, etc., in order to work off errors of excess in diet, it seems to matter little that the nation as a whole has small opportunity for play or exercise in cities, and virtually no education about health and the cheapest means to health. For one has to be very ingenious to get much health-instruction of this kind from textbooks of anatomy and physiology! The

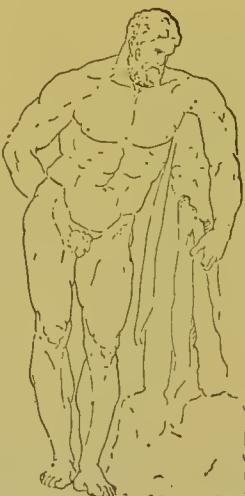


FIG. 5.—THE PREPOSTEROUS FARNESIAN HERCULES.

instruction which the masses have is not always sound or wise, but such as it is—and it is often really good—it comes chiefly either from a more or less private institution, or from individual example or teaching, or from the cheap daily, weekly, and monthly Press. It would be hopeless to attempt a full list of papers that have been teaching health and exercise to the public. To cite a few of those which the Editor himself most

Obviously, then, the trend of modern times is towards physical thoughtfulness, if not towards physical crankiness. And it is partly our city life and our commercial depression that have compelled this greater open-mindedness.

Take, for example, Sundays. The older generation can remember when any form of enjoyment or brisk exercise was a grievous sin. The commandment to "do no manner of work" had been misunder-



FIG. 6.—ROWING AS DISCIPLINE FOR TRUANT BOYS.

frequently reads, and without wishing to deprecate other papers, we have the *Daily Mail*, the *Daily Express*, and the *Manchester Guardian* among dailies, and the *Strand*, *Pearson's*, the *London*, and *Cassell's* among monthlies. There are many publications devoted entirely to this subject—e.g. *Health and Strength*, *Vim*, and *Gymnasium*, to say nothing of the whole libraries of books on Physical Culture and games and athletics. The Editor himself has on his bookshelves upwards of two hundred useful works on these subjects.

stood. Of course it was never meant to forbid pleasant work or play-work or healthy practices; it was meant to forbid over-exertion, including over-exertion of the poor slave-organs of digestion and excretion. Now common-sense and the modern school of thought are condemning the morbid dreariness of sedentary respectability as a physical and a spiritual mistake.

The trend of thought is truly towards thoughtfulness and independent research. Side by side with the unapplied sciences there has sprung up what we have called

the new science of individual judgment by all-round results after fair trial, and of individual initiative stimulated by interesting motive.

Not many weeks ago a crank, as he would be called, came to the Editor and proposed that there should be started, through some large daily paper, a health army which anyone might join so long as he or she undertook to give a certain amount of regular and reasonable care to physical and mental training. There was to be no exclusion on the ground of religious or even of hygienic views. The only qualification for admission was to be the promise to try really to become healthier *somewhere or other*. The idea of the army fighting against disease and for fitness, fighting for the real nation and for the future, was to appeal to the Anglo-Saxon military or competitive spirit. Whether any such

scheme on a large scale be begun or not, yet on a small scale it has been begun in many places and among many classes, and seems in most ways preferable to compulsory military (or naval) drill, though even that would perhaps be better than nothing, and has certainly achieved wonders among the most despaired of classes.

The one great influence that hitherto—*i.e.* up to the time when this is being written—has not yet worked appreciably for good in the direction of better Physical Education and Recreation, is the British Government, except for a few important classes—the poorest and most “degraded” children. Throughout the rest of the country the influences for good are so numerous that the above account must seem, to one who knows the statistics, to be, as an Irishman expressed it, full of omissions.



FIG. 7.—SWEDISH DRILL AT PERCY HOUSE SCHOOLS, ISLEWORTH.

(By permission of Mr. P. Turner.)

CHAPTER IX.

BETTER BREATHING AND VOICE-PRODUCTION.

Prefatory Note—Many Right Ways of Breathing—Need of Especial Care in City Life To-day—Right Ways should become Instinctive, by Practice—So with Voice-production—A Few General Rules: Make Use of Odd Moments, etc.—General Scheme—In through the Nostrils—Lowest Middle, and Upper Breathing, and Exercises that Help Them—Retained Breathing—Water-Breathing—Relaxed Breathing and Exercises—Its Vital Importance—The Editor's Personal Experience—Self-suggestions will Alter the Breathing—Control your Emotions by Controlling your Diaphragm and Breath—Values of the Separate Ways of Breathing.

PREFATORY NOTE.

JUST as there is no "one and the only right" diet for all alike, so there is "no one and the only right" exercise, no "one and the only right" way of breathing. Most ways are good in due season; most ways should be masteredd unless we already possess them by nature or by training.

In this article it is inevitable that we should dilate on the *advantages* of better ways of breathing and voice-production. Otherwise, not one out of ten readers will know their importance and value. But we have also included practical diagrams and exercises for the benefit of thosc who already have learnt the truth, or who are content to take for granted that correct ways of breathing do really help purity and control, vigour and endurance, economy and repose, gracefulness and beauty, charm of voice and pcrsuasive power, right position and carriage, bctter digestion and excretion. If good breathing is a neglected art, this is chiefly because the importance of it has been unrealised.

In the part that refers to voice-production we have had the kind help of an experienced and successful teacher of singing, who has had many pupils sent to him for singing-lessons because their lungs were delicate. He has asked that his name shall not be published here.

The subject of clothing, which of course should not cramp nor deform us, and of air and ventilation, will be treated in a

separate chapter. Here, except for a few hints, we shall confine ourselves chiefly to suggesting what to do with good air whcn you have got it, and what to do when you have not got it—a most important and most ncglected consideration.

How to eat? Everyone agrees (in theory) that the answer is, "Carefully, till careful eating has became an automatic habit." What to breathe? Everyone, again, knows that the answer is, "Pure air." But what to eat, how to breathe—these are problems of which many solutions have been offered, agreeing scarcely at all except in a few rules, such as "Eat enough, not too much," and "Breathe in through the nostrils."

Our ancestors cared little what they ate or how they ate it; by their healthy and "physical" country life they *covered* a multitude of mistakes. To us, who for the most part have not this country life with abundance of air, exercise, recreation, and rest, they handed down as a legacy wrong foods, wrong quantities of food, excessive stimulant, fast eating. Now, through dyspepsia and other uncomfortable results, we are gradually learning what to eat and how to eat it. So it is with our breathing. Through consumption and other uncomfortable results we are learning what to breathe and how

to breathe. But the use of the right ways of breathing lags far behind the choice of the right air. We know well enough what the right air is, even if we do not choose it or do not use it. But when we ask what the right breathing is, we are answered by a host of theorists who rend one another's ideas to shreds.

How to eat? There is scarcely more than a single answer—slowly and thoroughly. What to breathe? Again there is scarcely more than a single answer—fresh air. But what to eat—more than a score of preachers can show the most excellent results from their various systems. And how to breathe and produce the voice—in some cases, again, more than half a dozen preachers can show good results from different methods. The purpose of this article is to describe the most reasonable of these different systems of breathing (just as another article will describe different foods), to show the value of each, and to suggest that each is right *in its proper place and at its proper time.*

One of the best tests surely is that, after a certain amount of practice, the good ways become easy and natural—a sign that the normal has now been restored.

At first there may be need of conscious effort and of watchfulness; afterwards, if the way *is* good, instinct should dictate it. And the Editor's experience is that at different times instinct dictates different ways. One authority says, "As you inhale, send out the abdomen," another tells him to keep the abdomen in, and to expand the chest-walls, and so on. To take extreme practices, he finds

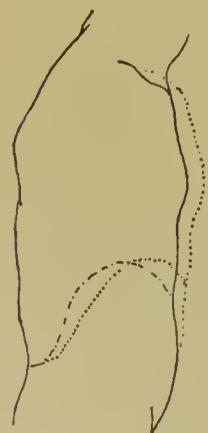


FIG. I.—EXPANSION OF THE CHEST-CAVITY DURING A DEEP BREATH.

himself sending his diaphragm down and his abdomen slightly out and then expanding his chest-walls, and then drawing his abdomen in and his diaphragm up and his chest-walls in as he raises the breath to the top of the lungs. This is when the air is pure and fresh. When the air is foul and stale, as in most rooms and railway-carriages, he finds himself inhaling just as little as he can manage. Before bedtime he prefers the full breathing, followed by the relaxing practice, which will be described below. All these methods he began to learn as regular exercises not so long ago; now he is scarcely aware which kind he is using on any given occasion, until he observes himself.

Let us give an example which will interest every reader who has a bad temper or feels nervous. When the Editor found out how useful an antidote it was to take in a deep breath and then, as he let it slowly pass out, to relax the muscles of the face and hands, he then began to repeat this "breathing for repose" frequently in private and (in a very mild form) before and during hard work and exciting games. Now he scarcely ever needs to think of the exercise at all; at a crisis in a Racquet match, for instance, he does this breathing and relaxing unconsciously—or, rather, sub-consciously. By taking care, he has done away with the need of taking care.

So it is with voice-production, which he has only recently begun to study. Suppose that for certain purposes and certain pupils it is a good practice to "sing as though one were yawning"; or "for the low notes to direct one's breath to the backs of the upper teeth, for the medium notes to the bridge of the nose, for the high notes to between the eyes." If these be really useful hints, then after thoughtful repetition the under-mind will

see to it that the voice produces itself properly; the servant-mind should now do the master-mind's work without much supervision.

Knowing, then, that attention at the start may mean a good habit and freedom from conscious care afterwards, the reader will not grudge a few minutes to the reading of some rules which may prevent considerable waste of time and trouble. We want to put the reader on the right track at the very start.

A FEW GENERAL RULES FOR BETTER BREATHING.

Those who breathe rightly without need of thought will not require rules for practice. Others probably will.

1. Let the clothing be as loose and light and clean, and the air as fresh as possible.

2. Breathe in through the nose (for the reasons, *see below*) till this has become a habit even during sleep; great exertion may demand some breathing in through the mouth, and an occasional gulp of pure air (*e.g.* at the seaside) is valuable.

3. Attend to the correct position of the body with regard to spine, neck, etc. (*see below*).

4. To lie at first upon one's back on the floor will keep the organs in a better position. The Editor himself prefers the inclined plank, as it draws the shoulders further back and does not bring too much blood to the head.

5. Each kind of breathing should be

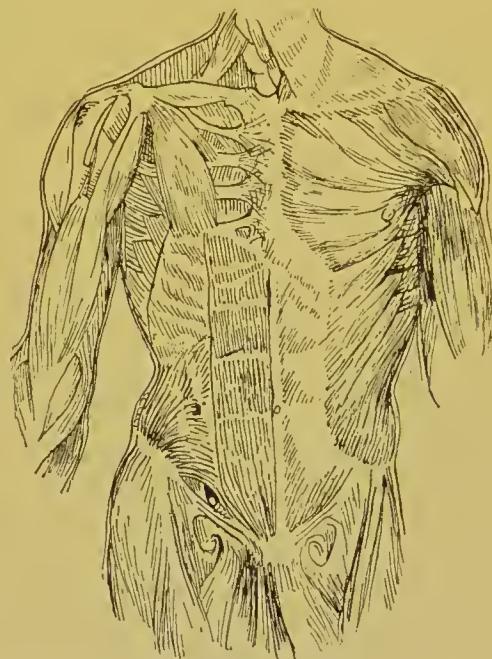


FIG. 3.—SOME FRONT-MUSCLES THAT HELP THE BREATHING APPARATUS.

(Adapted from Dr. Kellogg.)

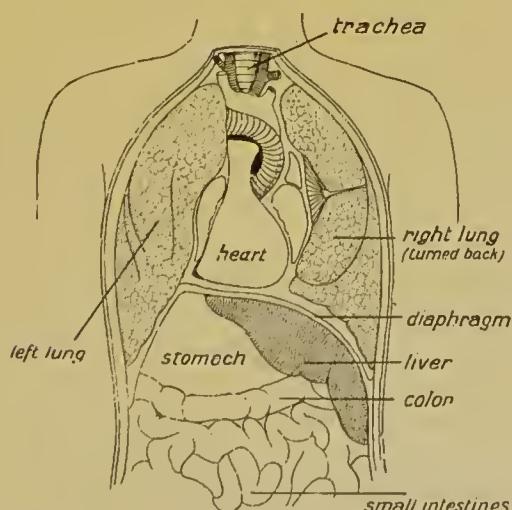


FIG. 2.—THE CORRECT POSITION OF THE ORGANS.

sometimes practised by itself, especially in order to get control of each part of the mechanism and to develop the less developed parts. Many women, for example, need to encourage their lower breathing; most people need to enlarge one nostril (usually the left) rather than the other; most people need to increase their powers of exhaling more thoroughly.

6. Besides exercises of the breathing-muscles, exercises of the powerful trunk-muscles that help the breathing are also useful. We need to drill our reserve forces. Many muscles need to be strengthened; many need to become less rigid. The muscles about the spine (Fig. 4), the

abdomen (Fig. 3), and the neck are very important. At first we should try exercises that help the breathing, but later we should try exercises that hinder it, so that we may learn to breathe against obstacles. For example, lift the arms as you breathe in and lower them as you breathe out; that helps the breathing. Now lift the arms as you breathe out and lower them as you breathe in; that

especially just after waking, just before bedtime, on going out into the fresh air, and while waiting. This is regularity not of time, but of occasion—a far more important regularity. As an example of regularity of occasion, blow your nose directly you awake, even before you wash your teeth; breathe quietly but deeply after meals; breathe fully and then relax (as before explained) before, during, and after a crisis—e.g. an examination, or a visit to the dentist.



FIG. 4.—SOME BACK-MUSCLES THAT HELP THE BREATHING.
(Adapted from Dr. Kellogg.)

hinders and strengthens the breathing, somewhat as temptation, if it is overcome, strengthens the character.

7. But in the early stages avoid great effort—for instance, stop the deeper breaths directly you begin to feel giddy—and increase the number of times and depth and breadth of the expansion very gradually. Also learn to combine the different breathings gradually. Eventually all should co-operate; before this, you may have to train each independently.

8. Make use of odd moments,

9. Concentrate your mind when you practise. Much of the benefit of comparatively dull exercise lies in that mental and moral habit. This does not mean that you should strain, frown, clench your teeth, grip your hands, and keep your spinal column rigid. You can attend to the practice quite calmly and affectionately, so to speak. If it helps you to fix your mind, put the palms of your hands upon the special parts which you wish to develop (e.g. upon the lower ribs): before you begin, say to yourself that grand old saying, "This *one* thing I do now." While you breathe in, say to yourself, "I am breathing in energy"; while you breathe out, say to yourself, "I am breathing out illness." If the air is good, this is literally true. These particular hints may be useless to you—but somehow manage to attend.

10. It may help you more to realise the advantages of the practice, if you remind yourself how many are its all-round effects, and if you keep records of the practice and the effects. A safe test for breathing-capacity—the measurement of the chest is not a safe test at all—will be cited in a subsequent chapter on Apparatus.

11. Originality and independent study are essential. Not only must you breathe for yourself—we cannot possibly do it for you—but you must find out for your-

self which is your weakest part—your lower (diaphragmatic) or your middle (lower-rib) breathing. If you find mistakes in what we suggest, let us know. Remember that you are a living unit, not a marionette manufactured by the thousand after one model, and then worked by the pulling of strings. You have your own peculiarities. Study them, and correct yourself until you have become normal; then you will have earned the right to be free.

GENERAL SCHEME AND EXERCISES.

To breathe in through the nostrils is one of the best general rules that we can give. As we said just now, it should become a habit even during sleep: this is a good test. Another, and probably a severer test, is that it should be a habit during voice-production, where the temptation is to breathe in through the mouth and so make the throat dry. It is well to understand a few reasons why on ordinary occasions the nostrils and nasal passages are far the better opening and channel for the breath.

To begin with, have you ever woken up at night with a dry mouth and throat, and then purposely kept your mouth closed? If you have, then you have noticed how the mouth became pleasantly moist, because the air no longer dried it up. For there is a disinfectant saliva that moistens the mouth and flushes its streets, as well as a saliva that digests starch. The mucous passages of the nose can bear the air better than the skin of the tongue and throat can. Indeed, the nasal passages moisten the air before it passes into the lungs. They also warm it slightly, or make it nearer to the temperature of the body.

But, best of all, they purify it, as one can tell when one blows one's nose after a day in a city. When one breathes through

the mouth, a far larger proportion of dust-particles and disease-germs enter the lungs. Many years ago, during a London fog, some cattle died at the Agricultural Hall. When they were cut up, their lungs were found to be choked with black filth.

And the nostrils and their passages should be not only purifiers of what has passed in, but also sentinels to give a warning, just as the taste should be a sentinel to warn us of undesirable food.

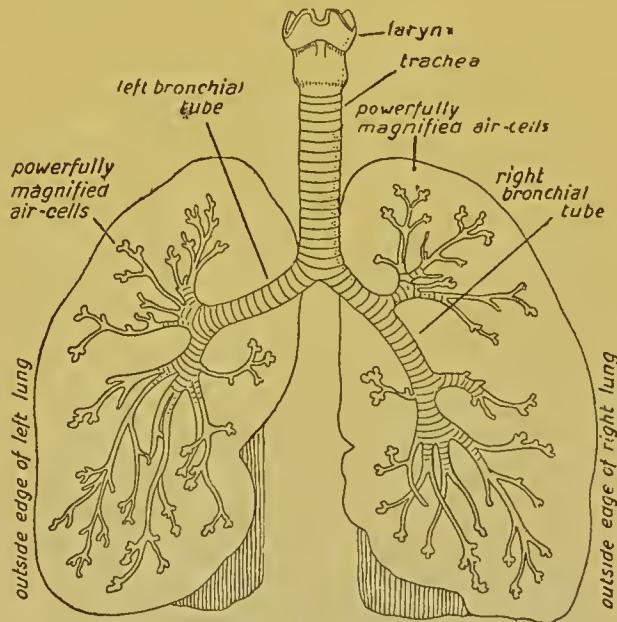


FIG. 5.—TINY AIR-CELLS OF THE LUNGS.

(Powerfully Magnified.)

But too often both nostrils and tongue have lost their instinct.

The diagrams of the lungs will show their workings better than any description in words. The tiny air-cells (Fig. 5) would spread out over an enormous surface. The larger the surface to which we can bring pure oxygen, the cleaner and the stronger our blood will be. Fig. 1 helps to show that the lungs are—as they say of countries in geography books—"bounded on the north" by fixed ribs and upper bones; at the sides by fixed and (lower down) by "floating"

ribs, which can move outwards; and on the south by that huge muscle the diaphragm, probably the most important muscle in the whole body—and the least trained. What we want is not a vast measurement round the chest, but a vast and open expanse of lung-material to take

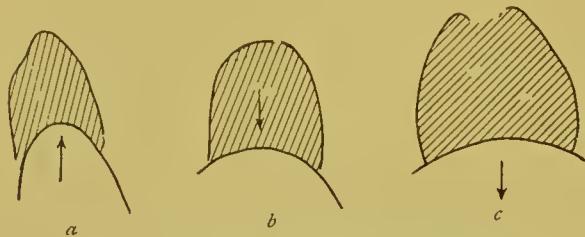
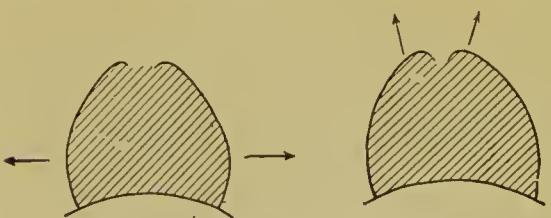


FIG. 6.—(a) DIAPHRAGM IS UP, CHEST INFLATED;
(b) DIAPHRAGM BEGINS TO DESCEND;
(c) DIAPHRAGM HAS DESCENDED.

in oxygen. We can enlarge the lung-power by sending down the floor—that is to say the diaphragm; by sending out the side-walls, especially the lower part of them; and, to a small extent, by sending up the ceiling. Figs. 6 to 8 will show these different directions.

Briefly, then, we may speak of the lowest breathing, with muscular movements that help it; the middle breathing, and the upper breathing—both with muscular movements that help them. These three kinds may be used almost



"OUTWARDS" BREATHING. "UPWARDS" BREATHING.

independently; two of them may be used together, or in succession; or all three may be used together or in succession. For example, you can send down the floor, which is the diaphragm; then draw it up again, and send out the lower side-walls, which are the ribs; then,

keeping the diaphragm up, draw in the ribs again, and send the air up to the top storey, the apex of the lungs, where consumption so often starts. The relaxed breathing is different from these, and needs a special description.

Our main object is, when the air is pure, to open out the box in one or more directions. The fault of most theorists and cranks is that they think their own direction right, and all others wrong. There are several cranks who confuse the movement of breathing itself with the movements which help breathing; so that we have known a case where a man has advised people to practise only one exercise, and that an exercise not in breathing at all, but of an extra muscle outside the breathing-apparatus.

Now for a few practical instructions to anyone who wishes to try to develop his own capacity to the full.

Let him begin with the lowest breathing, and let him send down his diaphragm. This will perhaps mean nothing to him, though Fig. 9 gives him an idea of what happens when he sends it down. It presses against the stomach and liver, and leaves the lungs freer to stretch out and down. But if, while he breathes in through the nostrils, he sends his abdomen out, that will help the diaphragm to descend. So, as a first exercise, let him breathe in through the nostrils, and send the abdomen out, and the diaphragm down. After a time, though he should never practise the movements too frequently in succession, probably he will find two changes. First of all, he will get what may be called a sense of the diaphragm. He may never be able to use it or to feel with it as he uses and feels with his hand or foot, but he will get, more and more noticeably, the art of controlling it, and of knowing where it is. It is most important for all singers and

voice-producers to be able to control the diaphragm. The second change may be that he is able to send the diaphragm down without sending the abdomen so far out.

This latter is the exercise in true diaphragmatic breathing, as it is called ; it is not the same as abdominal breathing, for it is possible to send the diaphragm far down without sending the abdomen far out. An equally important exercise is that which sends the diaphragm far up. It is probable that the diaphragm of most of us is habitually too low. In that case it habitually presses hard upon the stomach and liver, and indirectly upon the lower organs, especially the colon. Page 115 shows how low the organs may sink, partly owing to this flopping down of the great muscle. When one tries to draw up the diaphragm, one finds it a help to draw in the abdomen. To draw up the diaphragm is easier than to keep it up. To keep it up is, however, very important for certain purposes. It will make a fat person look far less fat, and will turn what is known as the bow-window into the ordinary window. When one comes to try it for five minutes together, one begins to get some idea of the

muscles which are needed to hold the diaphragm up. One begins to know that certain muscles of the abdomen, chest, back, and neck, must become strong before the diaphragm can be retained in the highest place.

Delsarte has called this the animal breathing ; we might more reasonably call it the fundamental. Anyone who looks at the construc-

tion of the lungs will see that they expand most fully in their lowest parts. The middle breathing, which we shall treat next, Delsarte has called the mental. It can be practised with the diaphragm sent down and then brought up, or else with the diaphragm kept up all the time.

Breathe in through the nostrils in the way we have just described—that is to say, send the abdomen out, and the diaphragm down ; then draw the abdomen in, and the diaphragm up ; then breathe in again through the nostrils, keeping the diaphragm up ; put the palms of your hands on your lower ribs, and feel them expanding. They will expand to the front and to the sides. If you put your hands to your back, you will find that your back also is expanding ; so that this middle breathing expands the lungs outwards in every direction, and slightly upwards, too.

There are many exercises that help this middle breathing, somewhat as thrusting the abdomen out, and then bringing it in again, helps the lowest breathing. A list of useful exercises for the various inward and outward breathings is given later.

It is almost as important to empty the lungs—though one can never empty them completely—as it is to fill them, so that the foul gas may be driven out and fresh air may take its place. Therefore a part of the training of this middle breathing is to draw the chest-walls together. The palms of the hands pressing upon the ribs will help to empty the lungs. The diaphragm should be kept up all the time.

For the top breathing, first try the lowest breathing. Inhale and send the diaphragm down : then draw it up, and keep it up ; keep the chest-walls rigid, having pressed them in as much as possible. This will force the air up to the top of the lungs.

Still more air will be forced up if you

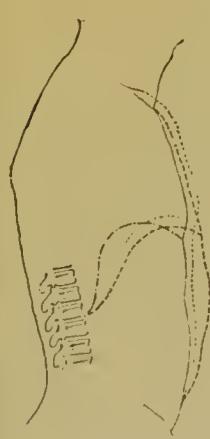


FIG. 8.—MOVEMENTS OF THE LOWEST, MIDDLE, AND UPPER BREATHINGS.

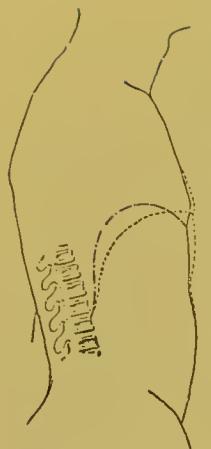


FIG. 9.—MOVEMENTS
IN THE LOWEST
(OR DIAPHRAGM-
ATIC) BREATHING.

send the diaphragm down, and the chest-walls out, at the same time that you breathe in; then draw up the diaphragm, and draw in the chest-walls, and force the breath up to the top of the lungs. This is an exercise in all three breathings together.

As an exercise for the lowest breathing by itself, hold the diaphragm up, and keep the ribs still. Then breathe in. You cannot breathe in fully

and deeply; you cannot take in a large amount of oxygen; you are bound to breathe slightly. This is the kind of breathing which the Editor prefers when the air is foul and "civilised."

As subsidiary exercises for breathing, the following may be found most useful. They are from "The Training of the Body."

While Breathing In:—

Bring the head back, and stretch the trunk back.

Bring the shoulders up and back.

With the arms akimbo, draw the elbows back.

Stretch the arms out sideways, with the palms upwards.

Stretch the arms out sideways, then raise them.

Raise the arms and bring them behind the head with the palms upwards.

Lift a stick high with both hands, and bring it down (backwards) between the shoulder-blades.

Rise from bent legs.

While Breathing Out:—

Bend the head down and bend the trunk forwards.

Send the shoulders down and forwards.

With the arms akimbo, send the elbows forwards.

Stretch the arms out forwards, with the palms together.

Lower the arms.

Lower the arms in front, and press them to the chest, bending the trunk slightly.

Lift the stick high with both hands, and bring it down in front.

Sink with bent legs.

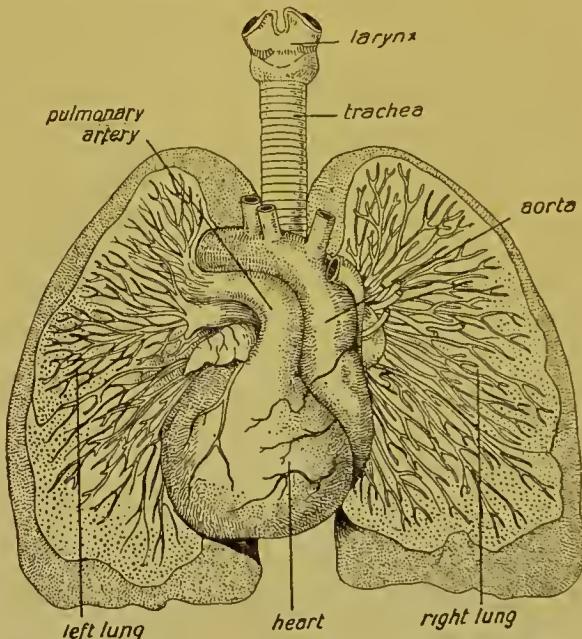


FIG. 10.—THE HEART AS AFFECTION BY THE NEIGHBOURHOOD OF THE LUNGS.

These exercises will be illustrated in the second part of this subject

In this chapter we have little space to speak of the retained breathing, for which several exercises will be offered in the chapter which follows, including one or two by the great boxer, Fitzsimmons. But we cannot altogether approve of the long retaining of the breath by beginners. It is apt to overstrain the lungs. It seems far more important to fill the lungs as fully and to empty them as thoroughly as is possible without severe effort, than to retain the breath for a long while; though we all know that for certain

physical and mental feats we are obliged to retain the breath, and therefore had better practise this sometimes beforehand.

Nor shall we say much here about the useful practice of water-breathing, a practice most useful when the air has been foulest. Take a little pure and distilled (or otherwise soft) water. Put in it, if you like, a pinch of table-salt and a pinch of bicarbonate of soda, and let them dissolve. Then "inhale" that water through the nostrils, letting it out through the nostrils and through the mouth. This not only helps to clear the nostrils, but also helps to cool them and the parts of the brain near them.

We must treat at some length what we may call breathing for economy and repose. For the purpose of this particular art, let us think of the lungs not as held in a box, but as held in a bag, an india-rubber bag, first inflated, then gradually emptying itself of air. We have described this exercise in another place, but it is so important, so much neglected, that it will bear repetition. It should be tried in private, or only among such people as you will allow to laugh at you. There is no harm in laughing at it yourself.

Sit well forward on a bed (or a chair without arms), so that your hands hang down by your sides like lumps of lead at the end of pieces of string. Do not grip them; do not frown. It is better to smile than to frown. Now take a full inward breath, first sending the diaphragm down and the ribs out. With this deep inward breath, which should now be drawn to the top of the lungs, the trunk, the shoulders, the head, and the eyes should all be raised. Hold the breath for a moment, then allow it to ooze gradually out, while your eyelids droop, your head sinks forward on your chest, your spine curves forward, beginning at the top vertebræ, and going on to the lower, as

shown in the two Courses. Now your hands will quite naturally come forward at the same time. Stay in this slack and almost "drunken" position for a short while—say for half a minute—breathing deeply and fully all the while, and taking advantage of every outward breath to become limper and heavier all over. Now, as you take a full breath in, send back your hands and your spinal column will straighten itself. Then draw up your head, and open your eyes; and you are awake.

There is no need always to practise this exercise so elaborately. It is better than nothing to relax the muscles of the arms and hands and face, and those about the spine very slightly, so that an ordinary person would scarcely notice any change.

It is possible, however, to do the exercise more elaborately still. For this purpose, you start standing instead of sitting, and eventually, by a process which is given in detail in another place, you arrive in a relaxed position on the floor, lying on your back. You stay down somewhat longer here, and you stretch out your arms and legs, and then relax them once again, all the time breathing deeply, and taking full advantage of the outward breath to become limper and limper. After this exercise you get up even more quietly and slowly than before. It is the greatest mistake to jump into life suddenly.

We must reserve for another article a description of the many advantages of this practice. The Editor himself has found it most useful in many respects. In games, it has enabled him to keep his left side free and flexible, while he uses his right side, and so to save valuable energy and produce a better movement.

It has also helped him to keep calm during a critical point in a match. Needless to say, since it stops the leakages of power through the gripping of the hands, etc., it will enable a person to last longer.

It is equally important for work, especially for inventive work, or for work that demands a calm and impartial opinion and judgment. After one has stopped the leakages in this way, after one has, as it were, withdrawn the nerve-force from the extremities to the centres, one should be able to think more quickly, more easily, more satisfactorily. One seems to be aware of a more intelligent self than usual. One becomes Self-conscious rather than self-conscious. Work done with a slightly relaxed body has often proved far less fatiguing than work done with tense muscles—at any rate after the art of relaxing has been well practised.

Those who have not practised it may find it easier to show signs of worry when thinking deeply. Even if the above should not be the right pose for ordinary brain-work, at any rate it is the right pose for prayer, during which any sign of anxiety is an offence against our professed religion. The highest expression of confidence is in repose. For inducing sleep the practice is invaluable.

Notice how children and animals relax, giving their weight to the floor ; and then how badly most of us sleep in later life. We think we are at rest, because we are still, forgetting that there is a stillness due to the exertion of opposing muscles, as well as a stillness due to the rest of opposing muscles. Not in vain do the Hindus cultivate the art of deep breathing and relaxed breathing, as their placid nature shows. Their mistake seems to be that they do not make enough use of the physical energy which they have thus stored up. Going to the extreme of peacefulness, they seem to neglect promptitude and active physical power.

This is not anything like a full list of the different kinds of breathing. There

is a kind apparently altogether different—namely, the mental. By imagination and Self-suggestion, you can alter your breathing.

A telegram comes. If you are unused to telegrams you breathe more quickly, less deeply. You open the telegram, and, according to its news, your breathing alters again : you may breathe more deeply and fully and vigorously, or you may breathe more shallowly, incompletely, slackly. What a telegram can do for you, you can do for yourself, and thousands to-day are profiting by this art of imagining to themselves, and suggesting to themselves, ideas which will cheer them up and make them work. It is a matter of intelligence to find out what ideas will help you.

Perhaps they may be thoughts of certain places, certain people, or certain occasions or actions, such as a successful innings at Cricket ; or it may be sufficient to say to one's self such words as "I am going to do this piece of work easily and well ; it's not at all difficult." Perhaps a few lines of poetry or a few quotations from Emerson may be what you want. You need the intelligence to find out your own things, and then the will to use them.

Whatever they are, if you use them with full attention, they will alter your breathing, and with it your health. Such a sentence as, "You belong to a great nation," and a memory of the great men and women who belong to that great nation in the past or present, may by itself be enough to lift up your breathing so that you can feel it being lifted if you observe yourself with care. The Editor's own favourite Self-suggestion (and, whenever he errs, it is likely to be because he neglects this) is, "I am going to play the game in a sportsmanlike way." It is not a bad sample for Anglo-Saxon use. Only let each use his own words.

If you find it hard to control your mind, at any rate you can learn to control your diaphragm. It is the centre of physical interest. It decides the lower and influences the middle and the upper breathings. It is, as we have said, probably the most important and the most neglected muscle in the body. The great Dr. Maudsley asserted that he who is incapable of controlling his muscles is incapable of controlling his mind. This seems particularly true of the muscles of breathing, and of the diaphragm *par excellence*, if we remember that a person can control his diaphragm in other ways than by thinking of his diaphragm: he can control it by his imagination. Since he can also control it by thinking of it, somewhat as he can control his hand, then it would not be so very far from the truth, to say that he who is capable of controlling his diaphragm is capable of controlling his mind.

No one can control your diaphragm for you. The most that anyone else can do is to start you in the practice by which you may learn to control it for yourself. You must not forget, however, that while breathing affects the digestive organs by pressing upon them or by relieving them of pressure, and also *via* the pneumogastric nerve (Fig. 11), the organs in their turn affect the breathing in the same three ways.

Before we proceed to mention the various values of the different kinds of breathing, let us outline these values for the sake of convenience, hoping that the reader will afterwards read on through the more elaborate description in the second part of this chapter, and be convinced that the art of breathing is one of the five supreme arts of life.

The nasal in-breathing will purify, moisten, and warm the air. Inhaling through the open mouth is an ugly habit as well as an unhealthy one. The manager of a large business told us that under no conditions would he engage a man or woman clerk who kept the mouth open. He regarded it as a sign of stupidity and want of restraint.

The lowest breathing massages the organs of digestion, and indirectly of excretion also. The diaphragm presses down upon the stomach and liver and spleen, and helps their movements.

The diaphragm, kept up, relieves these organs of pressure, and enables them to work freely.

The upper breathing brings air to the unused attics of the body, and helps to clear these lumber-rooms of their dust. Used by itself, it enables us to inhale as little foul air as possible, and many have told me that they find it raises their thoughts.

Full breathing—

i.e. the practice of all three kinds together —brings in more good air, and especially oxygen, and gets rid of more carbonic acid gas and waste-products, etc.

Relaxed breathing helps repose, economy, gracefulness; and tends to power and poise.

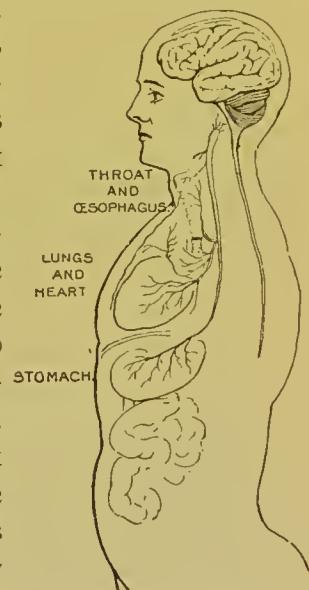


FIG. 11.—VARIOUS ORGANS
AFFECTIONED, THROUGH THE
PNEUMOGASTRIC NERVE, BY
BREATHING.



FIG. I.—SISTER GRACE'S GUILD OF CHILD-PLAY, AT WARWICK CASTLE.
(By permission of Mrs. Kimmins.)

CHAPTER X.

BRITISH GAMES AND SUGGESTED CHANGES (II.).

Our Competitive Life Makes Games more Necessary than Ever, as Outlets of Energy, etc.—Need of Education in and for Recreation as well as Work—What is Play and What is Not?—An Individual Matter—Children must have Play—Effects in a Poor District—Among Reformatory School Boys—Games as Anglo-Saxon Starting-points of Interest—A Round of Golf—Error of Many Golfers—Need of Co-operation to Save Expense—Badminton in a Small Room—Fives—Need to Adapt our National Games—Need to Master their Correct Positions and Movements—Otherwise People will not Enjoy them Fully, nor Keep them Up—Such Practice soon Becomes Unnecessary—Americans at Practice for Baseball—Is it Worth While?—C. B. Fry—Bedroom Drill—The Editor's Practice for his Favourite Games—Movements at Games are Not Natural—The Editor is quite willing to Laugh at Himself—He does not Admire the American "Groucher"—But Considers Games worth Learning Well—Games not Complete Education, but very Valuable for a Host of Reasons—They are not to be Regarded as "Extras."

IN the former article we spoke of some of the advantages of games, including their advantages as Physical Culture. We showed, by diagrams of exercises, that the positions of a good player at Cricket were not perfect as Physical Culture, but were decidedly good, and had the advantage of

interesting many Anglo-Saxons. Only we insist that games, as they are played at present, are not nearly as valuable as they might easily be. Yet even as they are played at present they do what nothing else does, and this is being realised more and more by those in authority. The

Royal Commission on Physical Training in Scotland recommended more playgrounds, gymnasiums, and recreation-halls, shorter hours of study, and the relay system, by which some should play while others worked, so that full use might be made of small spaces. For while it is undoubtedly true, as a writer in the *Manchester Guardian* said, that "games

Undoubtedly gymnastics are the recreation of many, and for them they are the right recreation. On the other hand, at any rate unless skilfully taught, they make scarcely any appeal to a great public of boys and girls, and men and women. For these people there must be games. Games and outdoor sports are not, as a gymnastic teacher recently supposed them



FIG. 2.—THE YARD USED FOR CRICKET AT THE PAGES' CLUB.

require playing-fields, more land, and more air," till we can get these playing-fields and more land we have to use the best we can find, as the Pages' Club off the Buckingham Palace Road uses its tiny courtyard.

This is all the more vital to-day since competitive brain-work without competitive exercise gives many people an unwholesome and neurotic tendency to exciting things, with the results that we all know too well. This love of "sensation" is not always counteracted by gymnastics.

to be, mere "adjuncts" in physical and moral development, falling under the category of "relaxations, and not integral portions of the Programme of Work." On the contrary, they are integral portions of the programme of work. They are an essential member of education. What we have most miserably failed to do is to show people not only how to work, but also how to use the time when they are not working. While we have mapped out their hours of study—and made these far too long—we have not mapped out their

hours of leisure and exercise; we have not told them how to get their pleasures sanely; hence they have usually taken their pleasures insanely. For our own part, we would almost rather see people take their work wrongly than take their enjoyments wrongly, since in the latter, at any rate, they concentrate their minds; into them they throw most of their vital

doubt that games are quite as important as play. The Swiss organise games for their children—games in the open air for all children, under supervision. Such games—which anyone can see in Mr. Corsie's school at Wandsworth—include leap-frog, hide-and-seek, and ball-games. The Swiss have also their games for adults, the result of which is to be seen



FIG. 3.—POOR BOYS AT LIVERPOOL: A GOOD OPEN SPACE IS NEEDED FOR ORDINARY "FOOTER."

self. By all means let gymnastics, target-shooting, riding, etc., be attended to; but let there be play also; and what is play, and what is not, depends on the individual and his inclinations. To some, gymnastics are play, while games would be work. To others, gymnastics, as taught by non-expert and unintelligent drill-sergeants, would be work, while games are play.

It depends on the instinct of the individual, and that depends largely on his skill and his success in his pursuit.

For children, however, there is little

at the Athletic and Gymnastic Festival at Zürich.

But we need not look beyond England for the effects of organised play. Take, for instance, the University Settlement at Bermondsey, where Sister Grace (Mrs. Kimmens) has taught the poor children to play and to sing. These games are now taking the place of the rough horse-play which went on among the poor, and the songs which would have been better without words.

Or, again, look at the play in the Reformatory Industrial Schools. Fig. 3

shows a game of football which will develop in these children of criminal tendencies the manly qualities that will keep them straight if anything can. It is largely owing to their games as well as to their drill that a man who has known them for years can say of them, "I think you will be pleased with their physique; every one of them has been at some time a choice specimen of the London lurcher or hooligan, but at bottom the best sort of fellow alive."

Games are an Anglo-Saxon starting-point of interest in the body and its welfare, and that starting-point is what we need for Physical Education. They are not the end of all things, nor the way to all things. They are just a beginning, an appetiser, which will encourage people to try practices for which otherwise they would have had little desire. Games, in a word, help the person to digest his Physical Culture.

Besides this, they are firm beginnings of learning. Professor Bain has pointed out how much of our knowledge goes back to actual movements of the body. The most familiar example is our knowledge of the circle. This comes partly from a circular movement of the eye. Games are, in fact, a training of the senses; and they are far more than this.

Let us take a round of Golf. Imagine you are going for a round this afternoon. Let us philosophise over this. It will not make you enjoy the round any the less.

The Golf has been a motive for a certain amount of training. If you had not had that match in mind, you would have been more careless in what you ate and drank and thought. Now you are going into the country and into the open air, which you would not do if there were simply a walk in view. You will have gentle and violent exercise alternately. You will use some of your largest body-muscles in a

healthy way—for example, in the full and, if you do it rightly, free swing. There will be restraint, when you are approaching the green. There will be an almost infinite variety in the strokes, an almost infinite exercise for judgment. You must observe the lie of the ball, the distance, the strength of the wind, and so on. Always there must be accuracy; always there must be concentration—the eye fixed on the ball; always there should be patience and control of temper. Your social nature is to some extent exercised, and your moral nature too; for the opportunities of petty retail cheating are not few.

So much in praise of Golf, as one of the most popular of games which can be continued until late in life. The mistake, however, comes in when we take Golf as the only game. It is not a game for all, since it requires too much space and time and money. We need to have some other exercise as well, and to set Golf in its proper proportion as a part of life.

What this other exercise shall be, whether some other games or some Physical Culture, you must decide. But, if it is to be interesting, you will probably require more space than your bedroom gives you, and we suggest co-operation for the playing of games. Here, for instance, are ten people who want to play Squash. They have seen the courts at the Bath Club; perhaps they have seen the people coming out dripping after half an hour of exciting play, and they want to have their own Squash-court; but they have no space and no money as individuals. Now let each subscribe a certain sum, and an old room can be hired for the evening, fitted with artificial light, and adapted for play. Then we have games made feasible. Squash may not be as good as Lawn-tennis, but what chance is there of Lawn-tennis in a city? The games



FIG. 4.



FIG. 4A.

THE FINE BODY-SWING OF A LAWN-TENNIS SERVICE.

of the future must include games which we can play in small spaces. How sadly we neglect games which we can play in small gardens also, and, as has been said before,

on roofs and in disused buildings, such as stable rooms.

We need to have not only more spaces, but also more games, so that each may choose his favourite one. That has been a recent tendency in games and athletics ; and Cricket, Football, and the Sports have suffered accordingly, losing sections of those who would otherwise have played them for want of something better. We need to have more games and cheaper games. Fig. 5 shows one of the cheapest of games played in a room. The room is quite small, and allows of, or rather compels, the use of hazards, such as the door-frame, the buttress of the archway, and the back wall. The ordinary Badminton shuttlecock with indiarubber ends is much too fast, but the kind that can be bought

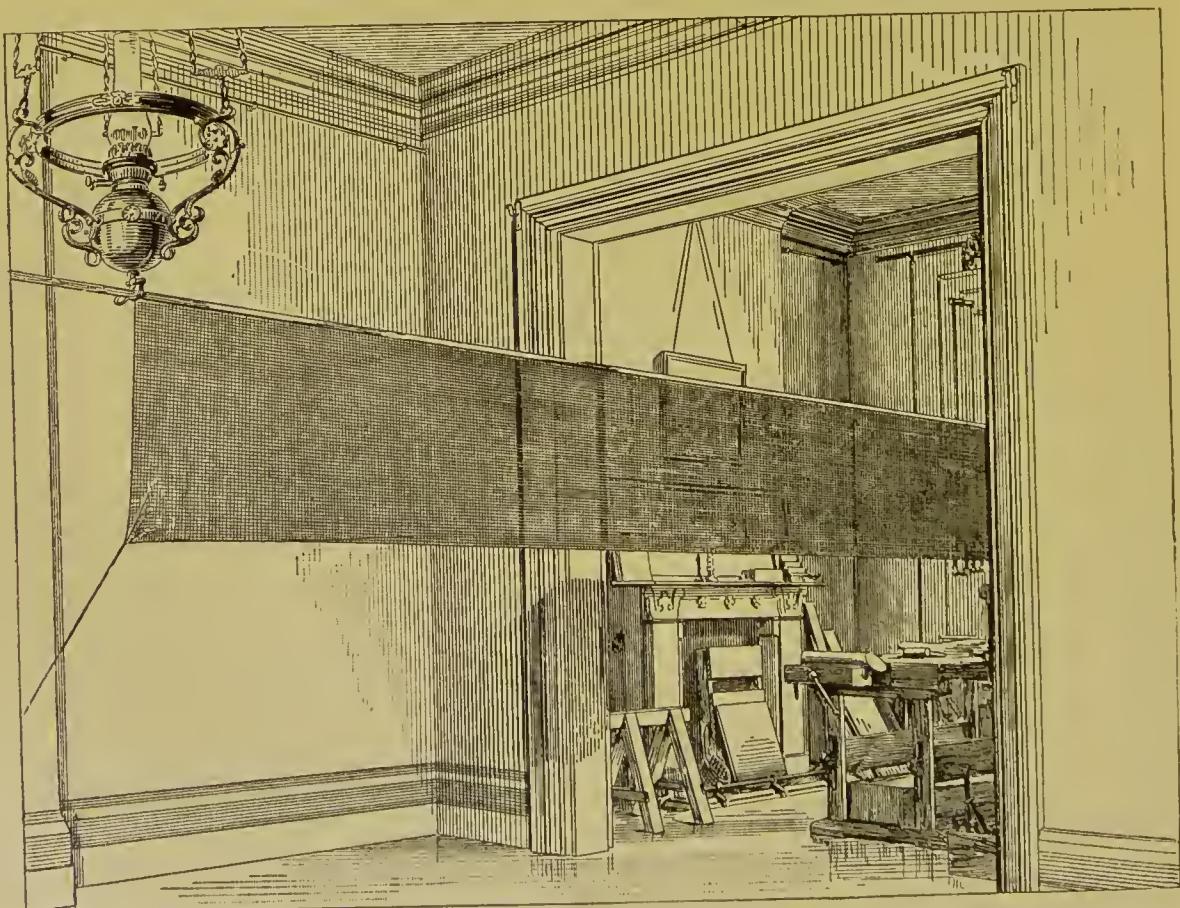


FIG. 5.—A SCHOOLROOM USED FOR BADMINTON, WITH PLAY OFF BACK WALL, CEILING, AND OTHER HAZARDS. (MR. H. ELLIS', GLOUCESTER TERRACE, W.)



FIG. 6.—THE DOHERTYS AT EASTBOURNE.

for 1½d. at the Army and Navy Stores is good for the purpose, and lasts well if the feathers are tied in with twine.

We should like to take this as the type of an adapted game. The room is tiny, and there must be dozens of rooms which lend themselves far better to the purpose, yet the game, occasionally played left-handed, is as good an exercise as one could want. Contrast this way of using a tiny space with the need of a larger space for the proper game itself. Consider how large a space was needed for the Badminton tournament at the Crystal Palace.

The small game in the small room would be possible when the large game in the large hall is impossible. At the same time, it would keep one in training for the large game.

Another game, seldom played, but economical of space as well as money and time, is Fives. Citing the Bath Club once again, we find that the rooms which are now used for Squash could also be used

for Fives with a soft ball, or for boxing, fencing, singlestick, etc.

A need of the age is to adapt our great games. Cricket, Football, Hockey, etc., are splendid *if* we can get them. If we cannot, they are to us non-existent. But there is no reason why we should not take some of their most typical features, and invent new games with most of the movement and exercise of the originals, but with less demand for special conditions. Here, for example, is a Racquet court, and what we say of this would apply equally well to any large plain room. If it has corners about it, that is so much the better. As an example, Sir George Newnes has a room with plenty of corners in it attached to his house at Putney. Here he and his friends play Lawn-tennis by artificial light. Here also the Editor has played Vigoro, and it occurred to him that the room would lend itself to as many as twenty admirable games. Vigoro is a kind of adapted Cricket, most of the work being



FIG. 7.—AN EXERCISE FOR BODY-SWING.

From "Racquets and Tennis" (Isthmian Library).

done with a Lawn-tennis racket, and not with the hand or with the bat. The room was equally well adapted for indoor Football or Hockey. The side-walls and corners would have given a pleasant variety to the angles at which the ball came. We have no idea, until we think out the matter, how many games we could play in places which now are entirely unused. The Editor has even played a sort of Lawn-tennis on the top of Lambeth Palace.

We need to play more games, and to play far better those we do play. This is not merely because we enjoy more the things that we do well, but because we get more health out of them; more health, and more improvement to the appearance. Take, for example, the magnificent movements involved in a correct service at Lawn-tennis. We have

described these in a previous article. We have shown how the great trunk muscles are brought into play, how the poise is kept or regained, and so on.

By way of contrast, watch an average College player at Cambridge. He stands there serving. He moves his body very little. He moves chiefly his arm and shoulder. He has none of the Dohertys' beautiful swing and sweep. The result is that, though he might learn the better way in a few hours of practice, he goes on and on, wasting much of his time, and never doing himself justice. If people played better, they would enjoy their play more, and would play oftener. They would get from their play the qualities which every human being needs. They would live so happily, while they played, that they would prefer to take their recreation physically, and not sit playing



FIG. 8.—BODY-SWING (SECOND POSITION).

From "Racquets and Tennis" (Isthmian Library).

bridge, and smoking and drinking, as we have known more than a few Cambridge men do, from midday on Sunday till the early hours of Monday morning. This is disgusting.

But most people will not learn to play better simply by playing : they will by scientific practice and self-correction. Let them turn their practice into a business *for the time being*. Having once acquired the correct positions and movements, then they will find that the practice has ceased to be a business ; it has almost ceased to be necessary. What is so hard to make clear to the thoughtless critic is that the most strenuous practice at the start, the most business-like training, is not meant to be kept up perpetually. *If it is done properly at first, it is done once for all, and henceforth the correctness is a part of you.*

Notice, for instance, an American using the spool. He wishes to throw in the correct way. He goes to the gymnasium, where a rope is stretched from a high point on one wall to a low point on another wall. On this is a piece of wood like a large reel of cotton. Holding this wood just behind his ear, he goes through the throwing action, the rope compelling him to send his hand in a straight line. Back comes the spool into his hand after the throw, and he repeats the action till it becomes nearly automatic. If he had to do this perpetually, the practice would be intolerable. Instead of that, after a short time he acquires this way of throwing as his very own possession, and he is careless for ever after, because he has mastered the mechanism.

Or, again, look at this Baseball practiser in his "cage," before the season begins. He wishes to learn how to "pitch." "Pitching" corresponds to some extent to our bowling at Cricket. Again and again lie practises the action.

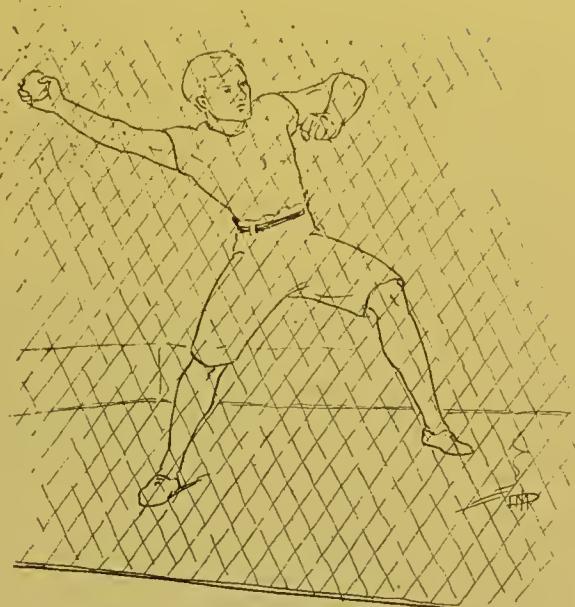


FIG. 9.—A BASEBALL PLAYER PRACTISING IN THE "CAGE."

It is toil and drudgery, but he has his end in view. He sticks to it, and eventually the movement is his, to use without thought or effort during a game or match.

Is this worth while, this practice of play ? The Editor has asked many people that question, and has never yet met with one who grudged the time spent in that way—the extra pleasure, from the extra skill and success afterwards, has justified the labour.

It is impossible to give here any detailed instructions for improvement at various games and athletics. Some of the foundation-positions and foundation-movements of most of them will be outlined in a later article. For the present we must be content to refer to the various libraries—such as the "Badminton," the "Isthmian," and the "Imperial"—and to the press-work which is being done so well by Mr. C. B. Fry and others, and to allude to a few samples of bedroom practice as used by one person for one or two of his favourite games, and especially Tennis. Each should adapt the plan to his own particular form of sport, if the plan seems reasonable. It has certainly suited the

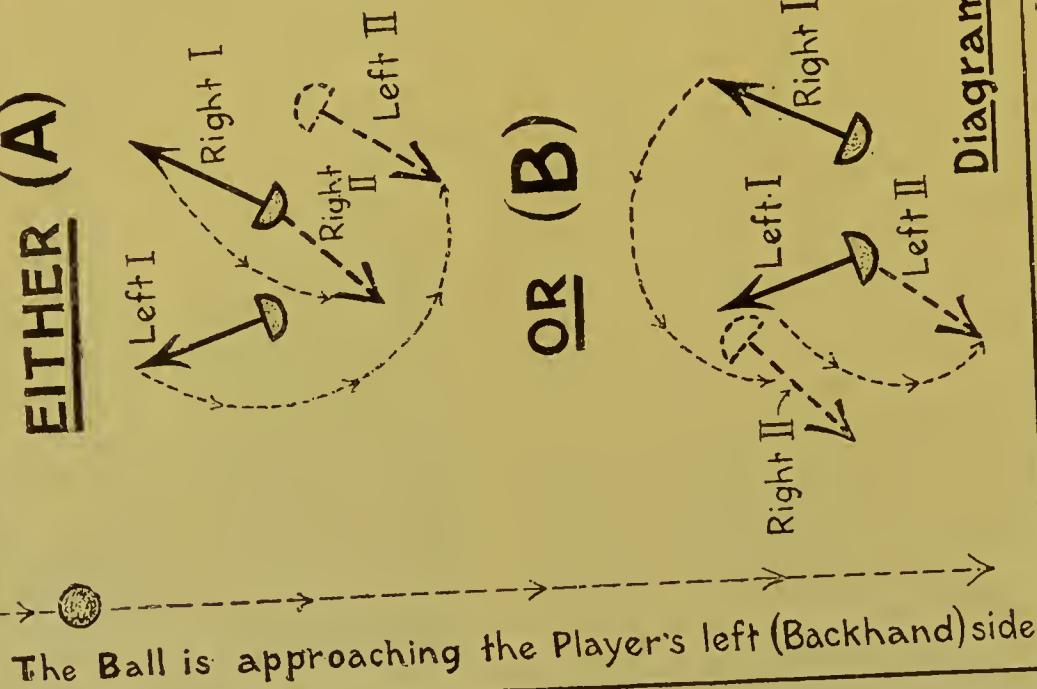
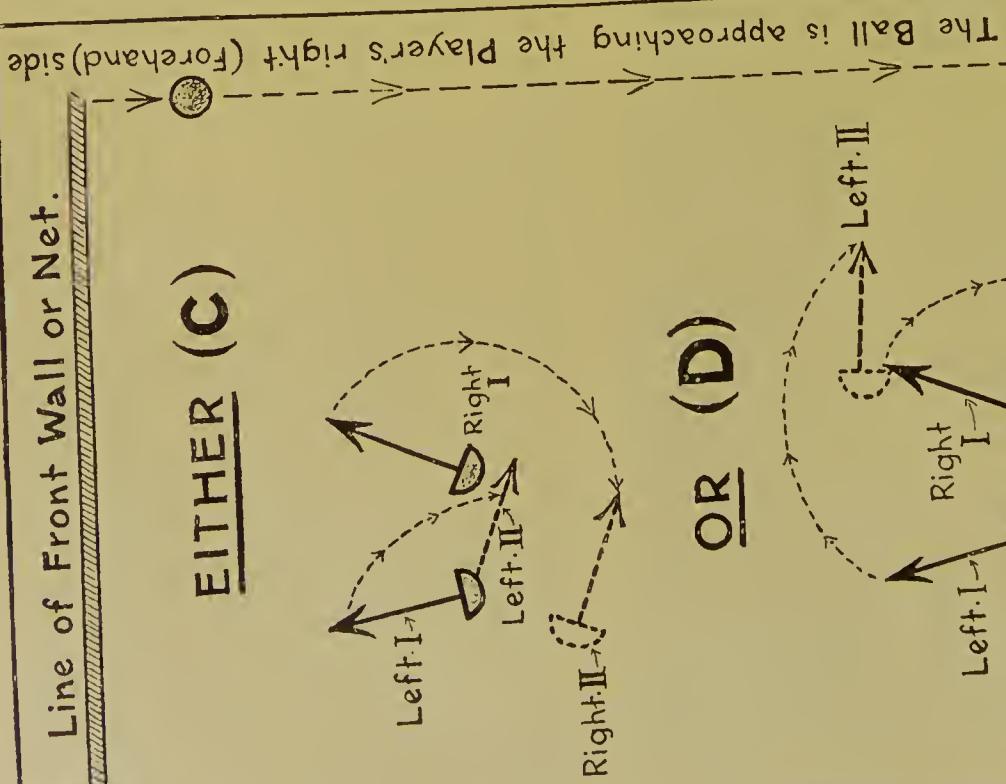
Line of Front Wall or Net.EITHER (A)Line of Front Wall or Net.EITHER (C)Diagram 3

FIG. 10.—FOR BALL APPROACHING ON THE RIGHT.

FOOT-DRILL, MOVEMENTS

*From "Racquets and Tennis" (Isthmian Library).*Diagram 4

FIG. 11.—FOR BALL APPROACHING ON THE LEFT.

Editor most excellently, and he is now trying to become less clumsy at Cricket, as he has already become less clumsy at Tennis and Racquets—by bedroom drill. Only let it be understood that this plan is unnecessary for the genius-player.

the Editor to get automatically into the right position for a good swing before the ball arrives. That is the result of thousands of repetitions. First he stands facing his imaginary opponent, and alert, on the balls of the feet.



FIG. 12.—THE FINISH OF A "PUNCH" FAIRS SERVICE.

From "Racquets and Tennis" (Isthmian Library).

Every thinking person knows how much of the success of a stroke is due to the right position of the body, and therefore of its bases, the feet, on which so much of the poise and power depend. Hence the value of a foot-drill. This is an exercise which has at length enabled

Then he imagines that the ball will come to his right side, and moves his feet (Fig. 10) so as to prepare his body for a forehand stroke, which he makes. Then he returns to the alert position on the "toes." Next he imagines that the ball will come to his left side, and moves his

feet (Fig. 11), so as to prepare his body for a back-hand stroke, which he makes ; and so on. Then he practises trunk-swings (Figs. 7 and 8) so as to give his various strokes, services, etc., more safety and power (and his body greater health). This is one of the most useful habits for many games and athletics, helping a man to dodge at Football, to pull at Cricket, to drive at Golf, and so on. Then perhaps he tries some special service, like the one which "Punch" Fairs uses with such effect. The finish of it is shown in Fig. 12. In all these drills there is a *souffçon* of the real fight, and the effect on the standard of play, on the health, on the interest of the game, or the mind in general, and so on, is so great that if the Editor were to say what his experiences had been he would be called a crank !

But, whatever may be thought of his special way, at least all sane people will admit that most players of games need to practise not only more but also more wisely—to practise the elements, the *sine quâ non* of success for those who do not happen to possess a superb eye or a fine physique. **For the movements of our modern games are not natural.** The movement of the left foot for the lunge at Boxing, when it should point straight forward and not towards the right, is not at first natural. Yet without the at first unnatural technique there is little likelihood of great skill. No longer is there success for him or her whose movements are, like those of animals, "abrupt, erratic, constantly varied," and dictated by the instinct of the moment. We must think, observe, analyse, then practise till we have mastered the A B C, if we want to get out of our play our due success, enjoyment, and health. We need not play for so long hours : we need to practise for more minutes, and to practise far more steadily, persistently,

till we have mastered the A B C. Then we need care no more about that, for our under-mind will do the right things for us.

So we should play far better, waste less time, and suffer less of that disappointment which has led many to give up their play in despair ; whereas these, if they had given a few minutes to a correct Golf swing (see Course), instead of all those hours to incorrect play which only strengthened a bad habit, would have been playing now, and have been feeling years younger. The Editor speaks from personal experience, since for a decade his positions and movements were almost altogether wrong.

Much of his practice has been done in his bedroom and in other rooms, but not a little has been done in open-air spaces—e.g. in an air-and-light bath, a fenced-in meadow in England, and a *Luft-Bad* at Gossmann's "*Naturheilanstalt*" (see Fig. 14) at Wilhelmshöhe, near Cassel.

In such places, also, he has recently begun to practise left-handed play. If he were a Hockey-player, he would go through play, in imagination, left-handed as well

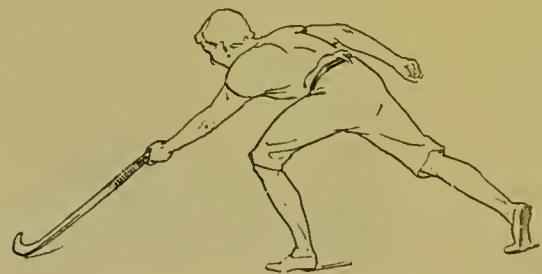


FIG. 13.—LEFT-HANDED HOCKEY.

as right-handed, as in Fig. 13. For his left side is still too far behind his right in point of skill.

Such aims and ambitions, however ridiculous, give a wonderful zest to the drill, and the imagination is of as healthy a kind as most. Indeed, the Editor is not ashamed to confess that at times when

"things seem to be going all wrong," he imagines himself to be bowling like Hirst or Rhodes, to be fielding like V. K. Royle or Quaife, to be batting like Jessop or Fry. He is quite ready to be laughed at, and anticipates this by laughing at himself. But the result is satisfaction, and—at least so he believes, and so physiologists and psychologists would agree—he is actually improving his play by this simple way of filling up odd moments.

It is objected that this is to turn a game into a serious pursuit. The Editor's

good-naturedly as well as whole-heartedly, the game is good.

Indeed, its place in life depends largely on how we use it and how we think of it. That brings us back to what we said at the beginning. Its value is mainly a problem for the individual, not for the general theorist. Almost all that the theorist can do is to ask a few questions, such as this : " May not *good* games be among the three or four things worth doing, and therefore worth practising well—as well, let us say, as the piano, or Sloyd, or history ? " If few



FIG. 14.—THE OPEN-AIR PLAYGROUND OF HERR GOSSMANN'S "NATURHEILANSTALT."

experience is that the concentrated and energetic practice makes the game itself less serious and "disciplinarian," and more interesting and pleasant. He loathes the American "groucher" who is desperate over his "play." Yet he feels that even this over-earnestness is better employed here and is less dangerous than in many other fields ; and that it is far preferable to slack and otherwise inferior play, such as one witnesses too often at school and at the University to-day. So long as one sees the game in proportion afterwards, sees it as one means to a great end, and so long as one controls oneself enough to play fairly as well as keenly,

modern teachers deny that Sloyd is fine training for most minds, because it teaches patience and accuracy in creating a satisfactory wooden pin or box or what not, which we can appreciate with our hands and eyes, must we not logically admit that Cricket is fine training also, because—*when well learnt*—it teaches patience and accuracy in creating a satisfactory stroke or catch or what not, which we can sense with our hands and eyes and ears and the thrill of our nerves ? After all, are our great achievements at play, stored in our imagination, very much less real and lasting than our school copy-books and compositions and translations and sums

in fractions? Edison, after his hours of apparently hopeless effort, made his phonograph pronounce the letter *s* of *specia*. We cannot all expect to benefit the world so obviously by our never-say-die "stick-to-it-iveness," as the Americans have called it. But at least we can get the mastering spirit, the memory of having done an honourable thing quite well, the memory which will stand us in good stead for self-respect when the lower nature suggests some mistake.

It is not merely the game—that is over. It is the spirit which the game has bred, the memories which it has stored up, the moral control, the intellectual method of learning, the social sympathy with others, the economical lesson in co-operation, the æsthetic sights of beauty and gracefulness, the healthy outletting of dangerous energy, *if*—there's the rub—*if* the game has been properly played, and therefore properly prepared for and practised, and if it has been properly estimated, and supplemented, accordingly, by left-handed play, by other Physical Education, by other sense-training and nerve-training, by work, by repose, and by reasonable

obedience to some Ten Physical as well as the Ten Moral Commandments.

With such restrictions, play the game, adapting it to your own conditions. For example, play indoor Cricket or Hockey in a bare room. Play, for it is part of the healthy animal's life. At first play most games, and learn their basic positions and movements; these are not many, and they are very healthy; then take up some special games. Concentrate your mind while you practise and while you play. Afterwards, away with the play, and either work or rest.

Play is not a complete life, nor a complete preparation for life. But, for most of us, a complete life and a complete preparation for life are utterly impossible without play, which, if we use it well and grasp its soul, can become for us not mere frivolity but a real enjoyment, a safety-valve for superfluous power, a partial training (with its preparatory and supplementary practice) for the organs, the muscles, the nerves, the senses, the character, the intellect, the artistic, social, and economical faculties; last, but not least, a partial training in clean competition.

CHAPTER XI.

SOME EXERCISES TO REMEDY DEFORMITIES.

Most of us are Deformed—Common Examples—Our Object is not a Perpetual Worrying, but a Reasonable Carefulness till the Normal is Restored—“Hygienic” Dress—Shoes and the Feet—Legs and Hips—Sleeping on one Side—Need to Begin when Young—Live Sanely, or Else Exaggerate in the Opposite Direction—Normal Abnormalities—Cycling—Consult a Specialist—Sitting—Standing—Crampedness—Organs too Low—Corsets—Neck—Nostrils—Breathing—The Reasonable Body a Mean Between Two Misshapen Bodies.

IF we could make a complete list of the physical faults (deformities and deficiencies) of the next hundred people we met, we should be amazed at the amount of work to be done before a normal man or woman could be shown. And then there would be several changes to be tried for the mind also. But these we must not consider here, except to say that there should be will and concentration, because from every point of view it is worth while to be what we may call *poised*. This article suggests a few exercises that are useful to restore some of that harmonious poise of the body which most animals possess in a state of nature.

Probably, if most of us were examined with very careful tests, we should find ourselves more or less deformed. Want of development, and rigidity, are both deformities. We are more or less deformed in respect of our toes, feet, ankles, calves, knees, thighs, hips, spinal curves, waist and abdomen (perhaps it may be too fat, the organs may be too low, and the supporting muscles too weak), chest, shoulders, neck, arms, hands, face (probably the nostrils are uneven, and we frown too much), hair, and skin. In general, we are likely to be too cramped, too tense, too slow.

Within the limits of a short chapter like

this, it is impossible to do more than touch on some of the commonest deficiencies which we can easily remedy. Our object is not to make people morbid and self-centred. Our object is to call their attention to their deficiencies ; to show one or two ways in which they may be removed and the normal restored. That is the main object of the PHYSICAL EDUCATOR—not to produce a Hercules, an Apollo, a Diana, a Venus of Milo, but to produce or restore a normal human being, or a less abnormal one.

Once having restored this, once having become something more like what we should be, we need not trouble much further, except to lead a sane life ; and occasionally, as masters of even the best servants, to supervise and see that these servants are doing their duty well.

Not only are most of us deformed, but we continue to make deforming mistakes in the commonest affairs of daily life. For example, we wear boots or shoes that distort the feet. Now we are not going to urge people to wear ugly boots or shoes ; that has already been done quite often enough. And a large number of those who insist that we shall all wear hygienic dress fail to attract people by their own personal appearance. We say nothing against hygienic dress, except that—to

use a popular phrase—it has not "caught on." We shall adopt an altogether different line, knowing that most mistakes will continue to be made by most people.

Usually little harm will be done if people will only practise the opposite mistakes on purpose. Fig. 1 shows a big toe deformed by an ordinary sock or stocking, boot or shoe; it is bent right out of its normal line. The same illustration shows an easy way to help to remedy

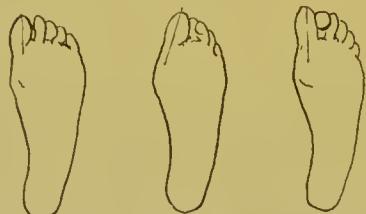


FIG. 1.—HOW TO CURE A DEFORMED TOE.

this. An old reel of cotton—first a tiny one, then an increasingly large one—is put at night between the big toe and the next one, and in the morning perhaps one walks up and down the inclined plank with bare feet, in order to spread out the toes well in every direction; for they must of necessity spread out, trying to grip the plank, as in the "tip-toe" walking of Fig. 2.

Another diagram (Fig. 3) shows a person leaning on one leg or leaning on



FIG. 2.—ANOTHER EXERCISE FOR THE BIG TOE.

one side, with the hand of which side he holds a stick. This may produce a deformity. On the other hand, if the person purposely leans on the other leg, and holds a stick in the other hand, it is possible for him to avoid any great deformity. This Fig. 3, with some other illustrations, is adapted from "The Training of the Body."

Mr. E. F. Benson says that at night he sleeps half the time on one side, and half the time on the other. In the middle of his sleeping time he turns over unconsciously. Most people sleep in one position all the while; perhaps on the back, perhaps on the front, perhaps on one side, or on the other. To sleep always on one side may produce a deformity; by sleeping occasionally on the other side one will help to prevent or cure this.

We should suffer scarcely at all, one imagines, if we were normal when we were quite young, and if the tree had learnt the habit of holding or coming back to the straight line by instinct, as it were, when it was but a mere plant. To try to live always straight would be hopeless. Success in life depends on returning as quickly as possible to the straight. Watch an animal—how naturally it takes the position or makes the movement that will restore it to the normal. But most of us start too late in life.

Many of us even now could restore the normal if we lived a sane life. The normal would restore itself. For our own part we have implicit faith in Nature. She never meant us to think perpetually of correcting the same fault. She meant us to correct it, and then enjoy immunity. That is to say, to have the new habit as our own.



FIG. 3.
A BAD STANDING POSITION.

But this living of the normal life, this doing of the right thing, this standing straight, or sitting straight, or lying straight, is not sufficient for everyone. It may be necessary for the person to exaggerate in the opposite direction. If a person has a flat foot, it may be necessary



FIG. 4.
FOR FLAT FOOT.

for him to over-arch the foot, as it were ; to practise arching it far too much, using, let us say, the exercise of walking up the plank with bare feet, as in Fig. 2, the movement of the foot being illustrated in Fig. 4.

We cannot repeat too often that one who is correct in form can be, and, indeed, should be, without care and worry ; but that, till then, attention should be paid. If we are not correct by instinct, then we must become correct by conscious effort. The mirror will be of the greatest use so long as one does not afterwards go and forget what manner of man one ought to be. In later chapters we shall deal with special correctives by means of apparatus, special development of the extremities, and of the left side. We shall also speak of the nearer equalisation of the two sexes, each adopting something from the habits of the other. Here we can only pick out a few of the commonest daily mistakes. Let us begin below and come upwards.

Probably the feet are uneven. You can tell whether they are or not by looking at the soles and heels of boots or shoes ; and you can remedy the fault by exaggerating the opposite fault ; for few of us are really normal. It is said that "the two sides of a person's face are never alike. The eyes are out of line in two cases out of five, and one eye is stronger than the other in seven persons out of ten. The right ear is also, as a rule, higher than the left. Only one person in fifteen has per-

fect eyes, the largest percentage of defects prevailing among fair people. In fifty-four cases out of a hundred, the left leg is shorter than the right."

Some of these mistakes—if they are mistakes—are due to occupations ; for example, to our writing always with the right hand ; the cobbler's occupation is almost bound to deform him. Some are due to occupations wrongly done. Gardening is one of the most conspicuous. While gardening, properly done, is one of the most healthy of exercises, the typical gardener, who has gardened in the wrong position, appears with a bent back and other monstrosities.

The typical cycling attitude is another example. Cycling is fine exercise for those who can keep the correct posture, and who have the machine best adapted to them ; but Fig. 5 shows how easy it is to cycle in the wrong position, and to get abnormal curves of the spine, as well as to crush the internal organs. One remedy for this would be the use of the quarter-circle exercise, as shown in a previous illustration. As it is somewhat expensive, the reader may prefer the use of the inclined plank, with cushions under the small of the back. An ordinary plank can be used, as we have already described in "How to Get Exercise in Cities"). He could then lie on his back and perform such exercises as the imitation of the breast-stroke in



FIG. 5.
THE DISEASE.

FIG. 5A.—A REMEDY.

swimming, or skipping when one throws the arms backwards.

Again, notice how we usually hold parcels, etc., in one hand by preference. Fig. 6 shows the deformity due to this practice. If we remember to hold things in the other hand by preference, we may remedy this. Only we must take care that we do not turn the one abnormal curve into two abnormal curves by this practice. A specialist should certainly be consulted if the wrong curve seems to be rigidly fixed. A similar example would be the shopkeeper, whose skeleton appears in Fig. 6. He should cultivate the opposite attitude, resting on the other leg and reversing his whole body.

How wrongly most of us sit when we read or write! To remedy this as we write may be difficult, but we can easily remedy it as we read. It is not, let us repeat, that we should always sit perfectly straight when we read or when we listen; it is that, if we tend to lean over in one way, we should repair the mischief by leaning over in the other. If we

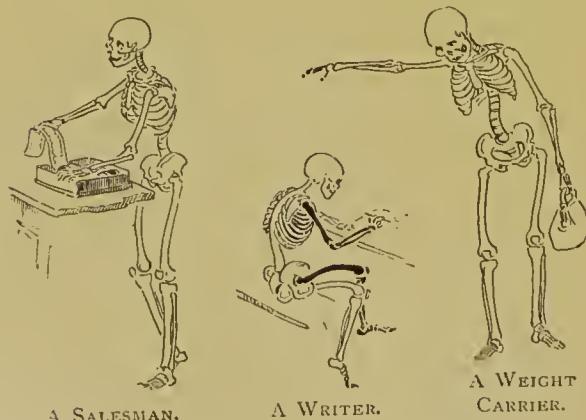


FIG. 6.—TYPICAL DEFORMITIES.

cross the right leg over the left, then let us purposely cross the left leg over the right. We are not insisting on the perfectly straight position always, but on the one-sided position on fewer occasions.

Then there is the position in standing, five positions being shown by five skeleton figures (*see Fig. 7*). As a rule the result will be that one shoulder is higher than the other, the shoulders are

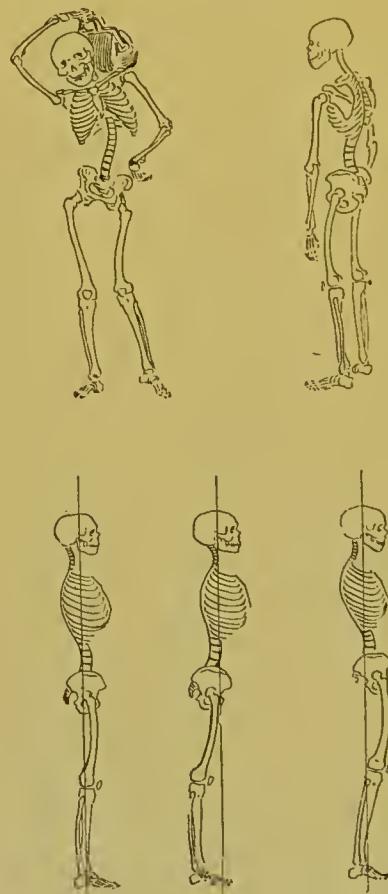


FIG. 7.—VARIOUS MODES OF STANDING.

themselves too much forward, and the head too much forward also. We might remedy the high shoulder by sometimes carrying a weight upon the other, as in Fig. 7. We could remedy the forward slouching of the skeleton (Fig. 7) by neck exercises, like those in the Courses for men and for women. We shall treat of the apparatus-help directly.

In general, we are too cramped. This fault we can repair by stretching in different directions. To lie on one's back upon the inclined plank will remedy some

of the crampings. Fig. 5A suggests an exercise for this position.

Dr. Charles Emerson says: "There is no physical defect as general as this—that the vital organs are from one to four inches too low in adults and in children down to the age of five or six years." Before this, the organs are high. Many exercises which we suggest in various chapters will tend to get the organs back into their right position. This downward falling of the stomach, liver, etc. (see Fig. 8), is obviously a great evil, all the greater because we do not realise the

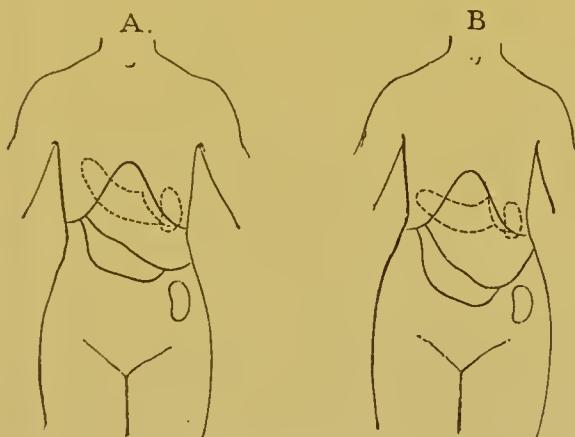


FIG. 8.—DISPLACEMENT OF ORGANS.
(After Dr. Kellogg.)

deformity as, let us say, we should realise it if one eye were three inches too low, or if the nose fell across or below the mouth. The position of lying upon the back and stretching the arms upwards is a good example of a remedial exercise to get the organs in a better position. But be careful not to strain yourself.

The misplacing of the organs is partly due to the old-fashioned corset. Figs. 9 and 10 give an exaggerated view of the effects of the corset. We notice that nearly all abuses hurled by writers against the corset are abuses of the old-fashioned article, the one which constricted the

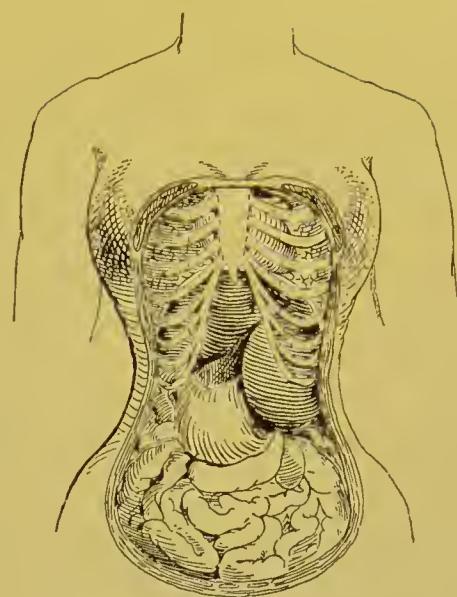


FIG. 9.—EFFECTS OF A WRONG CORSET.

waist and the chest as well. Now the corset has an advantage which its opponents scarcely ever trouble to understand or mention. If the muscles of the trunk are weak, then there is a choice of evils. Shall we give up the corset and fail to hold up our organs in their place, or shall we hold our organs up by the corset,

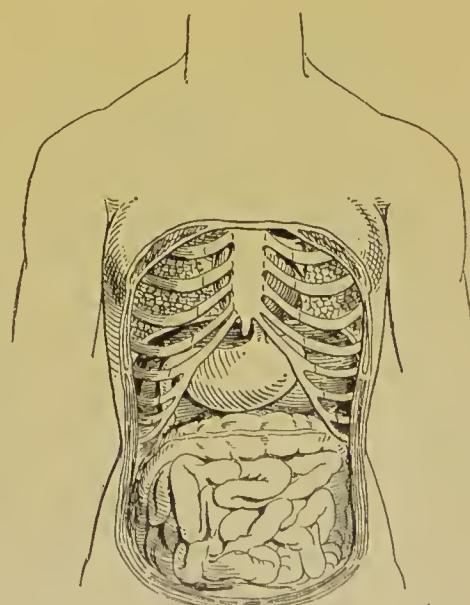


FIG. 10.—THE ORGANS OF A HEALTHY UNCORSETED FIGURE.

which may act as a sort of substitute for muscles? An obvious plan is to strengthen the muscles of the trunk before we give up the corset. Then, when these are strengthened, the corset will become less and less necessary. But, till these muscles are strengthened, we have, let us repeat, a choice of evils before us: the uncorseted trunk with weak muscles may have its organs too low, and the corseted trunk may have its organs cramped and displaced in a somewhat different manner. Fig. 9 shows a possible displacement. The best remedy will be a series of trunk movements, done on the floor or on the inclined plank, without constricting clothing.

Then there is the neck, of which the muscles may be stiff or weak. This will produce a wrong carriage. The apparatus in Fig. 11 shows how the neck muscles may be strengthened by moving against resistance. Anyone can easily make this apparatus for himself. Let him get two pieces of fairly strong elastic, and tie each securely to each end of a folded pocket-handkerchief. The other ends of the

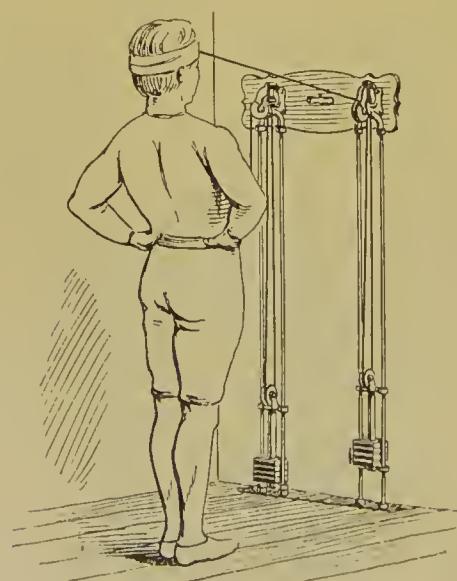


FIG. 11.—A NECK EXERCISER, TO REMEDY “POKE,” ETC.
(*Adapted from Sargent*).

elastic let him tie securely to some firm attachment—let us say, to the handle of a door. He can then put this handkerchief round his head. If it is at the back of his head while he faces the door-handle

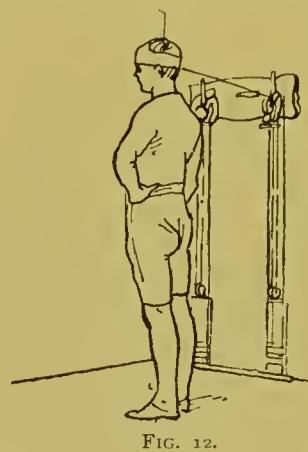


FIG. 12.

(see Fig. 11), he can practise moving his head back, as in the exercise of the two Courses; or he can turn his back to the door-handle, and put the handkerchief over his forehead. Either way may be used for

strengthening the turning muscles of the neck. All the neck exercises should be performed slowly and cautiously at first. Yet one should feel a certain amount of resistance.

We have now come upwards to the face, and here we may notice the nostrils. Look at them in the mirror, and see whether the left (Fig. 13) is not considerably smaller than the right. May not this be partly due to the common habit of holding the handkerchief in the right hand when one blows the nose, and then moving it down from left to right? If so, then, for a change, hold the handkerchief in the left hand, and move it down



A DEFORMED NOSTRIL.



A HEALTHY NOSTRIL.

FIG. 13.

from right to left. Besides, close the right nostril by pressing against the side of the nose, and breathe in occasionally with the left nostril only.

Breathing exercises, such as are de-

scribed in the special article, should accompany most remedial exercises. For example, let us suppose that you are labouring under obesity. Force in your abdomen, and take a full breath in, and bend downwards. You are now practising yourself in the middle or chest breathing,

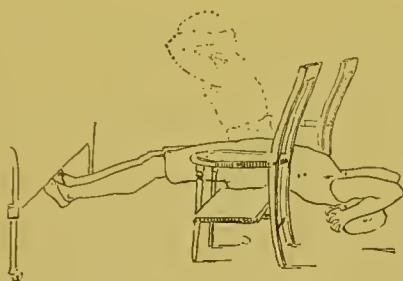


FIG. 14.—ONE REMEDY FOR OBESITY.

and your unsightly abdomen will tend to disappear. Or practise the exercise in Fig. 14, with full breathing. But we must leave the subject of obesity for a special treatment. It would be a mistake to over-cram this chapter with instructions. Let it be clearly understood, however, that we have omitted more faults than we have described. We have said nothing of thin or shapeless calves, of stiff knees, and general stiffness, and general slowness to change; which latter faults might be remedied by the Macdonald Smith system, by the best games and athletics, by relaxing movements, and, we hope, by our various Courses.

We have also been obliged to omit many remedies, and especially massage—which, again, will have an article to itself. We have said little or nothing about that deformity which is so common that we scarcely observe it, or even realise that it is a deformity—namely, frowning. This we can cure by smiling in private, and by relaxing in private also.

In fact, we must leave the reader to find out his own failings, and the special

ways to remedy them. Each must choose for himself whether to disregard them, and simply live a somewhat more sensible life, or to attend to them, and to exaggerate the opposite fault till the normal has been restored. For that is our object; not to go on and on tinkering at the same deformity, and worrying about it; but to remedy it once for all, and then leave nature and instinct to keep us right.

Till we have remedied it, we can scarcely do better than practise what Aristotle was one of the first to set forth in theory. “A virtue,” he said, “is the mean between two extremes.” Reasonable courage is the mean between rashness and cowardice. Reasonable economy is the mean between lavishness and parsimony. *The reasonable body is the mean between*

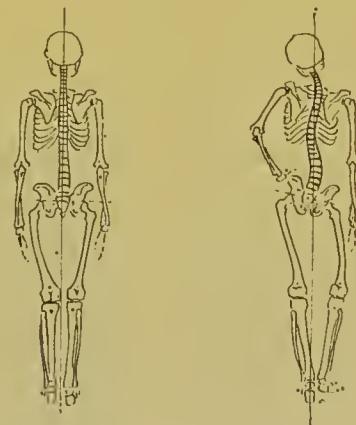


FIG. 15.—SYMMETRY AND SLACKNESS.

two misshapen bodies. Mistakes we make, and are almost bound to make, constantly. To be in precisely the right pose and poise every moment of our lives is more than can fairly be demanded. The best remedy is to get into the habit of returning to the right pose and poise as quickly as possible. It is hard to see how we can do this except by observing ourselves. The fault will be not if we observe ourselves, but if we always do so.

CHAPTER XII.

ORDINARY AND TRAINING DIETS: THEIR PROS AND CONS.

Athletic Feats (of Endurance) Possible on a Very Narrow Dietary—Karl Mann—Gadesbusch—Olley—What Would they do on a Mixed Diet?—The Narrower Dieters must not Set themselves up on a Virtuous Pinnacle—Mr. C. F. Benson—Mr. Burdett's Opinion—Mr. Montague Holbein—Mr. Harry Andrews, the Famous Trainer—Dr. Mortimer Granville, a Theorist—Few Athletes Rely on Diet Alone: Their Care in Other Matters may Cover a Multitude of Mistakes in Diet—Some of the Pros—Training in Self-Control—Some of the Cons—Uric Acid, Xanthins, and Purins—The Editor's Experience—The Rule of Moderation and Smaller Quantities not Scientific—Bread—Proteid—Fibre—Fats and Carbohydrates—Professor Atwater Omits Pleasant Taste—Omits Digestive Helps Omits Excretive Helps—Omits Freedom from Clogging Materials—"Salts" and Over-acidity—Atwater's Interesting Experiments—He Condemns City-habits in Food—Experience has not yet Decided in Favour of the Ordinary and Training Diets—Contrast after Fair Trial is the Only Criterion.

WE know a large number of people who thrive physically and mentally on a diet that is, in theory, remarkably cheap and pure. Karl Mann, in whom the physicians appointed by the Government could trace no sign of exhaustion after his walk of 125 miles in 26 hours 52 minutes (in 1902), lives and trains his living and training diets do not differ much) on salads, well-cooked vegetables, fruits, nuts, pea-nut butter, whole-meal bread, and an unfermented grape-juice; on this diet he manages to edit a paper (*Kraft und Schönheit*), to be agent for his "wine" (which we shall criticise in a later chapter), to superintend an open-air gymnasium near Berlin, occasionally for the sake of amusement to take a little walk of seventy miles or so, and even to marry.



FIG. 1.—SKULL OF A DOG.
(Photo: Mason & Basebe, Cambridge.)

The feats of Mann and his followers—among whom are other walkers not far inferior to him, and Gadesbusch, one of the best oarsmen in Germany—are not to be ignored. Moreover, the fallacy that man has the teeth of a carnivorous animal has long ago been exploded. His teeth are less carnivorous than those of a dog, as will be clear to any reader who compares his own teeth—and especially his "canines"—with those of a dog, as in Fig. 1. But man (and Mann) *can* eat meat, and what would Mann have done on a diet including flesh-foods? And how would he impress an average person? Might not the narrowness of the régime be regarded as a confession of weakness? To put the matter more personally, what would Mr. C. B. Fry—most open-minded of athletes—have

thought of the Editor's diet not long ago if the latter, when asked to lunch at Mr. Fry's club, had been on the diet of Karl Mann and had declined everything—the white bread, because it lacked certain phosphates, etc., the butter because it was an animal food, the cheese for the same reason, and because it was decomposing, and so on ?

Right at the very outset of this chapter the Editor must explain that his dietary (which at present excludes only the flesh-foods and, by personal preference, sugar, eggs, and oatmeal), though assuredly cheap and pure, does not set him on a level superior to any other human being. He finds himself far fitter on it, but is ready to admit that this careful choice is, from one point of view, a confession of weakness. He has a certain kind of respect for the men who can thrive on a wider range of foods, even while he knows that Mann, and cyclists like Olley and Newell, can perform wonders of endurance on their fleshless *régime*.

At the other extreme is the diet—if one may call it so—of the strong man in a well-known acrobatic *troupe*. He is the man who supports the others, and is technically known as the “Ground man.” During the day he never eats, but smokes cigarettes and drinks Scotch whiskey. At night he takes between one and two pounds of raw beef sandwiches. He enjoys life: though it is said that he has heart-disease.

The Editor has been told that the special training of a certain Canadian athlete—a man of vast endurance—consisted of brown bread and butter and tea. These and other diets, including those of a vigorous old man of sixty and some cyclists, etc., may be called “experimental” as distinct from orthodox. This does not mean that they are not sound for these people, and perhaps for

many others as well; it merely means that they are not usual. They will be treated later on in a special chapter where the Editor's own diet will be described more fully, some small meals being cited and analysed and justified. Here we are treating of the ordinary diet of most Anglo-Saxon people who can afford it, and of the orthodox training-diet of most Anglo-Saxon athletes.

Mr. E. F. Benson is the best specimen we know of a man who never trains by means of diet. His training-diet is his ordinary diet, and on it he can show wonderful results, being, in fact, one of the most active and most successful all-round men of the day—a musician in practice as well as in theory, a deep and wide reader, a versatile writer, a man who is remarkable in whatever society he is, and whatever that society is doing, whether talking or playing or “bridging”; a fine all-round athlete, with skating and Golf for his specialities, he seems to find the ordinary diet agree with him admirably. And he takes the right view of the matter. He told the Editor that, if ever he felt that he could not use his body and mind satisfactorily, he would then think about changing his diet.

The following contribution is from a man who has had considerable experience in training others in boxing, etc., and who also is on what we may call the “never mind” principle—Mr. Burdett, the well-known heavy-weight ex-military champion of boxing, and formerly gymnastic instructor at Oxford University and the People's Palace, Mile End. We wish to thank him genuinely for his clear and outspoken views. All praise to those who say out what they think good and find good in their own practice.

His opinion will be read with all the more interest because he has never seen or heard of any of the Editor's ideas

about diet, as he shows in his second sentence. In criticism of what he brings forward, we may say beforehand that we should like to know how these men whom he mentions would thrive if they had to give up most of their exercise. He speaks of their condition when they get their exercise regularly. If something—for instance, an accident or want of time or money—compelled them to lead an almost sedentary life in a city, would they still keep in physical training on this diet? Secondly, about the power of these men for steady brain-work he says not a word. Thirdly, we would emphatically deny the correctness of his theory. He says that a person would always have to worry about procuring and weighing and mixing foods, etc. Now this may be so at the start, but in any good system of diet all this trouble ceases after a time.

The choice, etc., of foods becomes practically unconscious; as one learns to play the piano, so one learns to choose foods.

We would ask for a judgment by results. What is the condition of most of those athletes at the age of fifty? That is a plain and fair test.

With this preface, we quote from the manuscript that he has kindly sent us, the conclusion of which seems to be that we are all different, but should not experiment in order to find out whether some new dietary may not produce better all-round results.

"In connection with all that has been said about training and diet in recent years, it would seem impossible to touch upon anything new. So many have written about the subject; some, good practical men, who have written sensibly and strongly; others, mere theorists, who have written wildly strange articles, laying down a daily routine and diet which if followed conscientiously, must have rendered life unbearable, and the consequent worry of procuring, weighing, and mixing foods, and apportioning certain exercises to certain fixed times, must have entailed more fatigue and weariness than ever the so-called systems could have cured.

"Throughout all the articles I have read there has always appeared, and been invariably strongly emphasised, the writer's own dictum on the subject—*i.e.* what he or she has done when in training, and what they consider every one else ought to do when training. It is against this laying down of a hard-and-fast rule for diet and exercise that I would protest. Since no two people are exactly alike, it follows that no two persons like the same diet or reap the same amount of benefit therefrom.

"Besides, I maintain that the incessant worry of eating just so much and only certain kinds of food and at certain



G. A. OLEY.

(Photo: Russell & Sons, Baker Street, W.)

fixed times is mentally distressful to most persons. In looking back over my past long experience in training—experience in which I have been brought into personal contact with all classes of athletes, from the East End schoolboy to the 'Varsity Blue—I am firmly convinced that too much, far too much, stress is laid upon diet and not enough upon work or the practice of the particular form of athletics in which it is desired to excel. Anyone who has had the opportunity of observing the muscular development of the Army instructors being trained at the headquarters' gymnasia must have been astonished at the splendid physique of the men ; and yet these men (I speak from personal experience) are fed upon the plainest of diets, and of that sparingly.

"It was once my privilege to teach a very large class of East End factory girls at the People's Palace, and I was profoundly astonished to learn from a good lady who mixed with them daily in their different factories that the greater number of them had only bread and butter, or bread and cheese, or bread and bacon, for their dinners day after day, and yet the vitality and strength they displayed might quite have rivalled that of the well-fed undergraduates of our Universities.

"Again, take our professional footballers or cricketers. Does anyone suppose for a moment that any of them give much thought to what they eat ? Certainly not ! My experience of professional athletes has been, I may honestly say, as great as anyone's, and the story of them all, told fairly and privately, is—plain normal diet, and plenty of hard work at your sport, plenty of fresh air. No fads, no patent foods and extracts, no fantastic drinks, but simply the plain simple diet of the normal man, no excesses either of overfeeding or underfeeding, three meals daily, and meat cer-

tainly not more than twice a day. Given this plainness of living, and always remembering that the greater the variety in the diet the better, with plenty of hard work, properly directed with the view of attaining



FIG. 3.—KARL MANN, A LONG-DISTANCE WALKER
(125 MILES IN 26 HRS. 52 MINS.).

(Photo: A. de Veer, Berlin.)

excellence in your particular sport, and you possess all the secrets of success. Perhaps it may be asked : But what do you call a plain, normal diet ? I would reply :—

"For Breakfast any of the following—bread, butter, fish, porridge, eggs, bacon, fruit, jam, and tea, coffee, or cocoa.

"Dinner—meat (roast or boiled), any kind of vegetable and plenty of it—except, perhaps, potatoes—bread, and anything in the way of fruit and any kind of plain pudding."

A slightly stricter régime is that of Montague Holbein, the famous swimmer, when he trains for a cross-Channel swim. He says :—

"Personally, the only change I make in my dietary is that I eat less vegetable

food than I should otherwise. . . I feed well right up to the day of the attempt, and during my effort, whatever the length and time of it may be, I take constant nourishment—in fact, at half-hour intervals. . . I have found that hot milk, raw eggs, hot tea, and Bovril are refreshing and staying foods. I take spirits only under very exceptional circumstances. . . I never smoke, as I have always found it to be injurious, and I seldom drink alcohol."

More elaborate and more strict are the instructions of Harry Andrews, trainer of Holbein and of Butler, Chase, Frank Shortland, Shrubb, and Walters.

"A man in anything like a fair state of health will thrive, and, if other points allow, will reach a state of extreme fitness, on a simple diet, such as follows:—

"Three meals a day are, I consider, necessary—breakfast, dinner, tea. Exact times need not be laid down; but breakfast at about 8.30, dinner at 1, and tea from 5.30 to 6 o'clock are suitable hours.

"For a man in training I give as follows:

"*Breakfast.*—A couple of new-laid eggs and toast, followed by a little cress or marmalade, or both; or half-pound of fresh fish and toast, cress or marmalade, or both. A steak or a chop may sometimes take the place of the eggs or fish. I disallow bacon and butter, only occasionally permitting just a very little butter to the man who may particularly fancy it.

"*Dinner.*—Roast beef, mutton, boiled mutton, poultry, game, milk puddings, and stewed fruits, plenty of green vegetables. As great a variety of food as possible from day to day is advisable. I bar pork, rabbit, hare, venison (this is apt to upset the inside), boiled beef, and potatoes. No suet puddings or pastry. Shell-fish and cheese are also tabooed.

"*Tea* consists of eggs, fish, or poultry, toast or crust of bread; the crumb should

always be toasted and the crust eaten stale, not new. Watercress is allowed, but very little, if any, butter.

"As a general rule, I let each regulate the quantities for himself. I find that in the long run they generally level off to about the amounts stated above.

"*Between Meals.*—A biscuit or two, or an apple after the morning exercise, and a biscuit also about 9 o'clock in the evening, in addition to the above meals, complete the solid side of the food question.

"As a general principle I am not in favour of what may be roughly described as prepared foods—I mean the general run of proprietary articles; but I am in most hearty accord with Messrs. C. B. Fry and Eustace Miles in recommending that during training, certainly during its earlier stages, when nourishment and building up of the body are all-important essentials, no athlete can afford to overlook the benefits to be derived by the addition of plasmon, wherever possible, to his food. . .

"If you are at present an abstainer, don't start stimulants. If you are a moderate drinker, don't drop it, but be most careful to be just as moderate out of training as in."

[The subject of drinks will be discussed in a later chapter.]

Still more detailed is the following scheme, by J. Mortimer-Granville, M.D.:—

TABLE OF STAPLE ARTICLES OF DIET IN SEVERE TRAINING.

Substance.	Quantity (in oz.).	Nitrogen (in grs.).	Proteid (in grs.).	Carbon (in grs.).
Meat and poultry	24	240	240	1,526
Bread	24	120	120	1,676
Butter	1½	0.3	450	450
Potatoes	8	8	8	392
Sugar	1	—	—	187
Milk	4	12	12	120
Oatmeal	2	6	6	250
Eggs	6	57	57	426
Total	70½	443.3	443.3	5,027

TABLE OF STAPLE ARTICLES OF DIET IN
MODERATE TRAINING.

Substance.	Quantity (in oz.).	Nitrogen (in grs.).	Carbon (in grs.).
Meat and poultry	20	200	1,280
Bread	24	120	1,676
Butter	1½	0.3	450
Potatoes	8	8	392
Sugar	1	—	187
Milk	3	9	90
Oatmeal	2	6	250
Eggs	4	34	284
Total	<u>63½</u>	<u>377.3</u>	<u>4,609</u>

cons of the above, let us go through the many letters which have been written to W. G. George and published in his book on training. We shall find that no writer—and he has collected opinions from large numbers of athletes of note—pins his faith on diet alone. When these letter-writers express an opinion, they almost always condemn any special diet, though they seem to have tried only one fairly themselves. If we reflect that nearly all these athletes agree about the follow-



FIG. 4.—COOKERY PRACTISED BY REFORMATORY INDUSTRIAL SCHOOL BOYS.

It must be remembered that few of these advisers rely on diet alone for physical fitness. That is to say, their training is not a training only or chiefly by diet ; it is a training by diet and other means, and at present we have no way of telling how far this diet by itself would tend to produce fitness, as the Editor's diet seems to.

Now before we consider the pros and

ing hygienic rules, we may ask with reason whether these habits do not help to counteract some of the bad effects of an unscientific diet. Here are a few of them :

"Perform no violent feat without preparation and practice." "Perform the full feat seldom previous to the competition." "Get correct style before you practise frequently." "Spread your

training over a long period." "Make your training itself a pleasure, not a drudgery." "Be regular in your hours." "Get up early." "Have plenty of fresh air." (N.B.—Very small attention seems to be paid to breathing.) "Walk a great deal." "Take short sprints." "Smoke little, if at all." "Take as little alcohol as possible." "Do not drink between meals" (there is some difference of opinion here). "Be moderate in the amount of food you take." "After exercise, rub yourself down and have massage." "Attend to the law of moderation." "When you are stale, rest." "Eat slowly." These hints, if carried out, would go a long way towards covering a multitude of mistakes in food.

Let us now consider, as impartially as possible, the pros and cons of the ordinary and training diets.

First as to the pros, it is hard to tell what the merits of any system are until other systems have been tried fairly. *In scarcely any cases are we told the effects which the diet has on brain-work.* In nearly all cases it is assumed that regular and almost daily exercise is an absolute necessity. So we cannot say that experience proves this diet to be the best. Certainly, in most cases, it does not satisfy our demands as set forth in a previous article. Later on we shall quote the views of others who have tried other diets as well, and have either succeeded or failed. *At present it is all theory, because there is no contrast. Without contrast, we have no real knowledge.*

SOME OF THE PROS.

Considering the meaty training diet in particular, we may say that it is a fairly definite diet, and easy to understand. It is easy to get. It is a social diet; that is to say, he who takes it does not pose as a solitary crank. It has the advantage

of habit, the digestion being accustomed to deal with these foods. It has the faith of the eater, who believes that strength comes from beef. It has some good and indeed excellent results to show, as the above names—a few out of a host—will testify. It is a nourishing diet so far as concerns proteid, carbohydrates, and bulk. We shall deal with this question of nourishment later on. It is stimulating to the digestion, as well as in certain cases to the whole system—at least the meat part of it is. It is quickly and well absorbed by many. For those who have good powers of excretion, it is not so bad in its effects. Nor is it so bad if people have regular exercise, even if they have not a good power of excretion. If harm is done, that harm is very gradual and may take years, or decades, to show itself.

Last, but not least, this diet, being stimulating, is a training in self-control. Those who are masters of themselves only when they live on the very purest of foods—and who cease to be masters of themselves when they take anything stimulating—are, from one point of view, weaker brethren than those who are masters of themselves whatever their diet may be. We do not say that the weaker brethren are wrong; from another point of view they are right; but at least in a certain sense they are weaker. They confess that a certain condition is too powerful for them to resist. So far as concerns brain-work during training, it is possible that the meat may deaden the too active brain, and compel it to rest, so that afterwards its work may be the better because of that rest.

Now for some of the objections to the ordinary and training diets.

SOME OF THE CONS.

These diets are not yet proved to be the best, let us repeat, until others have

been sensibly tried. They certainly are stimulating. A physician once told the Editor that the human system needed a fillip to make it work, and that meat was this fillip. It seems more reasonable to say that the horse which works well and easily and for long hours without a spur is a more useful and economical animal than one which will only work with a spur. That is just a personal opinion.

Certainly these diets seem to create a need, and almost a necessity, for exercise. That was so in the Editor's case, when he lived on them for nearly a quarter of a century. If he dropped his exercise for even a day or two he became unwell. About the expense of the diets there is no doubt whatsoever. We have to pay heavily for meat, and, when we have it, it quickly goes bad, whereas the grains or cereals, the pulses, and the milk-proteids, and oil, are comparatively cheap, and last for a long while. Moreover, the diets are to many people constipating, especially if much meat be taken. More generally, they are apt to clog the system, and to increase the blood-pressure.

It is as well to turn aside for just a moment from the other disadvantages to this special one. The theory has been set forth that flesh-foods poison us because they contain used-up waste-matters. The theory may be expressed somewhat as follows:—An animal or a man, whenever there is any movement, breaks down cells in the body, and instead of these cells produces acids (which have been incorrectly called uric acid). Now these worn-out tissues and the acids probably have a certain use in the system; perhaps they compel the system to work. Anyhow, we may assume that they are valuable up to a certain point. Beyond that certain point, which varies in each individual, they become injurious.

The normal person or animal will get rid of about as much of the waste-matter as is made during the day by movements, etc. But an abnormal and unhealthy person tends to store up the waste-matter, grain by grain. It may be years before there is a large enough store to produce a serious ailment. Now let this abnormal and unhealthy person add to his body a certain amount of waste-matters that are in the foods themselves, and—so the theory is put forth—he will have to get rid of these just as if he had made them for himself.

Of course it is *theory*; for it does not follow that the waste-products of the animal will have the same effect when they have been swallowed by the man, as the man's own waste-products will have when they have been made within himself. But the theory is that the animal has moved, and used itself up, and produced waste-matters. Man, when he eats the animal, eats not only the nourishment, but also the waste-matters. These waste-matters he has to get rid of.

Similar acids are to be found in other foods besides flesh-foods, according to Dr. Alexander Haig. Dr. Walter Hall's researches on the subject of what are called the xanthins or purins have now become a standard work. We quote from them here.

XANTHINS OR PURINS.

ROUGH ESTIMATE OF GRAINS PER POUND (FROM DR. WALTER HALL).

1.—IN FLESH FOODS.

Fish :—

Cod	4.1
Plaice	5.6
Salmon	8.1

Meat :—

Mutton	6.7 to 8.1
Pork and ham ..	8.0 to 8.5

Beef—

Ribs	7.9
Sirloin	9.1
Steak	14.4
Liver	19.3
Rabbit	6.3

Birds :—

Chicken	9.1
Turkey	8.8

2.—IN OTHER FOODS.

Eggs (fresh), milk, cheese, butter, bread—some say these contain little or none. Eggs are the most doubtful.

Oatmeal	3.4
Peameal	2.5
Haricot beans	4.2
Potatoes	0.1
Onions	0.1
Asparagus	1.5
Tea (<i>dry Ceylon</i>) .. .	175
Coffee (<i>dry</i>)	70
Cocoa (<i>dry</i>)	59
<hr/>	
Lager beer	1.0
Pale ale	1.3
Porter	1.3

Whether we accept this theory or not, at any rate it is worth taking into account. Certainly, whenever the Editor has by accident taken any extracts of flesh, in soups, etc., during the past years, he has had a feeling of fatigue or cramp or heaviness, which could not have been due to imagination, since he did not know, at the time of eating, that he was eating flesh-extracts.

With these diets, also, there is often a desire for stimulants and narcotics, whether these be alcohol, or tobacco, or something else. There may be unpleasant effects in other ways, especially for boys. It would be very interesting to give the boy occasional meals of simpler foods, if only that he might learn a little about a diet which would possibly help him in his sedentary life afterwards.

These foods are not pleasant to prepare ; they are not beautiful to look at ; they

do not appeal to the aesthetic sense. And the process by which meat is obtained could by no amount of exaggeration be called humane, either to the animals or to the people who prepare them for food.

Turning to details, we notice that even the law of moderation in all things, which is the boast of most ordinary trainers, is not always scientific. Tirades against excess are made by a quantity of loose thinkers, many of whom are themselves guilty of the grossest excess in food.

What we need is a smaller quantity, not of all foods, but of those that we take in too large quantities. The Editor does not think that we all eat too much in general. He thinks that there are special elements of food of which most of us do eat too much, especially starch and sugar. Apart from this, individuals need a large quantity of some element to restore the balance of the human system. When a man's system is over-acid, for example, it is absurd to tell him to be moderate in all things and to take less of all things, including alkaline "salts."

The recent experiments made by Dr. Rotch, of Harvard, and now put into practice with excellent results at the new (St. Francis) hospital for infants at Hampstead, show that the proportion of elements is a matter of great moment. Pure milk is the ideal food for infants, but the cow does not usually offer milk with its elements just as children need them. Ordinary milk has in it proteid, "salts," fat, and sugar, but not in the right proportion for infants of different ages.

Hence even so simple a thing as milk is treated scientifically, and the results justify the care. Instead of anyone saying, "Give this starved or ill child more milk, or this over-fed child less milk," the scientist now steps in and

adapts the proportions to the age, the disease, the individuality, etc. Accurate prescriptions are made—so much fat, so much sugar of milk, so much proteid, etc., so much lime-water, to be heated to this or that temperature, to be given in such and such quantities at the following hours daily. And what applies to milk applies to all other foods. It is not in the excessive quantity that we err so much as in the deficient balance.

The uniform system of training, the uniform system of diet, must be scientifically unsound. How ridiculous it is, for example, to treat all the members of a rowing eight in the same way! How still more ridiculous this appears when we consider the different needs of the body in summer and winter!

The matter of bread is another item too little considered by ordinary and training dietaries. The following analyses are interesting as showing how deficient white bread is in phosphates and other "salts."

WHEAT-FLOURS AND BREADS, ETC.

	Carbo.	Proteid.	Salts.	Fat.	hydrates.	Water.
Wholemeal flour	.. 14.81	1.48	2.99	69.90	1.48	
White flour	12.43	.50	1.62	73.07	.60	
Wholemeal bread	.. 9.37	1.28	3.25	51.87	1.28	
White bread	to 9.7	8.87	.62	3.53	54.17	.62 to 9.2

Sir Lauder Brunton writes as follows:—
"The perfection of modern mills and

the consequent separation of the outer part of the wheat and the mineral matter it contains from the starchy matter which goes to form white bread, is probably responsible to some extent for decayed teeth. If phosphate of lime and silica be absent or deficient, we can no more expect a child to have strong teeth than we can expect a hen to lay eggs with well-formed shells when it is not supplied with lime in its food."

With regard to the different kinds of nourishment also, it is as well to consider these diets somewhat carefully before we commit ourselves to them.

Proteid, or albumen, is agreed by all the highest authorities to be the most essential element in food. It has been said that we may give up nearly all other ele-

ments, and yet live; but that, if we give up proteid and "salts," we die. Proteid is of use not only for building the body by forming a great part of its blood, etc., but also for actual digestion. Now the proteid element is on the whole fairly supplied by the ordinary and training dietaries, in a form that is easily digested by most people. There is, let us repeat, too much vague talk about excess of food. One is sick of the saying, "We all eat too much." We may eat too much of other elements, but, if scientific experiments mean anything, comparatively few of us eat too much proteid. Let the proteid of the ordinary and training diets stand for the present as fairly satisfactory.



FIG. 5.—MR. BURDETT (SEE PAGES 120 TO 121) BOXING WITH LIEUT. FLYNN, A CONVERT TO SIMPLER FOODS.

The fibre or cellulose to give bulk to the food and work to the organs may not be far wrong either. Though white bread is deficient in this fibre, wholemeal and brown bread have plenty of it.

With regard to the fattening materials—generally divided into the fats and carbo-hydrates—they are important not only because they give fat and heat, but also because they save proteid. The more oil or starch or sugar we take, the less proteid—within certain limits—we are likely to need. Now it seems that the fault of the ordinary and training diets is that they include too much starch and too little oil.

There is another fault besides. Professor Atwater, who was appointed by the United States Government to make food-investigations in various parts of the American world, and who has used the most elaborate and up-to-date mechanism possible for testing his experiments, writes that :—"The uses of food are two; (i.) to form the material of the body, and repair its wastes; (ii.) to yield heat to keep the body warm, and muscular and other power for the work it has to do. With every motion of the body," he says, "and with the exercise of feeling and thought as well, material is consumed and must be re-supplied by food." This sounds most complete. But food has another purpose besides, and that is to give pleasure and a feeling of satisfaction. It shares this duty with pictures, scenery, etc. To ignore it is to be unscientific.

The pleasure helps the digestion, and it is another duty of food to help the digestion. Recent experiments in Russia have proved that digestion is helped by enjoyable feelings, by enjoyable tastes, and by certain foods or elements in foods. One of them is some element in milk—probably its proteid and "salts."

There is yet another function of food,

and that is to help the body to excrete what it has used or what it has not used—that is to say, used-up materials, or useless materials. The food should have in it, in the first place, elements which aid the body to digest and use enough material; and then elements which help the body to get rid of the rest.

Closely akin to this function is another function of food—to counteract clogging, and especially over-acidity; for nearly all of us are clogged and over-acid in body as well as in mind. There should be elements in the food to cancel or expel the undesirable elements in the food or in ourselves.

It follows from this that the food should not have in it an excess of clogging materials; above all, it should not be over-acid.

Now with regard to these points, each must judge for himself whether the ordinary and training diets give enough satisfaction and pleasure, both by their taste and by their general effects; whether they have in them the right elements to help the digestion, and to help the excretion. It seems likely that in these latter elements the ordinary and training diets are sadly deficient. Nor are they likely to counteract clogging and over-acidity, for, on the whole, they are themselves decidedly over-acid. Moreover, they tend to clogging. Of course there are some people who have special faculties for resisting or overcoming these disadvantages. Thus one man may have a remarkable power of getting rid of this poison, another of that poison, and so on. But we are here considering the majority.

Among these elements of which we have just spoken are the "salts." Undoubtedly, certain "salts" help the digestion, others help the excretion. It is particularly in "salts" that the ordinary

and training diets are unscientific. The valuable alkaline "salts" are deficient in white bread, though they abound in brown and wholemeal bread. And many of them are extracted from vegetables before they are served by the cook. These alkaline "salts" would help to neutralise or get rid of that over-acidity which may not be the cause, but is at least the companion, of most diseases, and of bodily and mental fatigue.

Bad cooking is indeed a conspicuous feature in the ordinary and training diets. Whatever may be thought of the choice of food, the way of preparing it is execrable. Even the Reformatory Industrial School children are taught something about cooking (*see page 123*); we, the "educated," are taught nothing !

In conclusion, we may sum up our "pros and cons" by saying that experience has not decided in favour of the ordinary and training diets as the best, because an experience is comparatively valueless until it has been contrasted with another experience. That is to say, those who have tried only the ordinary and training diets cannot say that these are the best for them until they have tried other diets fairly. If some athlete has lived all his life on fleshless foods, he, in his turn, has no right to say that these are the best for him. Hitherto many trials that have been made of the fleshless foods have been unfair, the bulk taken being too great, and the proteid too small. We shall try to prevent similar mistakes by giving definite samples of (theoretically) nourishing meals in a future chapter. We shall also deal with the question of how and when to eat, and the use and abuse of stimulants, narcotics, etc.

When those who live on the ordinary or training diets say that custom has decided in favour of these, and that

custom is best, let us see what science has to say with regard to customary diets.

Professor Atwater has examined various diets with the greatest care, and many thousands of dietaries with their general results have been recorded, so that it is held by him and others that a given amount of food will produce a given amount of work. And, almost all over the world, scientists are generally agreed as to how much food, how much of each element, ordinary people require daily. There is great doubt on certain points, but, on the whole, the Tables are definite and do not differ considerably.

As an American writer has said, "Professor Atwater's investigations have a range that swings from the dietaries of University students' clubs to the dietary of the cotton-field negroes, and the tortilla-frying natives of New Mexico; from families who live on \$100 a month to families who live on \$100 a year. Strangely enough, he found families living on \$100 a year better fed, from the scientific point of view, than families who have \$100 a month."

He finds that "the people of the United States are the most abundantly fed, and the most wastefully; that they have the greatest variety of food; that, as a rule, it is poorly cooked and worse served; that palate and convenience are considered in the selection of food before wholesomeness, nourishment, and economy."

"A man," he says, "requires so much of protein (proteid), so much of fat, so much of carbo-hydrates, in order to live and work. The man with little physical exercise requires 3.20 oz. of proteins, the same amount of fat, and 10.56 oz. of carbo-hydrates, which together have a fuel value of 2,420 calories. (The calorie is the unit of heat or energy.) The man with active work requires 5.28 oz. of

proteins, the same of fat, 17.60 oz. of carbo-hydrates, and receives 4,060 calories in fuel value."

Judging various diets by this standard, how does he estimate the ordinary and training diets of Anglo-Saxons as compared with the dietaries of other nations? He finds that "for improvidence and ignorance and uninvitingness of food, the palm goes to the tenement districts of Chicago and New York. The same improvident feature is characteristic of both—that of sending out just before a meal for only enough for a meal, and considering the taste and convenience only."

Does he, then, praise any dietary of any nation? After saying that the Bohemians, who manage to live on an average of eleven cents (less than 6d.) per man per day, are conspicuous for their judicious marketing, buying the food in which there is the least waste and the most nourishment, he goes on to say that "the darkey lives on three cents per man per day," but that "the dietary which most nearly touches the scientific standard of a man's food requirements is

the dietary of the Chinese." Does the "science" justify itself by results?

With all due deference to the ingenuity and accuracy of the apparatus used, including the room in which the patient lives while his diet is weighed and records are taken of the amount of heat he gives out, and the amount of work he does, we must venture to question whether the tests are thoroughly satisfactory—whether the Chinese show good all-round results from their "scientific" diet. At the same time, it is as well that we should consider this theoretical aspect of the matter, and especia'lly that we should take into account—as Professor Atwater does—the economy of the ordinary and training diets. For the general conclusions have been based not only on what the Americans eat, but on what they waste; and the ordinary and training diets waste a great deal. That is one of their chief weaknesses, in addition to the objections on humane and æsthetic grounds, that they cost too much to begin with; and that a large amount of their materials is not used at all by the system, and, indeed, is not wanted.

CHAPTER XIII.

EXERCISES TO REMEDY OBESITY.

Varieties and Graduations for Different People—Need of Strong Will—"Beefy" People often the Worst Cases—Suggested Clubs—Same Treatment may Suit the Obese and the Emaciated—Causes—The Vicious Circle—Treatments—Not "Thinness at any Price"—The Editor's Methods—Some of his Exercises—An Interview with a Practised Specialist—Where he and the Editor Agree—His Course of Movements—Need of Timely Carefulness—Violent "Cures" then Unnecessary—Do Some of your Servants' Work Sometimes—The Hunting Man as an Instance—Giant Remedies—The Digestion Must Not be Upset—A Fool—Some Diets—Densmore, Ebstein, Sée, Kellogg, Oertel, and Another.

Important Notice.

FOR most men we recommend exercises with the punch-ball, some club exercises, and any or all in this Course.

For women who are strong, the exercises illustrated with the *female* figure. For the exercises, and for this idea of having different figures, as well as for much of the matter here, we are indebted to Lieutenant Flynn.

For weak women, massage and passive gymnastics (another person working the legs, arms, etc.).

For these especially we advise proper supervision by an expert and specialist, who should be able to suggest the best baths, Turkish or cabinet baths, graduated exercises, and so on.

For all, attention to diet, no attention to violent drugs.

For "Welter Weights."—By this sporting phrase we mean the man in the prime of life, who, owing to his business in the city, has put on considerable fat. When the hunting or the polo season comes on, he naturally wishes to get rid of this handicap. How shall he set about it? We advise him not to go too hard at the treatment at first. Let him remember that he has a heart, and also a digestion, which are not servants that will stand violent bullying. He should make the

skin do its work well by plenty of heat-baths and gentle sweating exercise, with massage afterwards. Or let him inflict on himself a *régime* like that of the non-commissioned officers to be mentioned below when they are reduced to the ranks. By such means he should very soon become normal again.

OBESITY! Truly a heavy text to lecture on! The very first two letters are full of an overpowering sense of curving fatness—the round O and the bulging, double-chinned B. To be light and flippant, or indeed anything except deadly earnest and almost suburban and respectable, in face of these weighty odds, is practically to court defeat. To hit the mean between humour and worry is hard here. For if we were to worry and to advise that splendid remedy for fatness—namely, anxiety always—we should only put one evil in place of another; on the other hand, to laugh over our cares might simply make us fatter.

The word obesity is derived from Latin words supposed to denote over-eatenness. This points to one of the most important causes of obesity, but, as we shall show directly, it is not only over-eating, but a wrong way of eating the wrong foods that is partly responsible.

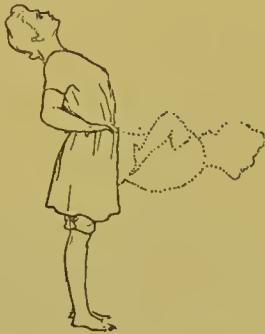


FIG. 1.—KEEP THE LEGS PERFECTLY STRAIGHT AND FIRM. THEN BEND THE TRUNK BACKWARDS AND FORWARD, WITHOUT JERK OR STRAIN, FROM TEN TO TWENTY TIMES. THIS HELPS THE CIRCULATION, STRENGTHENS THE MUSCLES ABOUT THE ABDOMEN, AND MASSAGES THE ABDOMINAL ORGANS.



FIG. 2.—SHOWS A SIMILAR EXERCISE, IN WHICH THERE IS MORE EFFORT AND MORE WORK FOR THE ABDOMINAL MUSCLES, BECAUSE THE ARMS SWING BACKWARDS AND FORWARD. A STILL MORE THOROUGH EFFECT IS OBTAINED IF THE ARMS ARE WORKED IN OPPOSITE DIRECTIONS, ONE SWINGING BACKWARD WHILE THE OTHER SWINGS FORWARD.



FIG. 3.—STAND FIRMLY AS BEFORE, DESCRIBE A CIRCLE WITH THE TRUNK ABOVE THE HIP-JOINT, MOVING IT FROM RIGHT TO LEFT AS YOU GO BACK, AND FROM LEFT TO RIGHT AS YOU LEAN FORWARD. BE SURE TO CIRCLE AS LOW DOWN AS POSSIBLE, AND AS FAR OUT TO THE SIDES AS POSSIBLE. CIRCULATE SMOOTHLY AND QUIETLY, WITHOUT JERK OR STRAIN.

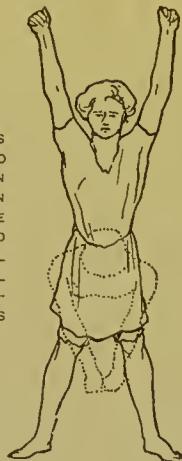


FIG. 4—KEEPING THE LEGS PERFECTLY STRAIGHT AND FIRM, SWING WELL DOWN BETWEEN THE LEGS, AND THEN UP ABOVE THE HEAD. THE FORWARD AND OUTWARD MOVEMENT IS A POWERFUL HELP FOR THE ABDOMINAL MUSCLES, WHILE THE BACKWARD MOVEMENT STRENGTHENS THE SPINE.



FIG. 5.—KEEPING THE BODY STRAIGHT, AND THE SMALL OF BACK AND THE CHIN IN, RAISE THE KNEES ALTERNATELY AS HIGH AS POSSIBLE, SENDING THE TOES WELL DOWN AS YOU RAISE THE LEGS, AND THE HEELS WELL DOWN AS YOU LOWER THE LEGS. THIS IS AN EXCELLENT HELP TO THE DIGESTIVE AS WELL AS TO THE EXCRETIVE ORGANS.



FIG. 6.—CLENCHING THE HANDS, SWING THE ARMS VIGOROUSLY FROM LEFT TO RIGHT AND FROM RIGHT TO LEFT, TURNING ON THE HIPS AT THE SAME TIME. THIS SHOULD HAVE A GOOD RESULT (IF YOU AVOID STRAIN) FOR THE OBLIQUE OR SIDE MUSCLES OF THE ABDOMEN.



FIG. 7.—SHOWS A SAWING MOVEMENT. PUSH THE ARMS VIGOROUSLY, NOW FORWARD AND DOWN, AND NOW BACK AND UPWARD, AS THOUGH SAWING A PIECE OF WOOD. THIS, AGAIN, MAKES THE ABDOMINAL ORGANS MORE ACTIVE.



FIG. 8.—KEEPING THE CHIN IN, SPRING OFF THE BALLS AND TOES OF EACH FOOT IN TURN, AS IN MARKING TIME, BUT MORE ENERGETICALLY. THE HIGHER YOU RAISE THE LEGS, AND THE MORE YOU BRING THE KNEES INTO THE CHEST, THE MORE POWERFUL YOU WILL MAKE THE MOVEMENT. THIS WILL DRAW THE BLOOD AWAY FROM THE HEAD, AND IMPROVE THE CIRCULATION IN AND ABOUT THE ABDOMEN.

A far more important cause underlying the mischief is the weak will. If you are too fat, it is very much in your own hands, and still more in your own body and legs, whether you remain so fat (or become still fatter), or else bring yourself back to the normal and reasonable. If you are rich enough, of course the effort of will is very small. You can go to be treated and fussed over and comforted by the saying that you are "predisposed" to fatness. Then you can be massaged, and can have yourself reduced while you wait.

Will-power is necessary not only at the start when you go in for (or "have a shot at") this or that diet or Course. After the first few days the trial may become even harder; and at the end of it, after the stone and a half has come off and you feel light and fresh, there is a decided temptation to put it on again by several big meals—somewhat as the foolish man who has gone through severe training for some athletic feat, like a boxing match, when once it is over, rushes back to his flesh-pots and beer-mugs. If you are going to make this mistake, it is perhaps better not to reduce yourself at all. Certainly it is better not to reduce yourself to a fraction.

It is weak will rather than weak muscle that we have to deal with, for many of those who are fat are men of muscular power—men, in fact, who are known as "beefy." It is a surprising thing that they do not use their beefy muscles much. They pride themselves on looking beefy, and on having beefy muscles; not on using them. But that muscular force avails little when it comes to a matter of abstinence or discipline. Indeed, the typical fat man or woman who is beefy (or muttony) nearly always craves just those very foods and drinks which increase the mischief—for instance, sweets, bread, potatoes, stout, and other fluids.

If you are weak willed, either strengthen your will or get someone else to work with you. Why should there not be a fat-reducing club, like the Liver Brigade in the Park? Surely it is better to stand supported by others than not to stand at all, but to sit or lie in state—the state being a disgusting one of sluggishness.

There are other reasons besides the weak will or the inability to discipline one's self by one's self. And it must be borne in mind that we are talking not of a reasonable amount of fat to cover the nerves and bones and prevent bad effects from hard knocks as well as from cold; we are talking of that unhealthy, pulpy, and useless obesity which comes, for example, when a person has taken unnaturally vigorous exercise with dumb-bells and gymnastic apparatus or rowing, and then suddenly gives it up altogether.

It is not yet known to what extent muscle does become fat through disuse, but at any rate part of the muscle does seem to become a sort of connective tissue which encroaches upon the muscle, and prevents the blood from flowing freely in the tiny blood-channels, because it presses upon these channels.

In a word, obesity is, to a great extent, congestion. Not only are the channels narrowed, but in them there lie, as in a stagnant canal, matters which were better sent out into the sea. Obesity is not part of the healthy human frame, as flesh is, and as a certain amount of fat and nice "padding" is.

We may distinguish between the unhealthy fat, and the healthy flesh and fat which all of us need, by the following cases which have come under our notice. The first type is that of the man who is too fat, and reduces his diet chiefly to one of proteid and "salts." He has had superfluous coals in his human cellar,

and he now adds no more until these have used themselves up. If he chooses his foods rightly and lives sensibly, he may, after a month or so, come out with a body of healthy flesh, the excess having been burnt up. The other type is that of the man who is too thin. Everything seems to pass through him unused, un-effective. In vain he tries eating more and more ; it seems to make him thinner still, like the lean kine. At length he too adopts that same treatment, and now his

so far as the fat is unhealthy and a burden, the thought that it is "constitutional" should fill her Anglo-Saxon mind with the sporting spirit, and make her say, "Here is a handicap; here is a good uphill game to win, a game well worth winning." It is a pity that fat people have so little of the play-spirit of relishing an obstacle and welcoming a difficulty, when they come to deal with their own obstructions.

Closely connected with this is the

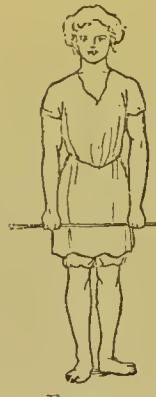


FIG. 9.



FIG. 9A.



FIG. 10.

FIG. 9.—BREATHING. FROM THE POSITION IN FIG. 9, WITH THE CHIN IN AND THE LEGS FIRM, SWING THE WAND OR STICK VIGOROUSLY ABOVE THE HEAD AS IN FIG. 9A, WHILE YOU INHALE THROUGH THE NOSTRILS. WHILE YOU EXHALE THROUGH THE MOUTH, BRING THE STICK DOWN AGAIN IN FRONT. REPEAT THIS FROM TWELVE TO TWENTY TIMES IF IT DOES NOT FATIGUE OR STRAIN YOU.

FIG. 10.—SWING THE ARMS ABOVE THE HEAD AS YOU INHALE THROUGH THE NOSTRILS (FIG. 9A). THEN BRING THE STICK DOWN BEHIND THE SHOULDERS AS YOU EXHALE THROUGH THE MOUTH (FIG. 10).

digestion improves, and the proteid and " salts " are turned into healthy flesh. The last state of that man is like the last state of the first. In the one case unhealthy fat has been taken away, and healthy flesh has been left ; in the other case healthy flesh has been formed, and perhaps eventually healthy fat may be added also.

The causes of obesity are many. The simplest, and the one that comforts most people who are too lazy to cure themselves, is that the tendency is "constitutional." The lady says, " My grandfather and grandmother and my father were all fat ; therefore I am fat." Now,

second cause—namely, excessive drink. The desire to drink runs in families. It is not merely the drinking of alcohol that is bad, though that (see the special chapter) has a potent effect. Excessive drink of any kind is likely to be bad, because the greater part of the body consists of water, and one of the easiest ways of adding to its bulk and heaviness is to add to its water.

The third reason is over-feeding—and especially over-feeding in respect to fattening things, whether oil or starch or sugar.

Wrong food, therefore, is another cause. Besides food which fattens, food which clogs is bad also : it blocks up our outlets.

Starch is among the foods which clog many people.

With these causes there is often found another—the want of enough exercise, or the want of the right exercises for the particular purpose. There is a tendency to sit in an easy chair.

Sluggishness and sleepiness are responsible for a great deal of fat. Hard workers and hard worriers are less likely to be obese. The obese often pride themselves

it is what may be called latent food. Perhaps, also, the food within him is fermenting, and that gives him a sense of emptiness which a big meal will relieve.

His instincts do not desire either the right kind or the right amount of food. His heaviness disinclines him for active exercise, and inclines him to sleep. His torpor increases his fat. How fat is the sleepy pig! And how the fat bungs up his eyes and in turn increases his sleepiness!



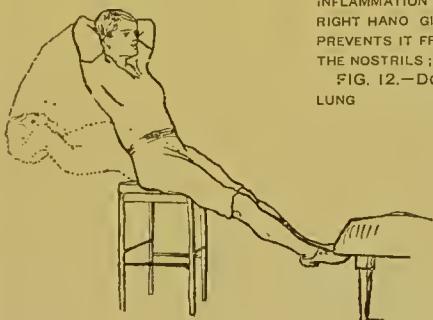
FIG. 11.



FIG. 12.

FIG. 11.—THIS EXERCISE IS TO BE PRACTISED AFTER INFLAMMATION OF THE RIGHT LUNO. THE POSITION OF THE RIGHT HAND GIVES SUPPORT TO THE WEAK RIGHT LUNO, AND PREVENTS IT FROM BEING OVER-STRAINED. INHALE THROUGH THE NOSTRILS; EXHALE THROUGH THE MOUTH.

FIG. 12.—DO A SIMILAR EXERCISE FOR THE WEAK LEFT LUNG.



F G. 13.—THE CHOICE OF THE MALE FIGURE SHOWS THAT THIS IS ONLY FOR PUPILS WHO ARE FAIRLY STRONG. SIT ON A STOOL, OR USE THE PLANK, AS IN THE ARTICLE ON "DEFORMITIES." PUT YOUR HANDS AND ARMS BEHIND YOUR NECK, AND YOUR FEET UNDER THE EDGE OF A SOFA OR BED OR HEAVY CHAIR. THEN LEAN BACK, ALONG THE OSTEAL LINES, AND RAISE YOURSELF TO AN UPRIGHT POSITION AGAIN. INCREASE THE DISTANCE BY DEGREES.

on their "jolliness." It is the jolliness of sluggishness and apathy more often than the jolliness of vigorous activity, though of course we must admit cases where the body is rendered so restful by fat that it is easy for the person to use nearly all his nervous energy for other work!

It will be seen, then, that fatness works in a vicious circle. The person who is fat in an unhealthy way may wish to drink a great deal, may wish to overfeed, not because he has no food in him, but because he has none ready for use;



FIG. 14.—THIS AND THE THREE FOLLOWING EXERCISES—FIGS 14-17—are done with an extensor rubber exeroiser*: RAISE THE ARMS ABOVE THE HEAD, AT THE SAME TIME BRINGING THE KNEES UP TOWARDS THE CHEST. THEN STRAIGHTEN THE ARMS AND LEGS DOWNWARDED, AND AS YOU RAISE YOUR ARMS, INHALE: AS YOU LOWER THEM EXHALE.

If these are the causes, then the cures are easy to work out. We are not going to advocate here a starving system, or what may be called "thinness at any price." We would sooner see people fat and fit than thin and unfit; just as we personally would far sooner see them thin and fit than fat and unfit. It is the fitness of the all-round person that we are aiming at. Fat can, however, in certain cases, be reduced by severe measures. We had a friend who, after

* This may be obtained through any athletic outfitter. It is made by the Sports Manufacturing Company.

two months on certain biscuits and apples, increased his physical vigour and his mental vigour, and decreased his size so remarkably, that his coat went round him twice. The Editor himself can easily reduce his weight several pounds a day by diet alone. He finds that, in his case, most of the excessive weight must be formed by water, and comparatively little by actual fat ; the distinction being, that the water would fizz if it were thrown into fire, whereas the fat would burn. But we shall say little here about diet, because the subject is so complex, and the chance of making a mistake so great.

Besides, the Editor can also reduce his weight by vigorous exercise, especially games and alternate walks and runs. He has lost various numbers of pounds in a single match. Once he lost eight pounds in a match against Peter Latham ; on another occasion, seven ; a good many times five ; and four and three quite often. The sweating through the skin and the general limbering up of the body will relieve the congestion and make the bodily changes (the "metabolism") go on more quickly. More oxygen is taken in ; more fat and refuse is burnt up and removed.

He worked out a few exercises of an obvious kind before he consulted a practical and practised physical trainer and remedial specialist. Here are his own little suggestions.

Securing abundance of air and of light, practise deep breathing in the way already indicated in the Courses for men and for women. This will improve the excretion, and tend to remove the appearance of fatness, as well as the fatness itself. To repeat the process of full breathing—for it is the commonest act of daily life—first send the abdomen out and the diaphragm down, as you breathe in deeply through the nostrils. Then expel the breath vigorously as you draw

the abdomen in, and send the diaphragm well up. Now, as you breathe in through the nostrils, keep the abdomen in and the diaphragm up, and send the chest outwards, holding your hands there. As you exhale, press your chest in with your hands, but still keep the abdomen in and the diaphragm up. Practise this position, with the abdomen in and the diaphragm up, whenever you think of it during the day. It will soon become a habit. The effect is not merely to take away the ugly curve of the body ; it is also to bring the organs nearer to their right position, at least in most adults, who have these organs habitually too low.

Massage of the body is decidedly good, for many reasons. Massage in general will be dealt with in a special article. The massage of the abdomen has been already described ; it will help the circulation and the elimination. The simplest general rule is to massage *up* the right side, then *across* above the navel, then *down* the left side (see, further, the Course for Men).

Some of the trunk-movements of bending, turning, and twisting, and so on, have been also described. A more interesting form of them is the Golf-swing, as recommended in the Courses for men and for women ; or the Cricket exercise, or the Lawn Tennis exercise, in the chapter (*q.v.*) on "What to demand from Systems."

Then there is the floor or inclined plank exercise, by which one has the feet firm, as one lies on the back, and then lifts up the body from the hips, keeping the head well back.

Anyone who hangs by his hands from a bar, or from the top of a door, feels a strain upon his abdominal muscles, and also upon his spinal muscles. Such exercises, though one must be careful in doing them, are also useful in getting the body straight.

The next chapter (Nature-cure) suggests other means, and most particularly the

hot-air or hot vapour baths. But we have not space to deal with these, and we had better proceed to the materials, including the illustrated exercises, which have been gathered together by Lieutenant Flynn, whom the Editor consulted, because this teacher has no system of his own, includes all systems that he finds effective *as well as* interesting, and adapts his ways to different individuals.

The most striking thing he said was, "Whatever you do with the ordinary person, in trying to reduce his weight,

We were agreed as to two points : the first was that people should start in good time, and not let the obesity reach a climax ; the second was that obesity was in nearly every case a great disadvantage. Both of us personally found it a decided discomfort also. It is not so much that we hate to look too fat ; it is that we hate to feel too fat. "Cui bono ?" we both say, remembering our Latin grammar ; "whom do they help, these lumps ?"

Against obesity is its ugliness, the extra



FIG. 15.—FROM THE UPRIGHT POSITION, BEND OVER ALONG THE DOTTED LINES. EXERCISE WITH THE TWO HANDS ALTERNATELY, SIX TIMES TO EACH SIDE. THIS MOVEMENT WORKS THE OBLIQUE MUSCLES OF THE ABDOMEN VERY POWERFULLY.

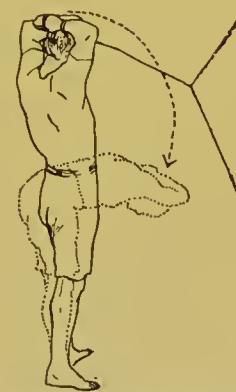


FIG. 16.—BEND FORWARD ALONG THE DOTTED LINES, RETURNING TO THE UPRIGHT POSITION. THIS CHIEFLY AFFECTS THE LOWER PORTION OF THE STOMACH AND ALSO THE SPINE.

(See footnote to pp. 135-7.)

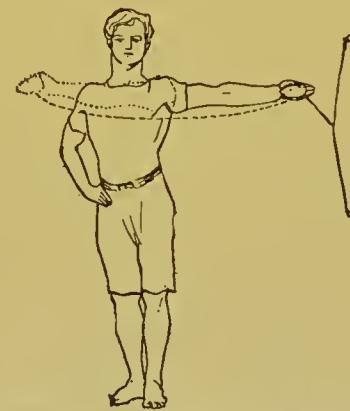


FIG. 17.—THIS EXERCISE AGAIN CHIEFLY AFFECTS THE SIDE-WALLS OF THE STOMACH, THE ARM BEING KEPT PERFECTLY STRAIGHT THROUGHOUT THE MOVEMENT. BRING THE ARM FROM THE OUTSTRETCHED POSITION TO THAT WHICH IS SHOWN BY THE DOTTED LINES. PRACTICE WITH EACH ARM IN TURN.

do not upset his digestion, and in nearly every case be ready to graduate the treatment."

With a view to this graduation, he devised the ingenious idea of the different figures. First come those of a woman, for exercises which are advisable for most women and men also ; since, if an exercise will not strain a woman, it is unlikely to strain a man either. The male figures are doing movements that might not be so advisable for women or for delicate men. The delicate man may treat himself as a woman (except with regard to the use of the looking-glass).

weight which it compels us to carry, and the extra work which it compels us to do with extra effort. As we have seen, the fat body is working like a fire with clogged flues trying to heat water. If all were clear and unhampered by excess and waste, a far smaller amount of material would be needed to keep the fire burning. So obesity is uneconomical also. It does not tend to warmth, for as it makes the blood circulate more slowly, it is in most cases of less value than a free circulation. In America the Editor made experiments during a severe winter, and found that he felt more comfortably warm

on a pure and moderate diet than on a diet very rich in fattening materials. Another reason why obesity is uneconomical is that it inclines us to excessive and unwholesome and expensive foods and drinks.

Then, again, it forces the organs out of position. The extended stomach presses upon the heart and tilts it upwards. The heart is squashed out of position by the stomach, as anyone can easily realise if he studied the diagrams in the article on breathing.

Both of us were agreed as to the value

blood, and so lessen the supply of oxygen through the system, for these corpuscles are the oxygen-carriers. The alcohol-laden body gets rid of less waste—e.g. less carbonic acid gas. The healthy cells tend to become comparatively useless connective-tissue, which crushes the little pipes or capillaries of the body. A thirst often follows, perhaps partly from a desire to flush the system. The drink enters the body, but, because the body is clogged, it is not excreted freely, and so adds to the weight. Then there may result, in re-action from alcohol, a depression;



FIG. 18.—LUNGE TO THE LEFT, BENDING THE BODY WELL OVER. THEN COME BACK, AND LUNGE TO THE RIGHT.



FIG. 19.—STEP (NOT LUNGE) FORWARD WITH THE LEFT FOOT, RAISING THE ARMS. THEN BEND TO THE LEFT FROM THE HIPS. AFTERWARDS BEND TO THE RIGHT. REPEAT THIS WITH THE RIGHT FOOT IN FRONT.



FIG. 20.—STEP FORWARD WITH THE LEFT FOOT; TURN ON THE HIPS TO THE LEFT. BEND WELL OVER TO THE LEFT: THENCE BACK AGAIN. REPEAT WITH THE RIGHT FOOT TO THE RIGHT SIDE. BY THESE EXERCISES YOU WILL WORK THE OBLIQUE MUSCLES OF THE ABDOMEN, WITHOUT APPARATUS.

of the treatment through the pores of the skin, by sweating, etc., as well as the treatment of regulating the food and drink; we deal with this, and especially with the disuse of alcohol, more fully in other chapters.

Some of the reasons why alcohol tends to obesity are as follows. As we have pointed out elsewhere, alcohol may quicken the circulation, produce pleasant feelings, and so help the digestion, as its first effect. But when it becomes absorbed by the system, its later effect may be to shrivel the red corpuscles in the

hence over-eating and over-drinking and increased fatness. The circle is the longest line in the world, and truly the vicious circle is the most tedious example.

This being so, we should prevent the mischief in good time, and train in our bodies such a healthy instinct and sense—not a common sense to-day—that we shall not desire the wrong things.

Directly a person is tending towards the massive, let him or her take just a little trouble to regulate the diet, and do suitable exercises. What Herculean tasks we should be saved later on if we would

simply remember that less may be eaten with advantage at forty than at thirty (except, of course, where a great deal of waste goes on, caused by active exercise), and that at fifty a further curtailment may be advisable ; also that our stomachs are creatures of habit, and will soon accommodate themselves to their altered circumstances—their altered circumstances being now a quite large enough tenement, instead of an unwieldy mansion clogged with things which are useless.

If only people, when they are in the habit-making period, would establish a general *sense* of fitness and joy in living, which at present is the *x* or unknown quantity to them, they would have no need to trouble about over-fatness or over-thinness afterwards. They would be clean and tidy to look at, and neat and quick and enduring in action. But they leave the art of living till too late, and then comes either a yielding to the mischief, or a terrific struggle of palate *versus* health—a struggle which may end in apparent victory for the patient, who, nevertheless, may soon be unable to resist what he thinks are the good things of life, and, like Gaussin in Daudet's "Sapho," may sink back hopelessly into the mire.

Those gentle measures which are quite sufficient in the early stages—the eating and drinking of a little less, the taking of a little more exercise, the doing of a little more work—are easy then ; afterwards, they are not sufficient, though perhaps they are all that we can advise as safe. For young people these gentle practices are ample ; for middle-aged and old people they are not nearly enough for the cure of the case, which may take years. A few minutes, and a few small repressions at the age of fifteen to twenty, will be more valuable than the most violent remedies at the age of fifty, which reme-

dies at that age may be positively dangerous, and will be almost certainly unpleasant.

With most middle-aged people we must begin slowly in matters of exercise, if not in matters of diet. Let those who do not feel very vigorous choose those exercises, of our female figure, which they feel they can manage, as well as the massage of the abdomen and of the whole body. Many say, "I am too old," or, "I am too stout," for these things. Now they may be too old and too stout for violent work, but if they look through the exercises they will find some suitable movements for their own case. These exercises we offer, with explanations and with a few suggestions, before we speak of diet.

Have you ever tried to do for yourself what you get your servants to do for you—only to do it quite correctly ? Perhaps you leave your gardening to your gardener. Find out the right positions and movements of gardening ; then do it for yourself. So, too, you leave someone to clean your bicycle, to do your carpentering, to dust your room, to make your bed. Occasionally do these things for yourself. Let us take an example from the man who hunts. In the morning he gets up—or, indeed (so much does his valet do for him) one might almost say that the valet gets up for him and dresses him. Then he has his breakfast, and soon is told that his horse is outside ready for him to mount. He sits and rides : that is good. But in the evening he hands back that horse to his groom for the groom to attend to. It is constantly remarked in cavalry regiments, in the case of some fat N.C.O. who has been on some "soft" billet with little or no exercise, and who is reduced to the ranks, how soon he loses flesh through having to attend "stables"—to groom his own horse. The wind

improves, the body becomes strong, and the idler is now become a man, and not the mere football of his unwholesome desires. Let the hunting man now and then groom his own horses, and he will

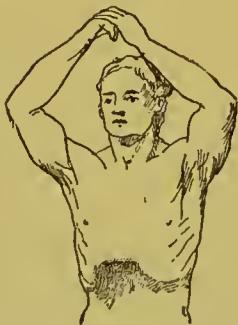


FIG. 21.—DRAW IN THE ABDOMEN AS FAR AS POSSIBLE, THEN LET IT GO OUT AGAIN. NEXT, DRAW IN THE ABDOMEN AND KEEP IT IN WHILE YOU DO MANY OF THE EXERCISES OF THIS AND OTHER COURSES.

be less obese. Only let him find out the right way of grooming them first. We are not urging the abolition of servants ; we are simply urging that everyone should be able to do what he asks his servants to do, not only for the sake of sympathy with the servants, and a certain hold over them, but also for the sake of physical fitness.

But here, again, there must be no strain : occasionally we advise a harmless vegetable or fruit or grain aperient—for we must strongly deprecate the use of drugs—then common-sense, and the doctor's opinion (when he gives one). If you have a weak heart, you will not, of course, at once start paper-chasing as a means of "getting down." On the other hand, if you are strong and a hearty man, with a figure not quite like Apollo's, yet well, you will not take to fishing from a punt in order to coax an inch or two off, when you wish to get a waist, will you ? No ; in the one case we recommend abdominal movements—lying and moving and slow stretcher-work, with very gentle alternate walking and running, and also deep breathing exercises.

For the other man, in addition to the above, plenty of ball-punching, riding, skipping, boxing, swimming, inclined plank-work—anything, in fact, which will open the pores and use the muscles rightly. But even the strong man of this class must not go too hard at first.

Of this same over-exertion Sir Lauder Brunton, the noted heart-specialist, says, in the *Quarterly Medical Journal*, that the limit of exercise appears to be set by three factors :—“(1) the capacity of the digestive organs to keep up the quality of the blood ; (2) the capacity of the excretory organs to get rid of the waste products which result from muscular action ; and (3) the power of the heart to drive a constant stream of blood through every corner of the organism.”

Mr. Flynn has noted too in his wide personal experience how little it takes to upset the digestion of big and heavy men. One great effort they may be able to make, but continued effort soon tells against them. So do not rush things. He cites the case of one of the patients, who, a ponderous man of a pig-headed disposition, not content with the light work and moderate but sufficient diet prescribed (work that was removing the superfluous quite pleasantly), would go on his own lines, lift heavy weights, drink excessive doses of various liquids, taking also the most indigestible foods ; and, as a result, was knocked-up in under three weeks. He was not content with having lost seven pounds in two weeks under the sane treatment ; he considered that too slow. When shall we learn the value of walking through life, instead of, like Flo of the song, always “riding alone on a motor-car” ? But neurotic weeds, left to themselves, run wild.

The personality of the teacher, his power to command with or without tact,

is an important element in success. We find this not only in gymnastic exercises, but also in diet-treatments. The authority of some person, who, for all we know, may himself be remarkably unhealthy, but who is that magic thing, a specialist, goes much further than the soundness of the theory itself. We wish we had space to mention all the fat-treatments, and to give photographs of the advocates—and some of the "inventors"; but the limits of this chapter forbid; and, besides, this is not a comic paper.

Probably before long a whole book will be written by someone on "My Experiences in Weight Reducing." At present we can only pass a few treatments in rapid review. As usual, the treatments may be called cranky. Perhaps, if the exponents were not cranks, they would not be so keen and so convincing. As it is, they all claim many successes; scarcely any admit the possibility of failure. Yet their science is not very sound. One, for instance, prohibits starch altogether. Now, it is obvious that starch in certain forms—say, in the form of white bread—may tend to fermentation and constipation, and is generally clogging, swelling, fattening. But starch taken in the form of wholemeal, or, if oats agree, oatmeal, is an entirely different matter from starch separated from its natural friends and the other members of its family. To cut off all starch, merely because the one kind of starch is unadvisable, is not science, but "fad-

dism." There are now on the market many kinds of grain foods—the Editor uses a round dozen—that are rich in starch, and yet thoroughly healthy for thousands.

Nor is the cure entirely a matter of giving up some one food. How can the same treatment be equally good for those so-called "jolly" people who digest and absorb all that they swallow, and for

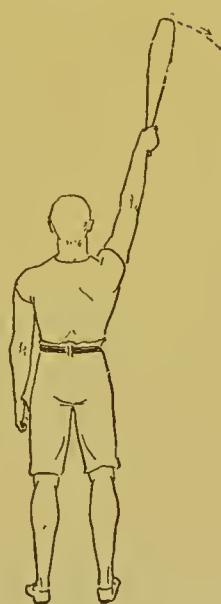


FIG. 22.

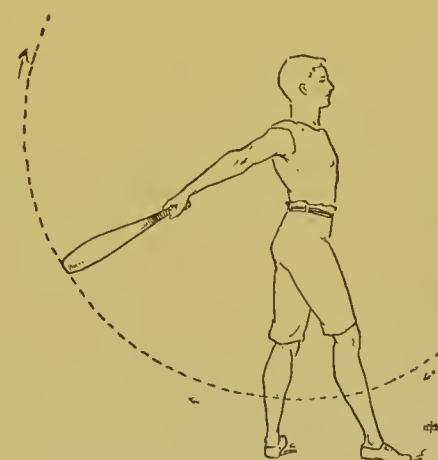


FIG. 23.

FIGS. 22 & 23.—OUTWARD FRONT SWING AND BACK SWING. THE OUTER FRONT SWING OR CIRCLE HAS BEEN DESCRIBED IN THE "COURSE FOR MEN." THE CLUB STARTS AS IN FIG. 22, AND THEN MOVES OUTWARDS, ALONG THE LINES OF AN IMAGINARY HOOP. WHEN YOU HAVE COMPLETED THE CIRCLE, TURN YOUR SHOULDERS AT ONCE TO THE RIGHT. TURN YOUR FEET AT RIGHT ANGLES TO THE POSITION OF FIG. 23, AND DO A BACK CIRCLE AS SHOWN BY THE DOTTED LINE. BE SURE TO KEEP THE LEFT LEG STRAIGHT AND STIFF, AND TO KEEP THE CIRCLE PARALLEL TO THAT WHICH YOU HAVE MADE IN THE FRONT SWING. BEGIN SLOWLY, IN ORDER TO ENSURE CORRECTNESS. IT WILL BE UNNECESSARY TO TELL YOU WHICH MUSCLES ARE BEING EXERCISED; YOU WILL FEEL THEM FOR YOURSELF. BUT DO NOT STRAIN. THE EDITOR HAS FOUND THIS EXERCISE VERY USEFUL FOR SEVERAL BALL GAMES

those far from jolly people who digest and absorb less, and yet are too fat—partly, perhaps, owing to fermentation and inflation; and for cases, like those which the Editor has met, of people who eat and drink scarcely anything, and yet are too fat? May there not, however, be some general method of health which applies not only to the above cases, but also to those equally terrible cases of people who digest and absorb scarcely

anything of what they eat, and who eat enough for some six men and one boy?

Dr. Ebstein appears to go on the principle of carrying coals to Newcastle. His patients are to eat plenty of fat in the form of butter and milk. His diet includes white bread and sugar and some vegetables, but no potatoes. As a stimulant, he gives tea without milk or sugar, and light white wine. The nourishment comes apparently from eggs and meat, as well as from the above foods. Is the aim to disgust people with fattening foods?

Dr. Germain Séé approves of a wet diet, since water aids excretion. But the liquor is to be tea and coffee, which surely neutralise a good deal of nourishment, a good deal of the little nourishment which he allows. The dry or greasy part of his diet is not unlike Ebstein's. Both these doctors have utterly ignored what strikes the practical trainer as a great necessity—namely, the getting of the pores of the skin in action, and the exercise of the muscles which help digestion and excretion. So wonderfully specialistic are these scientists, that they have not had time to study the other branches of physiology. Surely the lungs should breathe, and the skin should breathe as well, to take some strain off the kidneys, etc. The doctors do not seem to have any idea, from personal experience, of what a good "lather" means. Nor do they pay much attention to the question of how much of the meal is digested in the body. The more subtle criticism of the stomach, as Huxley calls it, will reject many of the foods which these people recommend, such as the fat of meat.

Dr. J. H. Kellogg works on different lines. His diet is remarkably "slim." His main point seems to be to confine the

patient to one thing at a meal; but—thank Heaven!—the victim is allowed to take exercise—in fact, must fatigue himself. And Kellogg has ever been an advocate of all-round methods, including not only exercise, but also baths, massage, electricity, light, heat, and air. One aim of this "Sanitarium" doctor is perhaps to choke off the victims' appetite, for if they have only one food, and that not of a very exciting kind, they will be unlikely to take it to excess. There is a limit to the number of crusts of bread which even a beggar can demand.

Dr. Oertel has another principle of common-sense, in that he does not believe in fat, and has a different object besides the "Get thin at any price; only get thin." The heart has special attention. To help it, the fluid in the body is regulated, and exercise is regulated also. Gradually the patient learns to mount up steeper and steeper inclines, as he might indeed do easily in his own room with the help of an inclined plank. Now this treatment seems very suitable where the heart is strong and sound, though hindered by the fat around it; but for a weak heart even this gentle beginning can hardly be safe.

A far more popular method than any of the above is that of a doctor who understands the weaknesses of human nature, and probably has the desirable bedside manner. About food-values, and the clogging elements of our food supply, he seems to know little and care less. He finds out what it is that his patients like; then he lets them take these things, but in *slightly* smaller quantities. What would appear on the face of it absolutely ridiculous as a new method of treatment, is bolstered up by exact amounts and weights. If this clever man had said to his patients, "Eat rather less," that would not have impressed them. But when he

says, " Eat only $2\frac{1}{2}$ ounces of this, and $3\frac{1}{4}$ ounces of that," they say, " Here is a man at last who understands *my* case exactly." Indefinite instructions might be better theoretically, but definite figures persuade the unthinking.

Such are a very few of the well-known treatments cursorily passed over; but, as we say, the subject is too complex

for any such dogmatism, and, in offering (in the chapter on " Experimental Diets ") two simple meals which we ourselves find useful, we offer them merely for trial, and without authority. Unintelligent readers will not like this: intelligent readers will welcome it as a change, and, if it fails, they will say to themselves, " Well, after all, he did not guarantee."

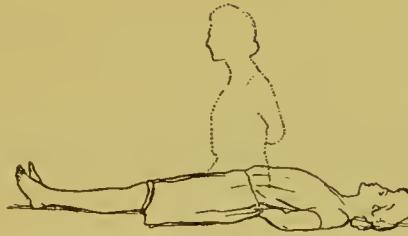


FIG. 24.—FROM THE LYING POSITION, RAISE THE BODY TO THE POSITION SHOWN BY THE OOTTEO LINE, KEEPING THE HANDS BEHIND THE SMALL OF THE BACK.

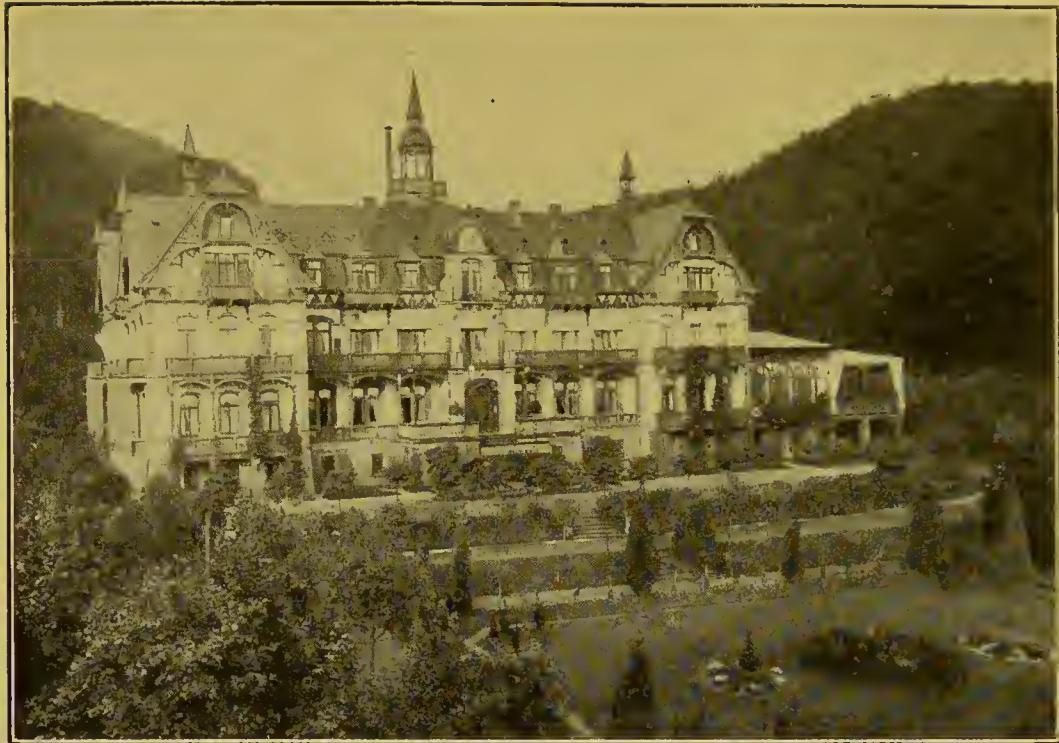


FIG. I.—GOSSMANN'S NATURHEILANSTALT.

(Photo: F. Tellgmann, Cassel.)

(The Illustrations are reproduced by permission of Mr. Goßmann, except Figs. 3, 4, 7, and 12, which are by permission of Dr. Kellogg.)

CHAPTER XIV.

A WEEK OF NATURE-CURE.

The Value of Rest, Recreation, Change, and Humour—Goßmann's—Two Interesting Cases—Few Games—The Diet not too Strict for All—Air-huts and Air-and-Light Baths—Barefoot Walking—Massage before Breakfast—Breakfast Foods—Excursions—Wet-sheet Packs—Steam—Hot Baths—Cold Douches—Apparatus for Exercise—Air Baths again—Electric Light and Heat—Ultra-Nature—The Practice better than the Theory—German Cleanliness Misjudged—The Two Health Associations of Germany—The Health-education of Millions—Sample Lessons—Co-operation—Openmindedness—Lahmann—Other Specialists—When we come back to a City.

THE PHYSICAL EDUCATOR is chiefly concerned with exercise; but Emerson points out that there is a law of polarity, that heat and cold, summer and winter, supplement one another. The complement of exercise is rest. Between the two comes recreation, which no one has yet defined much more clearly than life itself has been defined, except that in both recreation and life there must be change. With regard to recreation, we

may note that a sense of humour is not indeed essential, but is very valuable. Given a piece of work, and the humorous view of the subject—and of oneself—may turn that subject into recreation.

With regard to Nature-cure, or Naturheil, in particular, a saving sense of humour will prevent the patient from being too morbid, too much depressed. The sight of a number of fat Germans in an air-bath becomes a tonic to the

mind, if one regards it from the right point of view. For the exercise of the mind in humour, as well as for the exercise and rest and recreation of the body, there can be few better holidays than a week in a Nature-cure establishment, or *Naturheilanstalt*.

The Editor has several times spent a week at the most comprehensive of German *Naturheilanstalts*, and has occasionally visited others in England and elsewhere. For example, at Medstead, in Hampshire, there is a little place where one can enjoy the air, light, scenery, simple diet, cold baths, gardening, and other exercises. But this article will refer chiefly to the establishment of Mr. Gossmann (Fig. 1) near the Emperor's place at Wilhelmshöhe and close to Cassel.

It was interesting to notice that whereas this was a strictly teetotal asylum—we use the word in its finer sense—near it was a somewhat similar place where champagne was a special attraction. It is possible that the latter was the more popular, but it was hardly likely to be so healthy.

After a somewhat long journey from London,* one has a drive up from Cassel to the establishment, and then there is an evening meal of vegetables, excellently cooked, salad (dressed with oil and lemon), butter-milk, cheese, dark

* For the convenience of the reader, it may be mentioned that from London to Cassel is a journey of about twenty-four hours, the return journey (unless one gets into a wrong train and arrives at Cologne) being about seventeen. The fees for a week, with a nice bedroom and complete treatment, and allowing for reasonable "tips," were nearly five guineas. The person who lives the full and most hygienic life there may find that the stuffy trains and steamers, when he comes back, are vilely oppressive. Otherwise, we, personally, found no single part of the entertainment either painful or dull. And each time we submitted as a passive victim to whatever treatments the place provided.

bread, butter, nuts, and fruit. Mr. Gossmann himself has not touched flesh food for twenty-seven years. He and his family are the picture of pink health.

At a special table in the large dining-room were seated several people who were being treated for obesity. One of these was a fat actor. With him it was a choice of evils. Should he remain fat, and command a large salary by his comic appearance? or should he become healthy and perhaps lose much of his prestige? He decided on this latter course, and was rapidly losing this superfluous flesh, thanks to diet, exercise, massage, and heat and water treatments.

Another interesting case was that of a Pole who ate prodigiously fast. When asked why he ate so fast he said that after half an hour his appetite began to disappear, so he had to manipulate all his eating within this narrow limit! And certainly he went at an almost incredible pace. Halfway through one meal he was seized with pains, but the

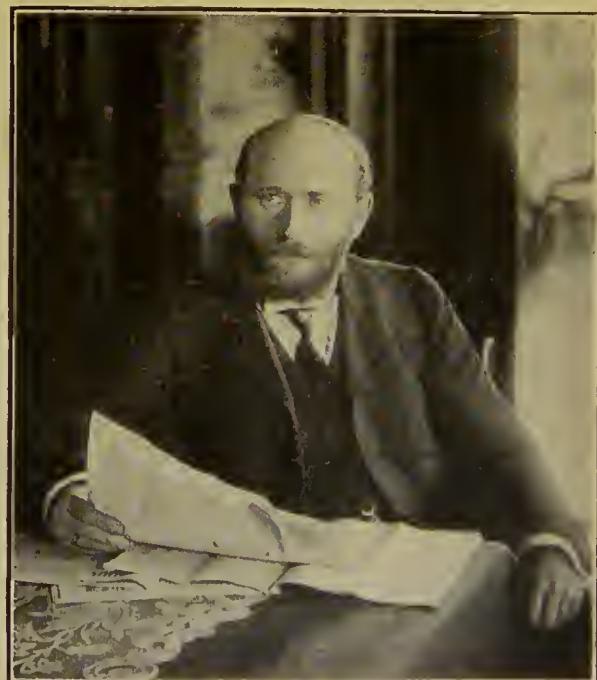


FIG. 2.—HERR GOSSMANN.

proprietor of the establishment made a few passes with his hands, and the pains apparently disappeared. The passes were downwards ; if one had been of a cruel or inquisitive nature, one might have made upward passes afterwards to see if one could bring the pains back. But this was the only "mental" treatment that we noticed in the place.

Nor was there much attention given to play. A few quiet games like billiards and bowls were provided, but otherwise this branch of cure was too much neglected—from the Anglo-Saxon point of view. Even about the game of bowls there was a sedate seriousness and ceremonialism which kept the play spirit in the background.

The diet itself was not of the strictest kind for all alike ; it was found that not everyone would consent to this strictest kind. Some insisted on having their flesh-foods ; but, on the whole, the tendency was to the simpler kinds

—partly, perhaps, because these had a greater variety, and were nicely cooked. Mrs. Gossmann was a high authority on cooking, and of course had written a book on the subject. To our palate the foods were somewhat sweet ; but when we mentioned this, we were given an extra dish to our own taste now and then.

After the evening meal one retired to rest. The braver part of us went to our air-huts, shown in the illustration (Fig. 4). The body was kept warm by that wonderful lump of stuff which covers the German bed. The more timid people went to their rooms, which were well warmed, but had excellent ventilation.

Before bedtime a few of the more nervous patients were sent to do bare-foot walking in the meadow. This was found most valuable as a remedy for nervousness and hysteria in women. Those who did not care for absolutely bare feet, wore open sandals.



FIG. 3.—THE WOOD-CHOPPING CORNER IN THE OPEN-AIR GYMNASIUM AT THE BATTLE CREEK SANITARIUM.

(Photo: Gage Printing Co., Ltd., Battle Creek, Mich.)

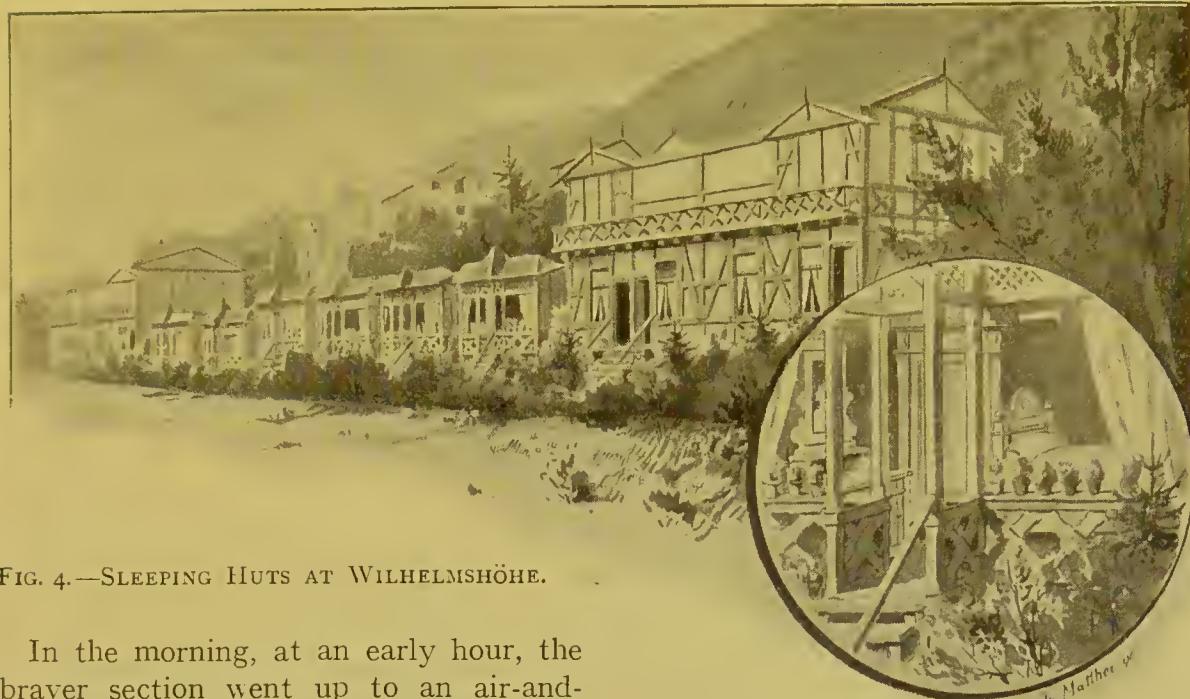


FIG. 4.—SLEEPING HUTS AT WILHELMSHÖHE.

In the morning, at an early hour, the braver section went up to an air-and-light bath (*Luftbad*) on the hill. There was one bath, or enclosed meadow, for men, another for women. The delightfulness of this naked exposure in the early morning cannot be described. During the bath one took exercise—walking, running, gymnastics, etc. (the Americans have their wood-chopping, as in Fig. 3), and in the air-bath one did barefoot walking after the manner of Kneipp. When one put on the sandals again, there was a delightful glow for the feet; though nothing could equal the glow which we had after barefoot walking in the snow.

This walking in the snow recalls an amusing episode. One day a party of us met two patients coming out of a café and looking very much ashamed of themselves. It was in the afternoon, and the pair had started equipped for a long expedition. They had looked up maps of the neighbourhood, had devised routes, and provided themselves with elaborate knapsacks; then, instead of the long journey, they had retired slyly to this little café and spent a couple of hours there. But we caught them in the act.

As a rule, however, the Germans, beer-lovers as they are, were quite content to give up their beer, and even their coffee, during their stay at Gossmann's place. The butter-milk, and the healthy life, and the—to the Teuton mind—amusements seemed to satisfy them instead.

Though there were few games to relieve the monotony, yet there are expeditions to view the artificial fountains and buildings at Cassel and elsewhere. We were not much impressed with these "imitation antique" erections, but the patients seemed to like them.

Most of the day, however, was spent in "treatments." In addition to the air-and-light baths at intervals—we found them just as enjoyable in severe frost as in the heat of summer—there was massage of all the ordinary kinds by a trained attendant. Many people (Fig. 11) were massaged in the early morning before breakfast. In our Course for Men we have suggested self-massage.

At breakfast the drink was a mixture of cocoa and wheat; though perhaps too sweet, yet the taste was good. Besides this, there were rolls and butter, the rolls being made of a mixture of whole-meal and white flour. There was also a thick kind of jam.

After breakfast—being not ill, but merely inquisitive—we were asked what treatments we should like to try. The answer was that we should like to try them all, but that we only had a short

the slight shock giving way to a pleasant and comfortable sensation of warmth directly the blanket was wrapped round it. Then one was left for an hour or so, with hot-water bottles to the feet and under the knees; during this time the poisons were meant to come out of one's body into the sheet. Afterwards one had a warm and then a cold bath, a rub down, and some exercise.

At night this could be varied by partial packs on different parts of the body;

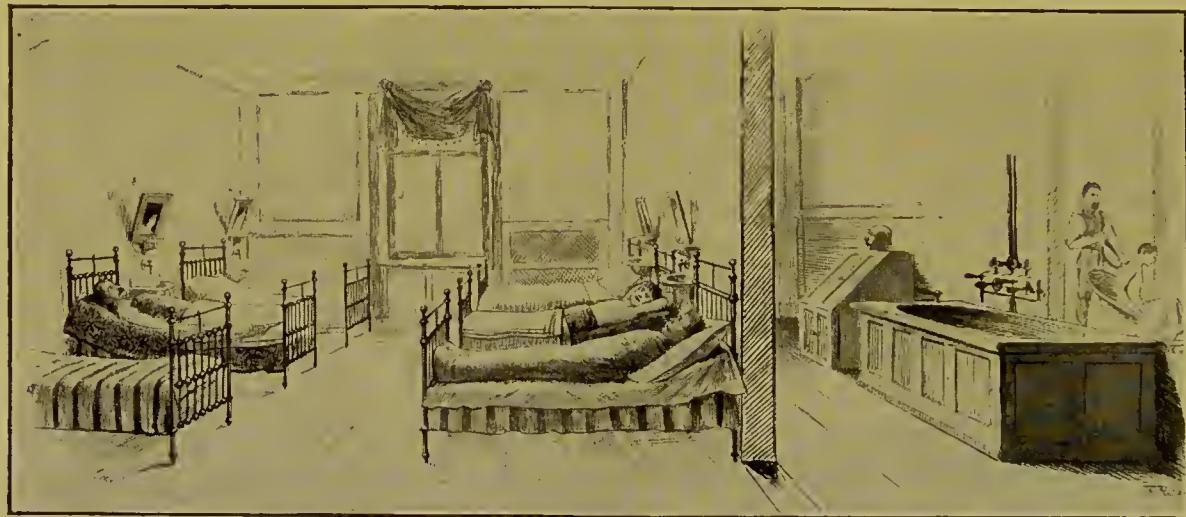


FIG. 5.—WET-SHEET PACKS, BATH-CABINETS, ETC.

seven days to do them in. This meant several treatments on most days. The treatments were mapped out in a special booklet, with instructions to the masseur and bath-superintendent.

One of the first treatments was (*see Fig. 5*) the famous wet-sheet of hydro-pathic establishments. The best kind seemed to be the complete pack covering the whole body. We were assured that the "poisons" found in these sheets afterwards were striking proofs of the efficacy of the cleansing. One was given a vapour-bath to warm the body; then a bed was prepared, and on it was laid a cold, wet sheet. One lay on this, and was wrapped round with the cold sheet,

for instance, on the legs. These worked while we slept, and were removed in the early morning.

Then there was a steam jet (*Fig. 8*) or a steam bath (*Fig. 5*), or a very hot bath, either for the whole body, or for a part of it; for instance, for the arm or leg (*see Fig. 6*).

The pleasantest of all treatments, however, was the very hot bath—the bath which hurt so much that it was positively pleasant. This is sometimes taken by Japanese workmen at mid-day. Few people know that it is the warm bath that is relaxing, whereas the hot bath is invigorating, actually closing the pores of the skin. A number of American

athletes have told us that after they have perspired freely they can cool themselves better by the very hot bath than by the cold one. After it, moreover, one need not be so fearful of catching cold.

Less pleasant, though far more invigorating, was the cold spout and douche and spray. It was like a hard game of

The effect of this is to give exercise to some of the trunk-muscles, and to sluice the water over one's back and front.

After every such treatment the strongest patients took exercise in the open air to restore circulation; for, with the exception of the very hot bath, the treatment always ended with the use of cold water to close the pores of the skin.



FIG. 6.—A BATH ROOM.

football. One did not look happy over it, nor did one, to tell the truth, enjoy it much at the time; but afterwards one felt one had done the right thing. Down the spine, it served as a magnificent tonic.

Mr. Gossmann himself is by way of being an inventor. Among his other devices is a bath-exerciser. In it is a little seat that moves on wheels and forms a sort of sliding-seat. The bath is filled to about a third of its height with cool or cold water; then one sits on the seat, and goes through the action of rowing, holding some elastic apparatus.

Our own favourite finish up was the "air-and-light" bath, though few cared to try it in the winter. Karl Mann has arranged a more elaborate equipment for his air-bath. There is an open-air gymnasium at Boston which is more elaborate still. Dr. Kellogg's provides exercise in chopping wood as well as in gardening, and it has another excellent feature—the swimming-tank; this is shown in the illustration (Fig. 12). Then, again, there are sand-heaps, in which people lie during part of the summer day (Fig. 7); these are supposed to be excellent for the health, the purifying

power of earth and of sand being well known.

In nearly all respects the establishment was well equipped and up-to-date. The electric light-and-heat baths, for example, were of two kinds. First there was the kind with a number of little jets of light; then there was the kind (see Fig. 9) with a large effulgence of light, which could be directed upon any part through coloured glass. The advantage of this electric light-and-heat bath is partly in the light, which seems to have a wonderfully penetrating influence, and partly in the fact that such heat affects the heart less.

Electricity was also used for purposes of massage. Instead of trusting to any individual attendant, it was easy to regulate the severity, and to continue the length of the treatment indefinitely by means of the mechanical vibrations. There are establishments where this apparatus is used in London, as well as in America.

This does not sound much like "Nature." True, there was plenty of Nature in the diet, the air and light, and the exercise; but even in the exercise itself Nature was considerably adapted by man. The exercise-apparatus here was not so elaborate as in some establishments; but it was good as far as it went. Several instruments were especially valuable in the treatment of constipation; one or two of these have appeared in a previous article, which showed apparatus for practising rowing, cycling, riding, and so on; but Gossmann's place could not compare with Kellogg's or the Zander Institutes in respect of mechanical apparatus. One or two of Dr. Kellogg's will be shown in a subsequent chapter.

Outside the diet and the electric treatment, perhaps the best department was the bath-department, where many varie-

ties of hot and cold treatments were used, among them one of Gossmann's own invention. Of course there were sitz-baths, alternate hot and cold baths, partial baths, and all the other kinds familiar to those who know our hydros.

We may observe here that in most respects the practice of water-treatments seemed sound, but the explanation of why this or that treatment was good was apt to be rather (or almost entirely) unscientific. It was said that the chief effect of one bath was to bring the blood to the surface of the body, away from the organs, or *vice versa*; whereas Winter-nitz has shown that much of the good effect is due to a different reason, which we shall explain in the chapter on water. All over the body are tiny hearts that do local circulation-work. Water treatment affects these hearts considerably, just as massage does.

A word may be inserted here on German ideas of cleanliness. We are too used to stories about Continental total abstainers from water or temperance men to credit the Germans with much care for physical cleansing; but in these establishments, though soap is quite conspicuous by its absence, the water itself is constantly employed, as well as the scarcely less cleansing air and light and electricity and heat and massage and exercise. In addition, the careful diet produces fewer waste-products and less impurity from within; and the open-work clothing is a good idea for those whom it suits. In all such respects these Germans are up-to-date, and far in advance of our millions, in spite of the scorn that these millions read and enjoy in comic and other papers. Whatever other things we may be wrong to import from Germany, we should not err if we imported—free of duty or "retaliation"—their Nature-cure helps to cleanliness,

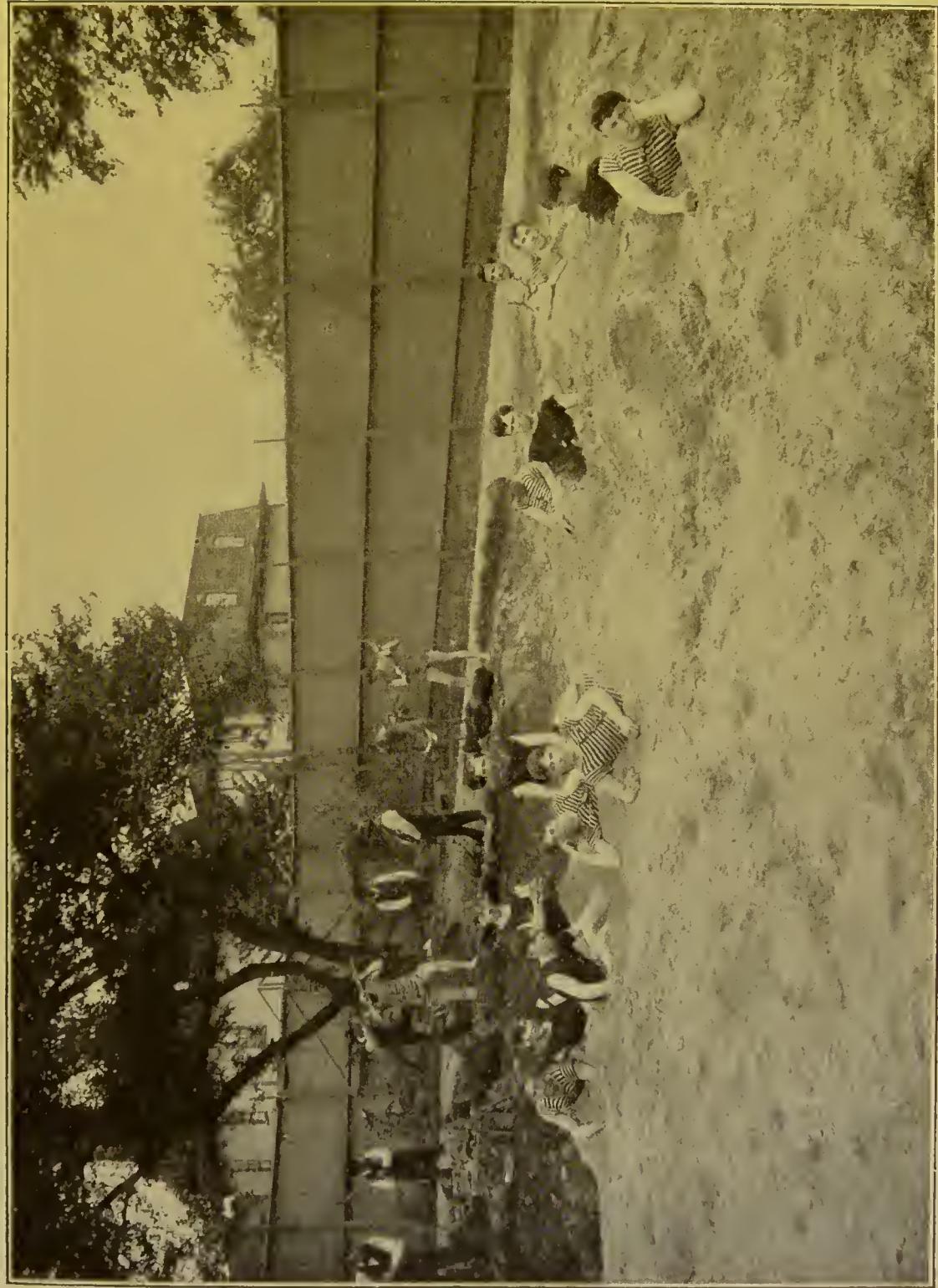


FIG. 7.—A SAND-BATH AT THE BATTLE CREEK SANITARIUM.

(Photo: Gage Printing Co., Ltd., Battle Creek, Mich.)

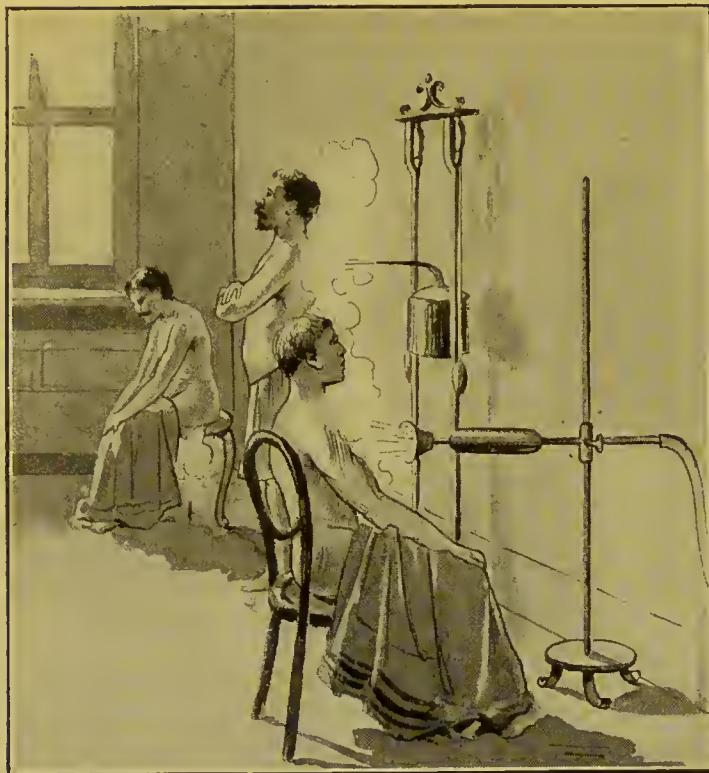


FIG. 8.—STEAM JETS.

even while we did not abandon our own specialities, soap and washing in our own private and personal rooms and bath-rooms. That is where the Germans are weak.

Yet Nature-cure establishments are doing a great work among thousands of people, and perhaps, as we have heard, among millions. We were told that there were in Germany two associations in search of health by simpler means. One of these was originated, or was led—for Priessnitz was the originator—by Kneipp, a Roman

Catholic priest who followed in the steps of Priessnitz, and had on his side the Roman Catholic Church. Much attention was paid to very cold water, air, and exercise, and fasting was included; but diet was treated somewhat casually on the whole, except for the abundance of proteids or body-building elements. The other association has a wider range of methods. Both associations appeal not only to the rich, but more to the poor. Thousands of villages have their little clubs, at which people meet and discuss health and means to health. We may compare the Manchester "Physical Health Culture Society," mentioned in a previous article. There are lectures and ex-

changes of experiences. There is a cheap literature circulated almost as

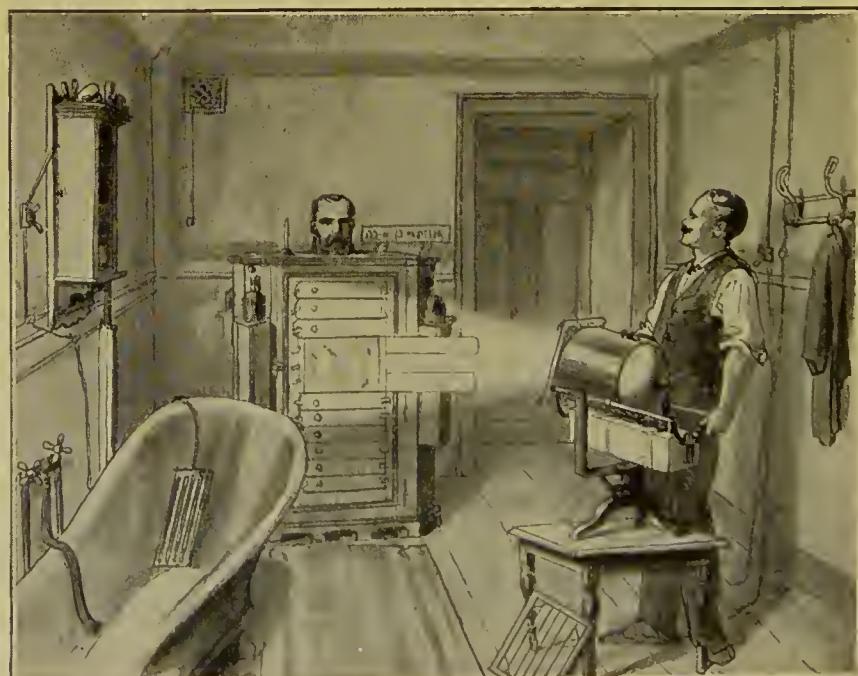


FIG. 9.—ELECTRIC LIGHT AND HEAT BATHS.

freely as advertisements of quack medicines circulate in England. So that even the very poorest people, and those who correspond to our most ignorant masses, know a little about the cheapest ways of keeping or restoring fitness.

sider the matter of alcohol. Something is taught about its effects, and about the remedies for alcoholism. People are shown the uses of water, whether in baths or packs, or as a drink.

Air and the way to breathe it—this is



FIG. 10.—SUN-BATHS FOLLOWED BY COLD-WATER DOUCHES.

For example, they are taught something about a cheaper diet, a less stimulating diet, a better-cooked diet, a less wasteful diet. The poor are encouraged to grow fruits and salads and vegetables. Some sects study the herbal remedies, such as are still in use among old-fashioned people in English country towns and villages.

As an example of the value of this education for the millions, we may con-

another favourite topic. The instructions about breathing are mostly unscientific, but they are better than nothing. The same applies to the exercises. We hear this or that system loudly praised, but the exponents of it are not wonders to look at. There seems something wrong about the systems, though, once again, they are better than nothing; and the inclusion of massage and remedial apparatus work among

familiar exercises is certainly a step in the right direction.

In general, there is an open-mindedness about new ways, which is the greatest rarity among the uneducated of England, or, indeed, among the educated. And although we cannot consider the German Nature-cure system strictly scientific, yet it does tend to a more sensible life.

As an example, let us contrast with this holiday the ordinary holiday of an English family at the seaside. Here there is sea-air, and there is change; there is rest, at any rate for many of the muscles, and for part of the mind. On the other hand, there is the vast expense, and, during the fortnight or so, no lesson is learnt for use in the city-life afterwards. The family goes back and lives—or rather exists—almost precisely as before until the next holiday-time

arrives. The person who has been to a Naturheilanstalt is utterly unlikely to leave that life without adapting some portion of it on returning to a city. At any rate, something will have been impressed upon the mind, whether it be the value of fresh air, or of exercise or massage, or of a more sane diet, or of some simple water-treatment.

Besides this, the person who is ready to adopt some little help of that sort has as his consolation that the leaders of the movement in Germany and elsewhere are living the life themselves. That is where they are to be praised. There is nothing which Mr. Gossmann recommends to his patients except what he does himself. While you take the occasional lunch of fleshless food, it may be some satisfaction to know that for twenty-seven years Gossmann has never



FIG. II.—IN THE MASSAGE AND BATH ROOM.



FIG. 12.—THE OPEN-AIR SWIMMING BATH AT BATTLE CREEK SANITARIUM.

had any other kind of meal. Perhaps to him it is a consolation that his children have not either.

Gossmann is only one out of many. A better-known personality is Lahmann, whose establishment near Berlin is far larger. He is famous for his clothes and for his dried vegetable-salts. He has a somewhat more aristocratic *clientèle* than Gossmann, and a far larger *ménage*. On the other hand, in his dietary he is considerably more extreme, if not cranky, resting his faith largely on salads, well-cooked vegetables, and nuts. At Gossmann's we have attention to those supreme laws, moderation and individuality.

To every one among these earnest reformers is his own idea. In the Hartz Mountains we find Just advocating open-air sleeping on the mother-earth. Elsewhere we find someone treating everything by means of shallow cold baths. And so on. But whatever is invented by any one person is soon communicated to the rest, and ex-

tended throughout various associations and clubs, either by little pamphlets or by the periodical papers devoted entirely to Hygiene, or by letters, or by visits. There is a most pleasant system of friendly interchange.

It is chiefly by exaggeration that we learn new truths, and if anyone wishes to learn new truths about natural (or what we may call ultra-natural) treatments, let him go to a German establishment—there are many of them—or to an American establishment. Here he will see very few relics of “civilisation.” He should enter into the spirit of these reformers for the time being, and study their methods. When he comes back to his daily life he may feel utterly disinclined to obey these reformers implicitly; but he will carry away with him, because he has seen it so clearly and has been through it himself, at least half a dozen hints for a cheaper and simpler and cleaner and healthier way of living. He will have had a remarkably forcible lesson in physical education apart from games,

athletics, and recreation. In idle or sad moments the thoughts of the naked or perspiring or massaged Germans will bring a smile to his vacuous or anxiously furrowed face, if he has any sense of humour. If he has not, then neither is a Naturheilanstalt the right place for him, nor is any city. For, after all, it is the city life that is really ridiculous—to Democritus; though the other philosopher whom Juvenal mentions might be more inclined to weep.

The Editor has received large numbers of letters of inquiry about this and similar Establishments. It is hoped that the article will help to answer the questions asked. At the same time, there is no doubt that we urgently need similar Establishments adapted to Anglo-Saxon

characteristics (of games, recreations, and so on), and managed by Nature-cure practisers in friendly co-operation with the Medical Profession. We believe that such places in the close neighbourhood of large cities would be of enormous benefit to a nation of which upwards of three-quarters live in cities, and would be of no small benefit to those who financed and organised the scheme. The place must be free from one-sided and narrow crankiness. It must include all the best of all the methods. Especially must it appeal to the week-end public that desires to escape the slavery of Saturday and Sunday feasting, which produces a Monday agreed upon by all managers of large businesses to be the worst day for work in the whole week.

CHAPTER XV.

NERVE-TRAINING BY GRADUATED PRACTICES.

The All-importance of Nerves—Their Wide Range of Virtues—Regulation of what is at their Two Ends—The Mind by Self-suggestion—The Expressions by Positions and Exercises—Regulation of Surroundings, such as Air and Light—Repose and Economy—Pace, Voice, etc.—Graduation, illustrated from Lieutenant Flynn's Methods—Danger of Violent Shocks—Diet and Stimulants—Interest, not Drudgery—Recreation.

TO have nerves good by nature, or well-trained by art, is something more than not to go into hysterics whenever one sees a ghost. Professor Stokes, of mnemonic fame, composed a treatise on memory, which began, "Memory means mind; mind means memory. Memory most mysteriously makes man's mental memorandum." We must use the letter "P" rather than "M," and describe good nerves as resulting in "power in repose poised and prepared to perform pluckily, promptly, and precisely."

Now the promptitude and the precision can be treated only incidentally in this article. They are dealt with more directly under the headings of "The Macdonald Smith System" (promptitude and independent control), "Tricks" (promptitude and independent control), "Boxing" (promptitude), "Fencing" (promptitude and precision), "The Training of the Senses by Sloyd, etc." (promptitude and precise discrimination), and so on. In this chapter, space—and the number of illustrations—compel us to deal rather with power and strength, with repose and economy, with balance and poise, and with a few fundamental principles of these grand arts of life.

The person with bad nerves is not merely one who is afraid of burglars or distracted by unpleasant noises. Some people are

too sleepy to be disturbed in this way. These inconveniences occur almost unnoticed. Their nerves are not good because they are not alert. Such people are too atrophied in their senses to have good nerves. While they are not unpleasantly moved by discord of foul noises, on the other hand they are not pleasantly "moved by concord of sweet sounds." They err in excessive deadness rather than in excessive liveliness. The ideal is a quietness distinct from sluggishness, and an activity distinct from fidgetiness.

The nerves are all-pervading and all-important in the body. We may think we are training the muscles; but, if we are training them rightly, we are training the nerves as well, and the muscles rather for the sake of the nerves than *vice versa*. When a doctor is puzzled he is nearly safe in saying that the trouble is to do with the nerves, though that diagnosis may not help much. It is more helpful for us to know what is at both ends of the nerve, and what the nerve is. We may ask, instead of the old nursery rhyme, "What are little boys made of?" "What are little nerves made of?" ; though, from the way in which little boys and little girls, especially in America, are allowed to feed themselves, the answer might seem to be the

same in both cases, "Sugar and spice and all that's 'nice' !"

Good nerves are made partly by good food, partly by good rest and recreation, partly by good work. All these things need thought at the outset, unless we are born with good nerves. Therefore, except in that rare case, good nerves are made almost wholly by good thought rightly controlled, rightly directed.

These three things are so much easier to regulate than the nerves themselves, which, after all, may be only the channels and not the final causes. Anyhow, it seems as if at present we can never deal with them directly as nerves. We must usually deal with something at either end or at both ends of the nerve—namely, with the thoughts or the expressions, not forgetting the external helps which affect both the thought and its expression, as well as the nerve itself—especially its food, and the digestion of that food.

Let us begin with the thoughts. Sensible and intelligent study is the first help for the nerves. We cannot treat of that in the PHYSICAL EDUCATOR. On the other hand, we cannot let the occasion pass without a mention of that very cheap and unobtrusive art of Self-suggestion. The hackneyed example is the power which we have of waking ourselves at an early hour in the morning if we suggest to ourselves at night that we will wake at this hour. We set the alarm-clock of our minds to ring us up at six or seven. This is a single instance of Self-suggestion. There is no reason why we should not extend the practice to all spheres of life. It will not be out of place to take several examples of the use of Self-suggestion by well-known classes or individuals.

The popular exponent of the Hindu Yoga-culture suggests a simple practice for repose. He says, "Those who cannot

afford to have a room set apart can practise anywhere they like. Sit in a straight posture, and the first thing to do is to send a current of holy thought to all creation. Mentally repeat, 'Let all beings be happy,' and so on."

The late Mr. Charles Leland insisted that the best time for Self-suggestion is just before sleep, and the kind of Self-suggestion would be, "To-morrow I will work well, take my right exercise, attend to it all the time, and keep in the right frame of mind, preserving my poise and repose." This he calls "Pre-suggestion."

Mr. C. B. Fry told the Editor of a long jump of his which at first he had thought himself unable to do. He found that, when he had suggested to himself that he could do the jump, then he did the jump. The suggestion seemed to brace him up.

Peter Latham, the professional tennis champion, has used this practice in the racquet court during a match when things were going against him. "Now's your chance, Peter," he would say to himself, "to show your mettle; this is a good game to win." And he has won.

What these and thousands of other people have found useful for the nerves in their particular sphere may be adapted to any occupation. No training of the nerves is likely to be successful apart from this attitude of mind—this self-bracing without anxiety. Self-suggestion can be tried before the day and its exercise. The Self-suggestion, "This one thing I do now," will help concentration of mind and economy of mental and physical energy.

But in this chapter we shall deal chiefly with the training of the nerves by physical helps, and especially by exercises. We shall have to ask, "How do thoughts and nerves express themselves?" Then we shall show how these *expressions* may be regulated.

As an example, take the person who is nervous for some reason or other before business or an operation or an examination. How does this nervousness express itself? The face looks anxious, the hands tremble, the breath is short and sharp and shallow. As we have said before, let the nervous person take a deep breath in through the nostrils, then hold that breath for a moment, then slowly allow it to pass out. To regulate the expression of the face, let the person smile. As Professor James

will, we can indirectly regulate the feeling which is not."

Again, the nervous person is very unlikely to be straight and extended. Everything in the body will probably be cramped. Therefore, to stretch the extremities and the trunk itself will be a help against nervousness, especially if it be followed by a calm relaxing, as someone described it to the Editor not long ago. First stretch up the head as far as it will go; then stretch down the



FIG. I.—A LUFTBAD AMONG THE HILLS IN GERMANY.
(Drawn from an Illustration belonging to Mr. Gossmann.)

writes in his wonderful book, "Talks to Teachers on Psychology," "In order to feel kindly towards a person to whom we have been inimical, the only way is more or less deliberately to smile, to make sympathetic inquiries, and to force ourselves to say genial things. To wrestle with a bad feeling only pins our attention on it, and keeps it still fastened in the mind; whereas if we act as if from some better feeling, the old feeling soon folds its tent like the Arab and silently steals away. The sovereign voluntary path to cheerfulness, if our spontaneous cheerfulness be lost, is to sit up cheerfully, to look round cheerfully, and *to act and speak as if cheerfulness were already there*. So, to feel brave, we should act as if we were brave. By regulating the action which is under the more direct control of the

trunk and legs towards the ground, and stretch the arms down firmly as well. Then let the whole body become easy, while you breathe deeply and slowly through the nostrils all the time.

Two principles have been illustrated here. First of all, to observe what helps you sometimes, and then to turn that sort of thing into a more methodical practice, to turn the occasionally useful into your very own habit by constant repetition; and, especially, to observe the expressions and regulate them.

This does not mean that we are to neglect the mental control, nor does it mean that we are to neglect the external helps. Among the best of external helps is light and air. In Germany (*see* the special article) we visited the establishment where women's nervousness or neurasthenia



FIG. 2.—TOWN BOYS ENJOYING THEMSELVES AT AN OPEN-AIR GYMNASIUM NEAR BERLIN.
(Photo: F. Kühn, Berlin.)

was treated in this way. Some patients slept in the open air; some were made to take exercise naked in the open air in a special "Luftbad." Others, for whom these means appeared too violent, were told to go about for part of the day with bare feet. This was an important item in the Kneipp treatment. Others were allowed to wear sandals, but no stockings. The result on the nerves was usually most satisfactory. The little drawing is from this establishment, the illustration being that of the air-and-light bath for boys and men. The second illustration is from another part of Germany—Berlin—where a race is just going to begin in the open-air gymnasium. Here there is exhilaration for the nerves from the light and air and the race, and also practice for them in promptitude.

The third illustration—of Mr. Oberholzer, the great gymnast—shows a training of the nerves in poise and power as well. The external helps would be the air and light and scenery, and the vaulting-horse itself.

But first of all should come training in repose for the sake of economy and grace-

fulness, at which training the Delsarte System aims. This system will be estimated in a separate article. We have already explained elsewhere* the theory of leakages of energy. When a large business is going wrong, our chief question is, How is money being spent in vain? Through what channels can we trace costs without profits and returns? And the same question should be asked about the body, this decidedly large and complicated business of which we are the managers. Where are the leakages of energy without any advantages to compensate for them?

And one of the answers to this question is, In the extremities. We are not speaking here of healthy exercise, which is a sound investment, not a leakage; but of unhealthy exercise or tension; exercise, that is to say, which has nothing to show except ugliness at the time and tiredness afterwards—the face anxious and muscularly contracted, the hands gripped, and probably the whole body itself gripped like a big, nervous hand. Such are the physical leakages that we have to stop if we would be

* An article in the *Daily Mail*.

graceful and strong and healthy. We have to untie the knots in the system, and keep the channels free.

This means that we must observe ourselves, observe especially our expressions ; then correct them till they become normal. For it is only the normal who can afford to be unwatchful.

We must answer the objection that it is morbid to be *always* asking how one is looking. Of course it is. But it is not morbid to ask this occasionally, and, if we find ourselves looking wrong (especially anxious or angry), to correct ourselves somehow or other till we have re-established the correct habit. It is not a matter of always watching ourselves ; it is a matter of watching ourselves and correcting ourselves till we are healthy human beings again.

What, then, are the expressions that we can regulate ? The study of statues will show them. The sculptor cannot portray a mind ; yet, when we see a statue, we know the frame of the mind through its expressions. Here is a boy ready to start. Here is a girl asleep in complete calmness. Here is someone sorrowful. Here is someone happy.

There is the general position of the body to tell us a great deal. The positions of fear, courage, sorrow, anger, and so on, are all well known, and are all easy to imitate.

Then there are the expressions of the face. the frown, the smile, and so on. Confidence, fear, shame, all have their appropriate signs, which again we can imitate. And the experience of nearly everyone seems to bear out Professor James's theory : namely, if we can hold the expression for a reasonable time, the corresponding feeling will come ; that is to say, unless we cultivate the actor's art of separating the feeling and the expression. If we express happiness and

contentment by our appearance of face, etc., and if we let ourselves go, and, as it were, tell the expression to work out its effect on our emotions and mind while we are mere spectators and witnesses, almost inevitably the feeling of happiness and contentment will come also.

Already several principles of nerve-training have emerged. One of these was to turn the occasionally useful into a permanent habit by conscious practice. This applies especially to the expressions, which we should regulate by conscious practice if they are not normal of themselves. But a new principle has here emerged—to cultivate the expression opposite to the one which we wish to remove. You feel miserable ? You should try to cultivate the expression of



FIG. 3.—TRAINING OF " NERVE " AND POISE IN THE OPEN AIR.

(By kind permission of Mr. Oberholzer.)

satisfaction. It is far less difficult than to try to be happy.

Of course there is always the danger of becoming "self-centred." If a person were always looking at his or her expression in a mirror, or always looking at the hands to see if they were gripped, then that person might become a hypochondriac ; but the danger of this is far less than the danger of carelessness and unreasonable self-satisfaction. And, besides, let us repeat, once you have restored the normal—including the expressions of the best feelings—then you need take little more trouble.

Another expression is the voice. That, strange to say, is an important part of the training of the nerves. As Professor James remarks, "Look quiet, and you will become quiet" ; so we advise, Talk slowly and cheerfully, and you will become more deliberate and less discontented. Some Americans err most in the harshness of their voices. One might imagine that this is merely a sign of the harshness of their minds ; it is not merely a sign, it is also one of the causes. If the American mind were reposeful, the voice would be reposeful also. If the American voice were reposeful, the mind would be less jerky and unrestful, even if it were not actually at its ease.

That has brought us again to the subject of breathing, which we have seen to be closely connected with the rhythm of the whole body ; and it has brought us to the subject of the muscular tension or muscular economy.

The series of illustrations (in the Women's Course) are copied from photographs of a pupil of Mrs. William Archer. The practice, let us repeat, is a practice for private use, or else for use, so we think, with a sense of the humour of the thing. But every year increasing numbers of athletes are finding this cultivation of physical

repose valuable for athletics themselves. Instead of this more elaborate system we suggest here an exercise of our own, to be done with the inclined plank.* Lying flat upon the back on the plank, and having one cushion at the small of the back and the other behind the neck, stretch the head upwards and the feet and legs and trunk downwards, the hands and arms upwards then outwards as you take a deep and full breath in ; hold the breath for a moment, then, as you let it ooze out, relax and close the eyes, as in Fig. 5.

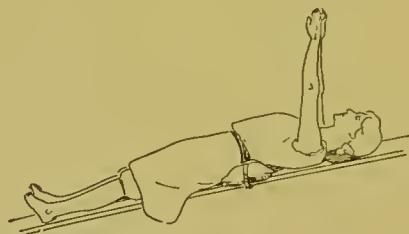


FIG. 4.



FIG. 5.

Now it is not everyone with whom such an exercise would agree at the start. There may be need of a good personal instructor, as, indeed, there may be in all nerve-training. This instructor will adapt his way to his learner, and will in particular be most careful to graduate. We shall now illustrate graduation in nerve-training for pluck and promptitude and poise as well as for power. We are much indebted to Mr. Flynn for urging and illustrating the vital need of this

* Anyone who takes the trouble can build his own plank, though it is likely to be somewhat cumbrous as well as cold. A special cork-covered apparatus is made by the Sports Manufacturing Company, and can be had of athletic dealers.

gentle step-by-step method from the almost triflingly easy up, imperceptibly, to the almost incredibly hard. He suggests, as a clear example, the pyramid of Fig. 6, which, with one or two of the others, is adapted from those in Heppel's ex-

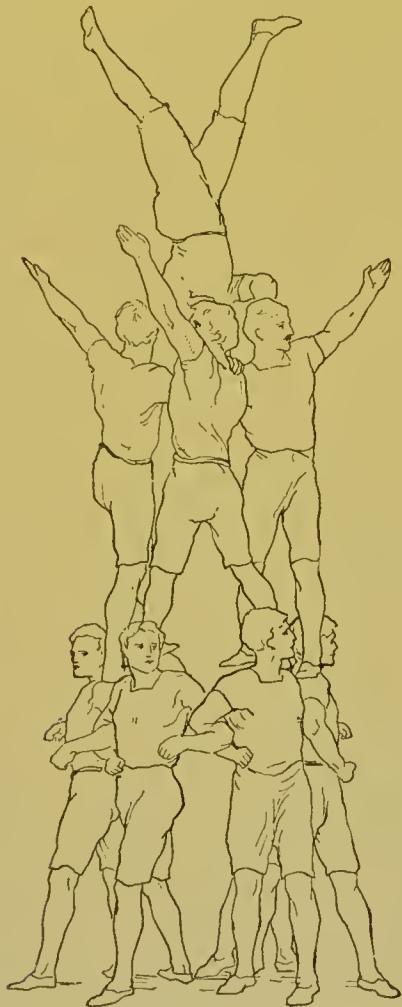


FIG. 6.—THE PYRAMID.
(Adapted from Heppel's excellent book.)

cellent work on Gymnastics. So, again, after the practice of Fig. 9, the mind and the body are better prepared for the independent work of Fig. 12. Fig. 11 gives another example of an easy beginning, to lead up to the balance on the ordinary parallels, and without help.

We should be careful to distinguish this kind of graduation from that of the Ling system; for in the former there is

very decided physical risk, not only of strain, but also of fracture, and there is in the advanced work a severe tax on the

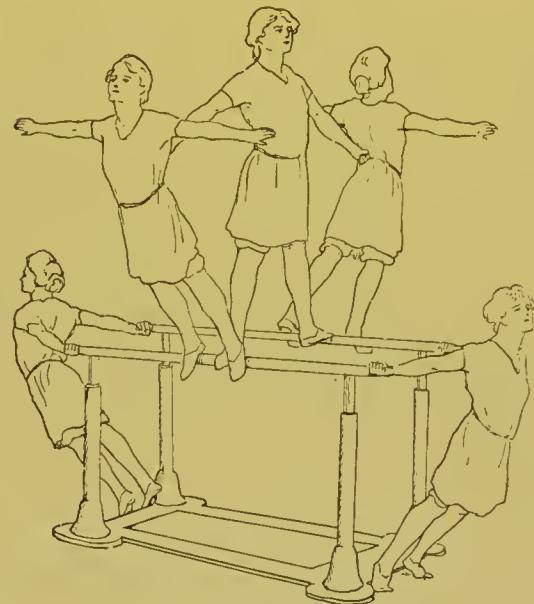


FIG. 7.—THE FINISHED FIGURE.

pluck and promptitude of the mind. In the Ling system and similar exercises there is little risk of fracture from a fall, and there is hardly any call for pluck and difficult poise. The danger element, so dear to the Anglo-Saxon, is almost

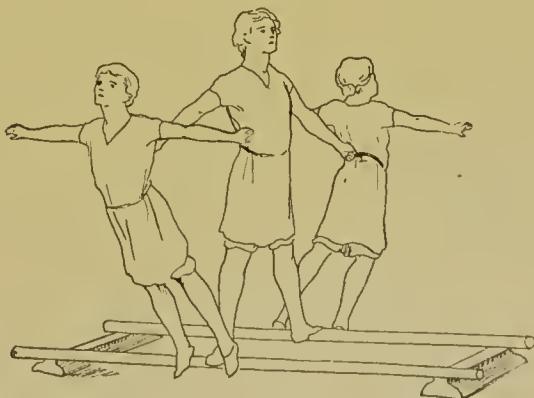


FIG. 8.—PRACTICE FOR THE ABOVE POSE.

entirely absent. Contrast the Ling movements, illustrated in the next chapter, with those of Figs. 7 and 6, led up to by those of Fig. 8.

The principle of graduation is very little recognised in nerve-training at present. Take the case of a soldier who has to learn how to jump from a high plank. He is sent up onto it, and then, perhaps, forced off it, somewhat as if timid boys were thrown into deep water that they might learn how to swim, or as if gymnasts were forced to form a pyramid straight away, before their muscles and nerves had been trained ; or as a person might be compelled to walk along a tight-rope quite high up. Now this *may* train the nerves, or it may strain them almost beyond repair, producing a shock which

he knew was that a burglar was in his room, with a revolver and a lantern. The burglar came up to the bed, and was prepared to shoot the man if he suspected him of being awake. The man controlled his nerves to the extent of not moving a muscle, and he kept this up for three-

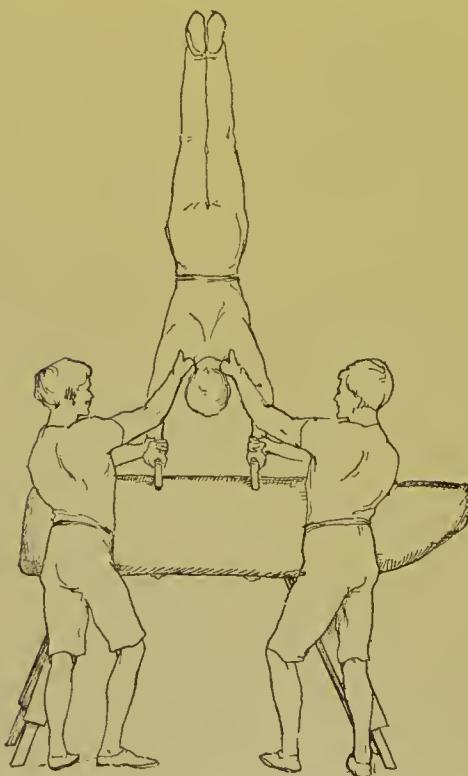


FIG. 9.
(From Nils Posse's book.)

may leave its dread effects throughout life, as in the case of a certain American ; we cite it as an example to prove that violent measures are not always best.

He was in his room alone one night, when he thought he heard someone tampering with his door. The next thing



FIG. 10.
(From Nils Posse's book.)

quarters of an hour, while the burglar ransacked the room, turning at intervals to make sure that the American was still asleep. This three-quarters of an hour *might* have prevented the American from ever feeling nervous again. Having gone through that, he might have been able to face *anything* ; but its actual effect was to deprive him entirely of nerve, and to turn a brave man into what was as near to a hysterical person as possible.

A graduated course would never allow the nervous beginner to be forced off the high plank (Fig. 16). It would first show him how to jump small distances correctly and with least shock ; then gradually it would increase the distance of the jump. Eventually the learner would be able to leap down from a considerable height

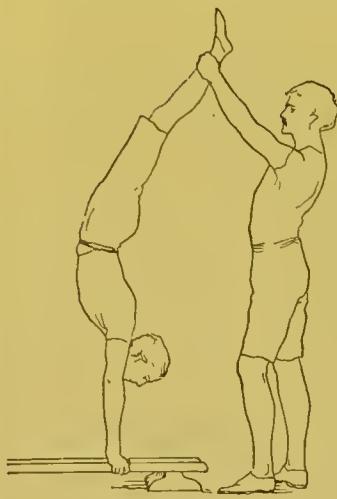


FIG. 11.

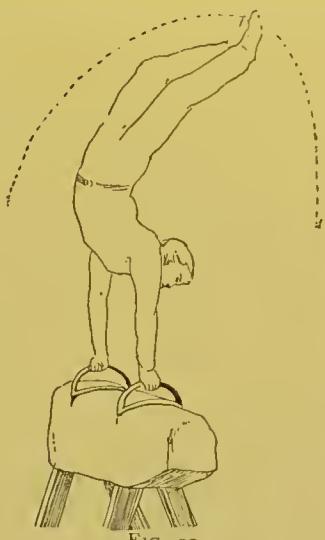


FIG. 12.
(From Nils Posse's book.)

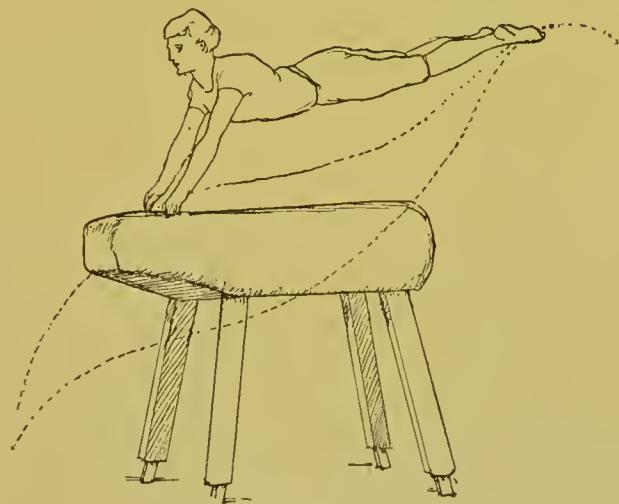


FIG. 13.
(From Nils Posse's book.)

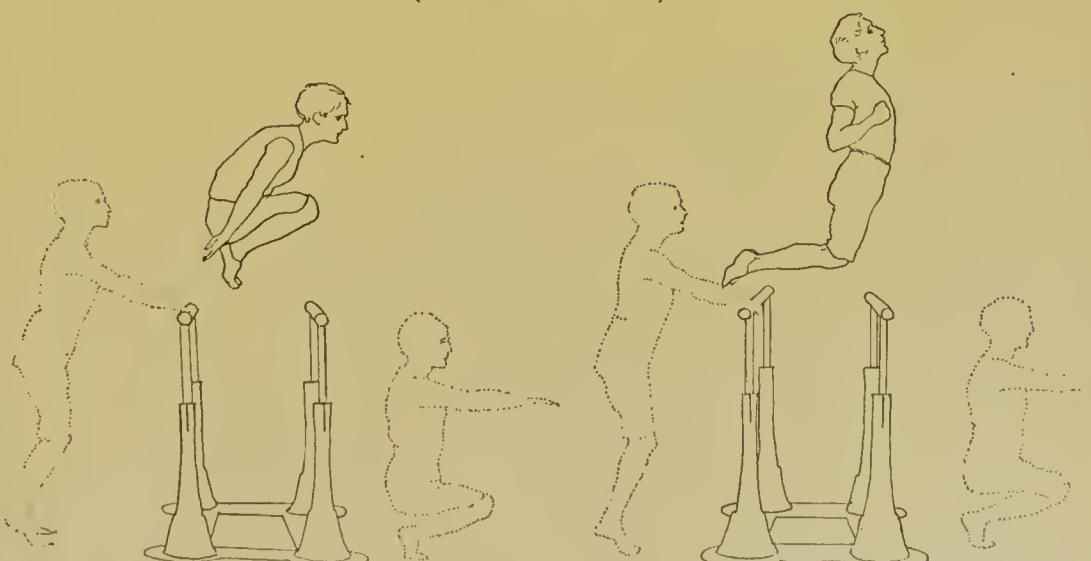


FIG. 14.
(Adapted from Heppel.)

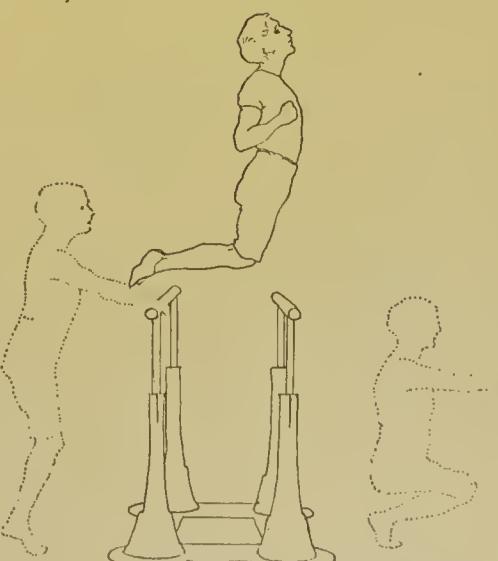


FIG. 15.
(Adapted from Heppel.)

and still keep his rifle in position. So also if the beginner were taught the movements of swimming, and then taken nearly out of his depth and told to swim towards the land, perhaps with the hand of the instructor supporting him, he might soon learn to dive into deep water without a tremor of anxiety. Possibly his first dive might be from the shoulders of a friend standing in the water; somewhat as the pyramid (*see above*) was prepared for by floor-practice or low bar practice. The tight-rope walking, or the walking along a high plank, would be prepared for by walking along a line upon the floor; then upon a cord raised slightly above

the floor; then upon a plank—at first simple, afterwards with an implement or with arms out (as in Fig. 17), or at the double.

What we have to notice is that such judicious training leads in the end to a state of mind very like that of the person who is born brave. At least, this would be the case in the sphere of practice, as in rope-walking, even if in a new sphere (diving) the constitutionally nervous would be far behind the constitutionally brave.

We are not underestimating a certain amount of training by emulation and publicity. At one of the Poor Law Schools we saw the boys ashamed to be cowards because the girls were looking on, and *vice versa*. The boy who alone would not care to face very "stiff" bowling is too proud *not* to face it when other boys are looking on. So, too, of diving and many other things which look much worse than they are. What we do wish to deprecate is violence at the start, as if it were a sound method for most learners. We deprecate this in the training of the nerves as well as of the muscles. We shall, in a later chapter, cite the case of the weak boy or the raw recruit who is told to hang from the horizontal bar and lift up his two stiff legs together till they are at right angles to his body. The strain may be tremendously severe, whereas after a few months of slowly increased strain movements, the feat might be comparatively easy. The mistake is not that

the feat is impossible: the mistake is that it is unadvisable for most at first.

Or, again, take the case of the boy who is too nervous or too weak to climb a rope. At the top he thinks he will be giddy from terror, and may drop from sheer weakness. Gradually, muscle by

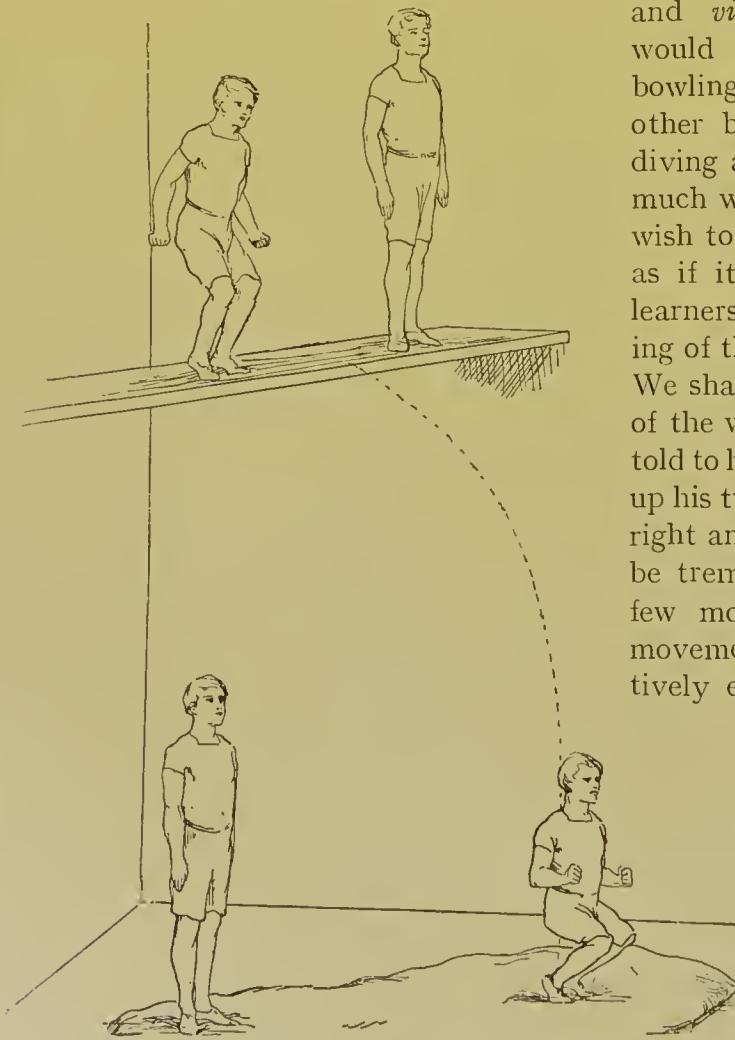


FIG. 16.—THE ART OF JUMPING FROM A HEIGHT.

muscle, he is strengthened and gets more confidence in himself. Spring-grip dumb-bells and ordinary dumb-bells and chest expanders by degrees train him to strength of arm and shoulder and chest. Six months have gone by; he has never climbed a rope once. He is taken to the gymnasium, and shown the knack of Fig. 18 (stirrup leg), and then he climbs that rope immediately and without much effort. He has never been frightened once during the whole course. This is Lieutenant Flynn's favourite principle in the case of a very weak or weak-minded individual. In the same way, several hundred years ago in Germany, boys were trained to jump across a ditch. The ditch was narrow at one end, wide at the other. Each week the boy would move further towards the wide end. The feat, which would have been impossible at first, became quite easy and a mere commonplace.

A contrast will make the point clear. There are two girls, one of whom is frightened of hardly anything, the other of almost everything. Now the nervous girl may, if she is taught step by step, soon come to rival the brave girl on most ordinary occasions. If she is afraid of the dark, let her be taken into dark rooms with someone whom she trusts; or let her be given three matches, then two, then one. In unexpected emergencies the brave girl will be superior to the nervous one, but, anyhow, the latter has improved in a large number of spheres.

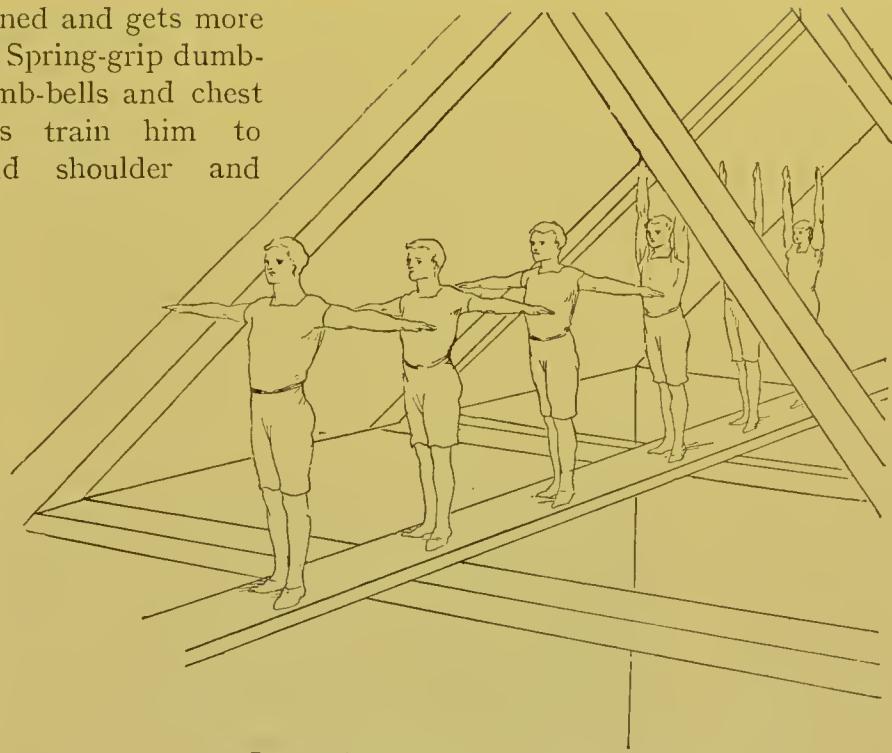


FIG. 17.—PLANK-WALKING IN THE ROOF.

That is better than nothing. Violent measures might have made her more nervous even than she was by nature. So much for training of the nerves by graduation, and especially by graduated exercise. Let us now consider a very different factor.

Much depends on the diet. The Editor once made an experiment with green tea. He drank it three times a day for three days. At the end of that time he found that his hand shook; he spent a sleepless night, and on the next day experienced a queer feeling of shyness in crossing any open space. He felt obliged to creep round a field by the hedges, and he felt utterly disinclined for going out or meeting anyone. There was a general impression that the world was against him. Though he enjoyed a warm bath, he felt a terror of cold water and of bright light. When he first gave up the green tea there was a still more severe



FIG. 18.—THE
"STIRRUP LEG."

depression, though this passed in twenty-four hours, and the permanent effect of the giving up was, of course, satisfactory.

We must refer to a special chapter (on Stimulants, etc.) for the reason why it may be uncomfortable, or even painful, to give them up. We must remember that among the most powerful of stimulants are tea, coffee, and flesh-foods and flesh-extracts.

When you are giving up such things, choose what we may call an off-time, especially a holiday, when no work need be done. During that time use all possible helps to keep up your spirits and energy, and, especially, devise and use recreation. We have at Cambridge a sleepy little puppy which likes to lie before the fire. Two incentives alone move it—one is food, the other is play. It is like the old Romans, the loafers of the market-place, who demanded *their* food and (vicarious) play, their *panem et circensem*.

Recreation is an indispensable part of nerve-training; but what is one man's recreation is, as we have said, another's boredom. There seem to be some national recreations, especially those that involve competition; but beyond these, what may be training for one person in happiness, and may serve as a nerve-tonic to him, may be training for another in ill-temper, and may serve as a nerve-irritant. The question for the individual is, What is my recreation? What makes me fitter for my work than I was before? Is it play, and if so, what play? Or is it

sleep, or half a day in bed? Each must decide for himself, but no training of the nerves is complete without training in pleasure and recreation. For our own part, we have decided to cultivate a few "tricks," not of the elaborate and precise Cinquevalli type, but of a simpler type, including club-manipulation. But if after practice we do not find it a recreation we shall give it up. We see no necessary connection between any training and *ennui*, except in the mastery of the A B C. And even here the *ennui* is due to our stupidity in not finding out the interesting and attractive path. Perhaps if we treated ourselves as children, who turn dull drill into a *game* as (to repeat our illustration) by pretending to fly like a bird or swim like a fish, or leap like a tiger, we should find most of our life quite tolerable.

To sum up, then, we should say:—

Train the nerves gradually, by increasingly difficult and more trying tasks.

Practise the easiest *mental* helps, especially such self-suggestions and pre-suggestions as, "There's no reason why I should worry; it's stupid and cowardly to be anxious." See things in their true proportions.

Regulate the various *expressions*. Remove frownings, grippings, fidgetings,

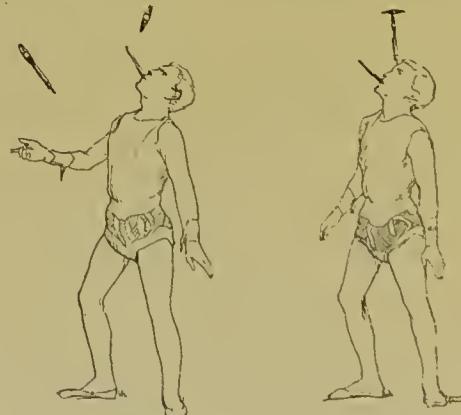


FIG. 19.—JUGGLING AS NERVE-TRAINING.
(By permission of W. Macdonald Smith, Esq., from "Health and Strength.")

by smiling, stretching, relaxing, keeping still, breathing deeply, relaxing again.

Watch yourself and correct yourself until you have restored the normal state of health and happiness. Be patient with yourself, but not too serious, and certainly not obtrusive or priggish. See the funny side of yourself sometimes, as well

as the funny side of the situation. Laugh at it, nicely and kindly.

And take *more sensible thought*—not fanatical anxiety—about what you drink and eat, and how you eat and move and work and rest yourself—especially the last item. Study the flowers of the field, how they rest.



FIG. 20.—WHEN YOU FEEL WORRIED, LOOK AT THESE NICE NATIVES OF CENTRAL AFRICA—AND SMILE.

(By permission of F. Thomasset, Esq.)

CHAPTER XVI.

THE SWEDISH (OR LING) SYSTEM ESTIMATED.

Much in Favour To-day—Its Merits—“Medical” Effects—Neglects Repose of Unused Parts—Uninteresting to many of us—Imitative, not Freely Self-expressive—Little or no Apparatus—No Music—Outlines of the System—Gradual Progress towards Difficult Work—Training of the Trunk—Correct Beginnings—Use by many People Together—Lesson in Control—Allows of Variety—Can be Used Anywhere—Believed in by a Large Public—Careful Advice—But not Complete—Not Adapted to Anglo-Saxon Character—Properly not Broad-Minded to Incorporate the Best of other Systems—No “Abandon” Allowed—An After-note.

FEW systems receive more flattery to-day than the Swedish system, invented by Petter Henrik Ling, who died in 1839. He did not mean to inflict any cut-and-dried chart of exercises upon all the world alike, any more than did Delsarte. Rather, he emphasised *principles*, such as—proceed from simple things learnt thoroughly; attend to the right positions; do neck and trunk movements carefully, not snappily; choose movements that will correct personal deformities; and so on. Since his time many teachers have elaborated their own charts, and if the reader does not already know the system, the illustrations in this article may give him some idea of the more advanced work; let him imagine the exercises being performed, by any number of people, from 1 to 10,000, at a word of command.

This is the system which the Admiralty has recently adopted for the training of sailors, instead of the former and more dangerous practice with ropes and other old naval “apparatus.” And, if we are to believe the teachers of the Swedish system and the other eulogists of it, the Admiralty was altogether wise. For “play is useful merely as amusement after serious work” (obviously the writer never “played”); “it is a mistake to choose

and combine features from different systems” (Baron Nils Posse); “the Swedish system ensures the preservation of health, as well as the cure of diseases” (George L. Melio). We venture on a still longer quotation from an article by Mr. J. H. Yoxall, M.P., in the *Manchester Guardian*. He wrote:—

Swedish drill is not only hygienic, but, one might almost say, medical and surgical in its operation. It strengthens the spine, it reduces inequalities in the height of the shoulders, it helps the natural functions of the body, and in every way is superior to the purely military course which has been foisted upon the schools. Thousands of teachers have spent years in acquiring the capacity to give these hygienic drill courses, and were teaching them with skill and success.

The intelligent reader will have noticed a few points of strength and of weakness. Let us try to set this reader’s thoughts down in writing. But let us first insist that for us as a nation it is not a choice between either the Military or the Ling. It will be part of the work of the PHYSICAL EDUCATOR to show that there are plenty of other good Systems—including the German.

i. Mr. Yoxall’s contrast of the Swedish with the Military system partly accounts for his high praise of the former, especially

The Editor regrets that on p. 171 he put the wrong title under the Illustration of the Matrons at Drill. It should have been "Musical (not Ling) Drill by Matrons at Ipswich."

for the use of children. And the illustrations show how the Swedish is suitable for large groups from both sexes and of most ages. It certainly has several very obvious advantages.

2. But the claims of many of its exponents are arrogant. With the in-

assuredly not attractive to the independent Anglo-Saxon. It is not in the least like the daily work or play of the Anglo-Saxon. It lacks reality and vitality. It is precise, but dull. Indeed, at the People's Palace the pupils particularly requested the teacher not to continue the



FIG. 1.—LING DRILL BY MATRONS AT IPSWICH.

valuable art of *not* using muscles when we ought not to use them, the Swedish system has hardly any dealings. Like all other systems except the Delsarte, its perpetual word of command is "Use, use, use."

3. Moreover, it is rather like a preservative patent food with nourishing elements in abundance, but without attractive flavour. It is uninteresting to many. It needs to be rendered tasty by some means or other. At present it is

Swedish drill, with its regular and almost expected movements at the word of command. The people wanted to express *themselves*, not the teacher.

4. Many of Ling's followers condemn apparatus altogether, or else condemn any apparatus except the very simplest. As we shall see directly, certain kinds of apparatus have distinct merits. The naval "apparatus" has the merit of training the nerves and of appealing to our imitative instincts. The best remedial

apparatus is, in many cases, simply invaluable.

5. Nearly all the followers condemn music. Mrs. Ormiston Chant goes so far as to say, "It is a low ideal of the uses of music, that requires its aid in so second-hand a fashion as the accompanying of skilled movements of arms and legs. . . Musical drill is a pastime." But no military expert, no open-minded teacher can fail to have observed and felt the value of music in due season.

Having cleared some of the ground by this brief talk, we may now describe the Swedish system, and estimate it more methodically, suggesting first the pros and then the cons. It would, of course, be better if the reader first estimated them for himself, in the light of what has been said in previous articles.

This is how a course in the Swedish system was outlined for us by an enthusiastic instructor, who added that in Sweden massage and passive movements belonged to the work as well.

(1) Introductory, especially the correct position and carriage. The attention of the class must be secured.

(2) Leg and balance movements (easy), to help the general circulation, etc.

(3) Neck movements, to give the right position to the head and chest.

(4) Trunk bendings in different directions, to expand the chest and to train the muscles on both sides of the spinal column.

(5) Arm bendings and stretchings, also to help the chest. Some are combined with leg exercises.

(6) Balance (more difficult), to train the muscles of the shoulders and back, and as practice in co-ordination.

(7) Trunk movements (abdominal and lateral), to massage the organs.

(8) Walking, running, and jumping, to encourage flexibility and to make the thought quickly become the action.

(9) Breathing, with slow movements of arms and legs. This is partly in order to calm the pupil after the running and jumping.

(10) Individual corrections. "Play tends to increase the errors of the body."

All the above to be done at word of command, without music.

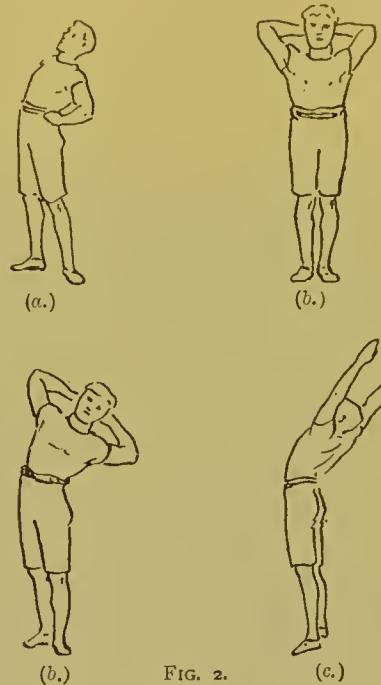


FIG. 2.

Considering the training of the trunk to be a most important matter, we asked another instructor, Mr. T. A. W. Flynn, who has kindly supplied many useful ideas

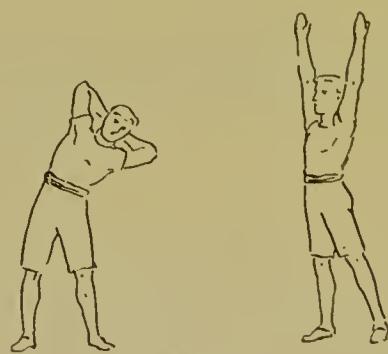


FIG. 3.

for this chapter, to give a specimen of the Swedish plan. He sketched the gradual progress somewhat as follows, explaining that the object was to *lengthen the lever by degrees, and to lead up to harder work.*

i. In the ordinary position (Fig. 2)

bend the trunk from the hips first to the right, then to the left, keeping the hands

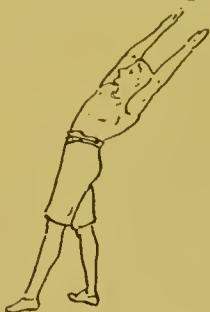


FIG. 4.

(a) supporting the hips, then (b) behind the neck, then (c) above the head. Here there is progress towards strain.

foot. A lunge is a more vigorous and extended movement than a step forwards.

And so on, to harder and harder tasks by slow gradations. (*See Fig. 5.*)

SOME OF THE PROS.

I. The training of the trunk, as well as some training of the limbs and extremities, is universally allowed to be excellent and indispensable. It is not much exaggeration to say, with Melio, that “a correct and continuous application of Ling’s movements will be found to greatly relieve and strengthen persons suffering

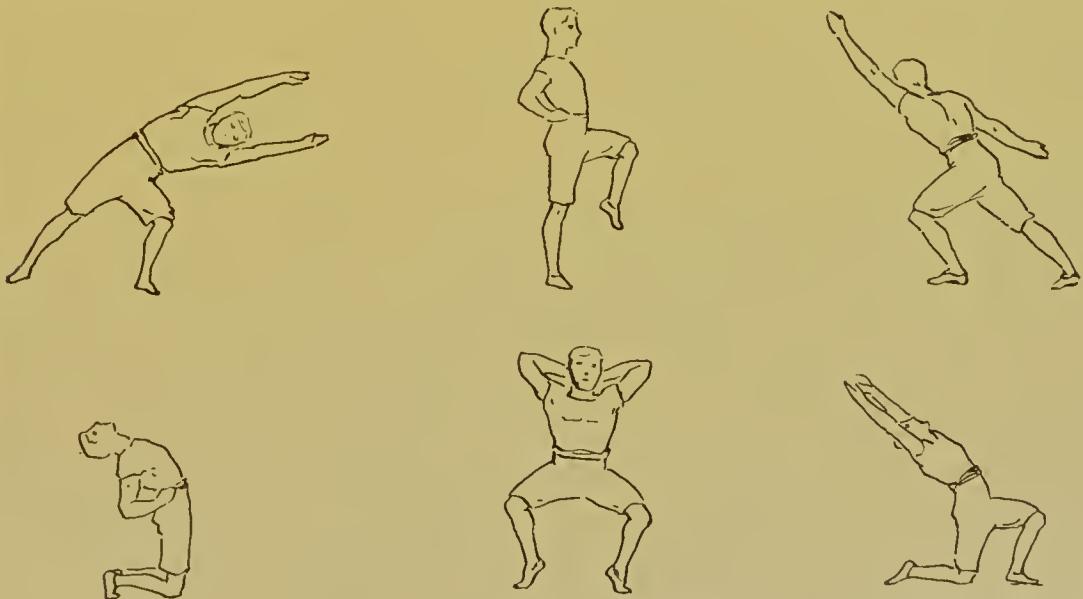


FIG. 5.—SOME HARDER MOVEMENTS.

2. Do the same exercise after moving forwards first the right foot, then (with the right foot back) the left foot. (*See Figs. 3 and 4.*) Fig. 4 shows the trunk bent back first.

3. Do this, but when the right foot has gone forwards twist the trunk round to the right as far as it will go without strain, then bend it to the right and to the left. Do this with the left side, similarly.

4. Do this, but first lunge with the right foot and afterwards with the left

from weak respiration, poorness of blood, bad digestion, asthma, gout, obesity, and heart diseases in the early stages. In all countries where the Swedish system is carried out in its entirety, spinal and other malformations are of very rare occurrence.” But will people apply the movement “correctly” and “continuously”? Let us for the present assume that they will.

II. The gentle advance in difficulty, the progressive exercises in poise, etc., the

passing from the easy to the severe, from the simple to the complex, are an admirable feature of Swedish drill. Think how most of us jump ; we jump *somewhat*. Now see how the Swedish instructor trains us in a more accurate and economical way. We quote from Melio's handbook, from which useful work we have adapted some of the exercises shown in the illustrations :—

"Free leaps . . . are usually made in six distinct movements :—(1) Raising the heels, (2) knee bending outwards, (3) straightening the legs and leaping upwards, (4) alighting on the toes with bent knees and body erect, (5) stretching the knees, (6) placing the heels on the floor. . . .

"The forward leap is executed in six movements, by taking two paces forward from the fundamental position, thence springing forward, alighting on the toes, in knee-bend position, afterwards straightening the knees and placing the heels on the floor."

III. This enables the system to be used by nearly all people, in smaller or larger groups, without the great danger of strain (which accompanies indiscriminate weight-lifting or gymnastics without a good superintendent).

IV. The possibly dull work is a lesson in concentration, self-control, and self-direction under orders. It is also a lesson in remembering a series of movements. The Antwerp drills, of four movements each, were performed each after a description of the four together. (*See Figs. 6 to 8.*)

V. The exercises are particularly good for some physical defects ; the usual weakness of the waist muscles, abnormal curves of the spinal column, etc., are partly remedied.

VI. Attention is paid also to the generally neglected breathing. The breathing exercises to quiet the pupil after quick movements are very sane. The ordinary gymnastic and most other systems, as well as athletics, neglect the breathing almost altogether.

VII. In many respects the system is scientific—*e.g.* in its gradual increase, its culture of "symmetry rather than size," its desire for all-round health rather than sheer strength.

VIII. Moreover, it allows of almost unending varieties and chances of original combinations. Mr. Flynn has shown us many original combinations of his own as a progressive and connected *Series*.

IX. Not only can it be tried by nearly all people (*see the matrons of Fig. 1*), and yet remain a changeable scheme, but it can be tried in nearly all places. It requires little room and no apparatus. That is, as we shall see, at once its merit and its demerit, in contrast with some other systems. Instead of overcoming the resistance of an instrument, the Ling pupil overcomes the resistance of his own weight and his own opposing muscles.

X. There is some competition, but it is mostly of group against group, rather than of individual against individual ; and it is a competition in set movements, not in quick adaptations to unexpected conditions, as in games.

XI. There is some gracefulness, but the aesthetic side is generally neglected. The movements are less a beautiful art than a serious business.

XII. On the other hand, the system has the faith of a large public—which is no small advantage. It has the support of more than one Government.

XIII. It has many institutions and trained teachers.

XIV. It has also several handbooks which give many sample exercises, as well as Ling's general principles, and details of advice as to correct use. A few of these may be cited as instances (from Melio, pp. 37-39) :—

"All knee bendings are preceded by raising the heels. . . . Whilst bending the knees outward at a right angle the body and head



FIG. 6.—SET EXERCISES AT THE ANTWERP FÊTE, 1903.

should be kept erect and the chest thrown forward. . . .

"All head and trunk turnings are first to be acquired in slow time, being subsequently executed quickly, without moving the lower part of the body. The rotary movements can only be successfully accomplished by turning the spine at its axis above the hips, which are to remain in a fixed position, the respiration being full and deep, and the feet resting firmly on the ground, with knees perfectly straight. . . . All trunk movements are to be given with great care. . . . The various commands should be delivered slowly, whilst in the rapid turnings they are to be given with force. . . .

"With the exception of arm raising and sinking, all arm movements are to be executed with great force and rapidity, a distinct pause being made between the flexion and extension."

XV. The orders are in a brief and clear form. Such words of command as "Heels—raise" are better than the old-fashioned "Raise—heels." Personally, we should prefer "Heels—up."

Such is the plea for the Swedish system, and, if it claims so much and no more, we should like it better and respect it



FIG. 7.—SET EXERCISES AT THE ANTWERP FÊTE, 1903.

more. But it has not escaped the cranky advocate, who says that it is the best and the only good system in the world. Before we accept this valuation, let us note certain objections which can fairly be brought forward.

SOME OF THE CONS.

I. In spite of a very few noble concessions here and there, as that "games may be used as recreation and for pleasure," too many Swedish teachers rely on their system alone, and neglect not the weightier matters of the law, but the

(?) lighter matters of the emotions, as if a training could be complete without attention to the various senses and to the interest of the individual. And as to the completeness of development, we believe that Macdonald Smith has been the first to suggest a good exercise for the trapezius muscle (see the article on "What to Demand from Systems.")

II. Nor would it be sufficient, even if all the muscles *were* developed by the Ling system. We need to have the power of using the two sides and the various limbs independently—the power of using the

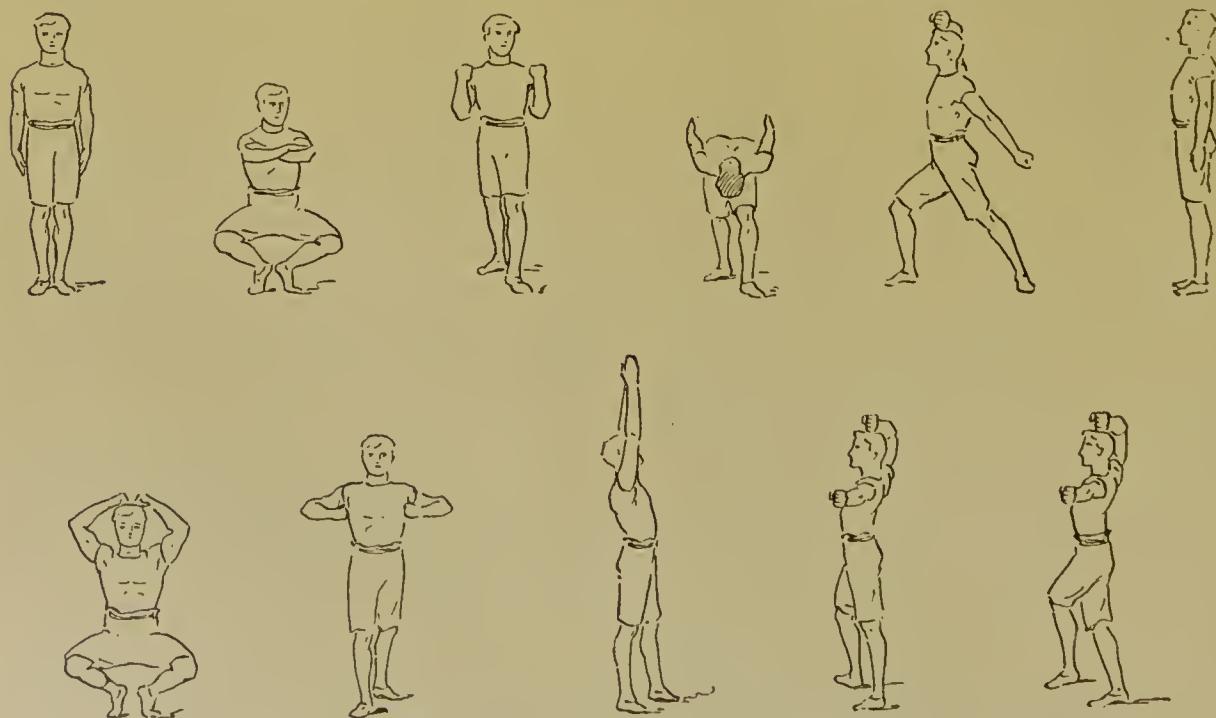


FIG. 8.—SET EXERCISES AT THE ANTWERP FÊTE, 1903.

right arm in this way and the left arm in that way suddenly and to meet a new emergency. The words of Melio, that "the arms and hands should be kept perfectly parallel and straight in the various stretching, flinging, and lifting movements," expose a serious weakness. Unexpected demands may be made for an

certain of the wrist movements--they are not the fullest possible. Indeed, a long and arduous apprenticeship in mechanics and engineering is necessary before a man is fitted to work out a set of ideal directions. If the Ling system sacrificed something to interest, it would be different. But apparently it makes no such sac-



FIG. 9.—SWEDISH DRILL AT THE TRUANT SCHOOL, SOUTHAMPTON.

entirely different set of movements in *actual life* as well as in play. We need not only "development," but control of individual parts, such as is usually the result of the Macdonald Smith system.

III. This latter system excels the Ling in the fulness of the movements in both directions, so that the opposing sets of muscles may be well massaged—squeezed empty of the old blood and made ready to soak up a fresh supply. It is not that the Ling movements are not full. It is that in certain cases—as in the case of

rifice. Most of its movements are in themselves quite uninteresting. They resemble no actions of life.

IV. The art—on which we shall so frequently insist—of not using the muscles which we do not want to use, is, so far as we can gather, thoroughly neglected. When the Editor has suggested it to certain exponents of Swedish drill, they have failed to understand that physical economy and repose of the parts which are engaged in action is an even more important matter than the movement itself. They



FIG. 10.—A LING MOVEMENT FOR BALANCE, ETC.
(Reformatory Industrial Schools.)

seem to have no idea of "stopping leakages" of energy. If the prevention of waste holds good as a principle in business and household management, it holds good in physical training too.

V. Perfectly satisfied with the Ling system of breathing, also, teachers and text-books seem to know nothing of breathing for the special purpose of relaxing the muscles. It is true that the system—all praise to it for this—insists on deep and full breathing after violent exertion. But that is not the same as the Delsartean breathing for repose and relaxation. This special kind is described elsewhere (*see the Courses for Men and for Women*).

VI. But the chief fault of the Swedish system is that it is Swedish, and sometimes forced and foisted upon Anglo-Saxons without adaptation. We criticise it not so much as a system for the Swedish, for it may interest Swedes, but as a system for the British, and especially for the British adults. It is pre-eminently not a system to attract a person to individual practice in his or her own bedroom. As we have already said, most of the movements resemble and recall nothing in life. They miss the point of contact in teaching, for *us*, however well they may suit a nation that has not the play-spirit coursing

in its blood. Though far from pugnacious in spirit, being, in fact, alien to such pursuits as boxing, fencing, singlestick, wrestling, and ball-games, they yet are suited to a military country which desires to train its citizens to strict obedience, and not to develop their free initiative too far. And that is one reason why the Swedish Government supports that system. Directly the pupil invents his own way of performing some movement, though it may be a better way than Ling's, he is "wrong."

VII. But the Ling is inferior to the military in an important respect—namely, that it rejects the help of music altogether. Now, we grant the disadvantage of music when it is always relied on, and when all movements become rhythmic. But it is undoubtedly an attraction, and prevents or removes fatigue (even though it may lead to over-exertion). The person who has learnt with music can afterwards work independently of the piano, etc., if he hums to himself, or if he sings out loud—a practice forbidden by the Swedish. As well might one forbid singing and shouting during play or bathing. The fact of it is—let us be brutally candid—that to vast numbers of people the Ling system is insufferably dull, and, however hygienic and systematic it may be if it is practised,

simply will not be practised without some motive, just as certain nourishing foods will not be eaten (or else will not be digested) without some flavour. And the flavour is, to some, the fact that a word of command is given (why not a Ling phonograph?), to others that they are working in groups imitating and co-operating, but to others that there is music. The prohibition of singing is narrow and inhuman, an exaggeration of a sound principle—that it is not advisable for weak people to sing during severe work. The theorists have forgotten, also, that *certain* movements (such as walking) *should* be performed rhythmically and with a musical swing, since this minimises the effort.

VIII. Interest would be given to part of the drill if more apparatus work were allowed. Some teachers allow no apparatus work whatsoever. Now, anyone who carefully studied English gymnastics as taught in our Army and in some of our public and other schools—a dull and perfunctory (yet severe and even dangerous) drill with old-fashioned vaulting-horses, etc.—might well condemn apparatus. So might he if he saw an already stiff boy using a spring-grip dumbbell. But our best English teachers, as in the excellent German system, graduate their

work, leading the pupil insensibly on from ease to difficulty. Such teachers know that clubs and wands and light dumb-bells, parallel-bars and pommelled vaulting horses, ropes and rings and ladders, when properly used, are simply invaluable. They give the learner of exercises a concrete and “sensible” object to overcome: that is a great inducement to steady practice, for the progress is very easily measured. They encourage a friendly rivalry, whether between individuals or between groups. They foster the finest kind of John Bull spirit—namely, that competition against one’s past self, which may begin as competition against others. Moreover, good apparatus does train the nerve, which is neglected by Swedish drill; for against its safety we must set its tameness. It lacks the element of danger and adventure so dear to our race. To be plucky, to keep one’s head, to overcome an obstacle outside one’s self—such is the result of a proper use of the best mechanical devices. The mere fact that free movements are needed as well as, and, indeed, before, the use of most apparatus, is no reason why apparatus should be rejected. Nor should we forget that, although we may not have parallel-bars and vaulting-horses in our own houses, yet we can get, as substitutes,



FIG. II.—A SPLENDID LING MOVEMENT FOR THE TRUNK AND SHOULDER MUSCLES.
(Reformatory Industrial Schools.)

tables, chairs, beds, and planks, etc., to say nothing of the floor and the walls.

IX. Last, but not least, the Ling system seems to us to be more on a par with learning how to form letters, how to write straight, how to spell words, and how to copy model sentences, such as "Honesty is the best policy," and "Cleanliness is next to godliness," "*Mens sana in corpore sano.*" Good! But that is not a free letter to a friend, nor a masterful yet tactful letter to an opponent. It is the reproduction of another's letters or platitudes.

The Ling system is pre-eminently and fundamentally one of obedience to discipline and correct imitation of a model. It lacks the *abandon* of a romp, it lacks the initiative, the rapid answer to an opponent's move, which we get in Cricket and Football and other games when they are played properly. However skilful the teacher may be—and let us note that he has to be very skilful to teach the Ling system really well—directly they allow *abandon*, directly they let each member of the class act as his or her own sweet will directs, they are out of the Ling system, and actually opposing it; for its spirit is attentive and concentrated and correct work, we grant, but work that is devised and started by another, the teacher commanding the pupil at every moment, and saying, "Be myself," not "Be yourself." In other words, it is only a part of the alphabet and of the words of the physical life—only a part, since it neglects muscular and nervous economy, muscular strength, and the power to meet danger with a calm

and clear head. It is not free writing or free speech or free conversation with another. It is, as it were, most of the pages out of a dictionary, not the spirit of a living book.

Yet in our present groping after the definite it stands out and beckons us as a workable system, good in its place, good in addition to relaxing, games, athletics, dancing, singing and voice-production, swimming, country life, manual training, and so on. It is not complete. To many Anglo-Saxons, and particularly to adults (in contrast with children, who like to be drilled), it is not interesting. Some of its most prominent exponents—we know of several striking exceptions—are not open-minded; they are wanting in human sympathy and a knowledge of the prevailing weaknesses of mankind.

In a word, these theorists and teachers too often forget that, while it is essential for them to have and to hold an ideal, they must keep their feet on earth and come down to the actual human being, who, dear soul, is an individual with his or her own likings, and with different desires at different times.

After-note.—In answer to the above criticism, the Editor was told that some Ling teachers have added such games as Hockey, and allowed children to pretend that they were imitating signal-posts, birds, etc., and taught muscular relaxing. He considers these additions excellent. They are an improvement on the Ling system. But they are also utterly alien to the Ling system as Ling himself understood it.

CHAPTER XVII.

BOXING AND FENCING.

BY THE EDITOR AND HIS TEACHER.

ILLUSTRATED FROM PHOTOGRAPHS, BY C. I. MANN, EALING,

Of Lieut. T. A. W. FLYNN (of the St. Andrew's Gymnasium, Ealing) and Mr. H. H. BURDETT.

Value of an Expert and Patient Teacher—This is a Chapter to Teach Foundations—The Up-to-date Instructor—Some Reasons why we Dwell on these Two Arts—Economical, Feasible, Attractive, and with a Definite A B C to be Mastered—Why Master the Correct A B C?—It gives more Confidence, more Enjoyment—Practice will Help, not Spoil, Recreation—Boxers and Fencers are Foot Men—The Feet as Foundations—Good Effects of Boxing and Fencing as Many-sided Training—Control—Independence—Reverse Side should be Practised also—Boxing and Fencing Contrasted—Neither is a Perfect Exercise—Bedroom Practice—Helps to Fitness—Left-sided Play as a Handicap—Special Merits of Fencing for Women—A Sample Exercise—Lieutenant Flynn's Special Introduction to Boxing.

THE Editor does not box well nor fence well, but he prides himself on being a good learner and what Mr. P. F. Warner would call a "trier." He first thought over these two arts (remembering what he had tried to learn of them years ago), and wrote down some of their obvious merits. Then he began to treat himself to a course of exercises with a view to improvement. Afterwards he went to an experienced instructor, Mr. T. A. W. Flynn, and here are the first lessons in brief, illustrated by photographs (we wish to thank Mr. Burdett), and specially devised for beginners. The Editor's object was not to arrive at great skill, but to master the elements, and to learn and practise what a beginner was likely to find most useful. He wished to reach about the same stage as he wishes to reach in club-swinging.

Mr. Flynn belongs to the ever-increasing up-to-date school which makes pupils work with the left or reversed side also, insists that they shall take pains in mastering the groundwork and first elements, adapts the teaching to the individual pupil, and interests the pupil by explaining the reasons.

Mr. Oberholzer, of the Northampton Institute, has interested his pupils, in a different way, by turning fencing practice into a free movement drill, working on the lines that were suggested by the Editor in a work of his some years ago. Instead of the meaningless lunges of the Ling system there was a somewhat similar lunge but like the lunge of fencing, with some wrist-play added. That is certainly a step in the right direction.

There are three chief reasons why we have decided to give so large a space to the subject of Boxing and Fencing. The first is that a small space almost anywhere is sufficient for them or for the practice of them. They are pre-eminently adapted to the conditions of modern life and city life. The second is, that they are attractive and exciting for Anglo-Saxons, inducing them to play with attention and energy and enjoyment, yet compelling restraint and fairness and courtesy, which city business unfortunately does not succeed in compelling. The third is, that in them the A B C—and particularly the right mechanisms

of the feet and legs for poise and promptitude and power—must have been mastered if due success and pleasure are to result; and that important letters of this A B C are already generally agreed on (especially the correct use of the punch-ball, and the correct technique of lungeing and advancing and retiring), and generally practised without any accusation of crankiness. In a word, to express a few of the merits of these exercises in terms of *v*, they are available very nearly everywhere, they encourage vim without viciousness, they vindicate the virtue of good previous devotion to drill as eventually an invaluable investment.

Many excellent books and articles have been written on boxing and fencing, and many teachers teach the arts well, while cheap and bad books and cheap and bad teachers also abound. To the best books and teachers we must refer for special instruction, since our few

pages can only offer a few hints to beginners who wish to train themselves up to a certain point. We cannot teach them to box or to fence; at the best we can show them how to teach themselves the fundamental positions and movements of boxing and fencing. When they come face to face with an opponent, that is a different matter; but they are likely to succeed better, and enjoy themselves more, if they have first learnt the mechanisms which they will want to use most frequently. So, in swimming, we cannot learn the swimming without water, but we can learn the movements of swimming on land; then there is likely to be more confidence when we go into the water. We may feel almost as if we were mechanical toys wound up. They have come out of a shop, and have not yet been tested by the water, but we have seen them working very nicely on land, and we believe that the movements will be effective in the water also. So when people are trained to shoot or

POSITION OF THE HANDS.—
THE RIGHT HAND SHOULD BE ACROSS THE MARK JUST BELOW THE RIBS, THE LEFT SHOULD BE KEPT ABOUT THE HEIGHT SHOWN IN THIS FIGURE—THAT IS TO SAY, ABOUT AT RIGHT ANGLES TO THE ELBOW. ALWAYS KEEP THE LEFT ARM MOVING FREELY WITH A SORT OF CIRCULAR MOVEMENT AND NEVER LET IT DROP BELOW THE BELT. NOTE ALSO THAT YOU SHOULD NOT BEND YOUR WRIST, AND THAT YOU SHOULD NOT CLENCH YOUR HAND EXCEPT WHILE YOU ARE ACTUALLY STRIKING.

POSITION OF THE FEET.—
FIG. I ALSO SHOWS THE "GUARD" POSITION. WE DO NOT THINK IT ABSOLUTELY IMPERATIVE TO KEEP STRICTLY TO ANY SET RULE HERE,



FIG. I.—POSITION OF THE HANDS AND FEET.

THOUGH THE FOLLOWING POINTS SHOULD BE BORNE IN MIND :—

1. KEEP THE FEET ABOUT FOURTEEN TO EIGHTEEN INCHES APART, ACCORDING TO YOUR HEIGHT.

2. KEEP MOST OF THE WEIGHT OF YOUR BODY ON YOUR RIGHT LEG, WITH ITS RIGHT FOOT FLAT ON THE FLOOR AND ITS TOES TURNED SLIGHTLY OUTWARDS. THE FRONT FOOT MUST POINT STRAIGHT IN A LINE FROM THE BODY, AS IN FENCING, AND THE FRONT FOOT MUST REST ON ITS BALL.

3. AVOID MUCH BENDING OF THE KNEES, AS THIS IS APT TO BE TIRING. (BOXING IS HERE IN CONTRAST WITH FENCING.) AT THE SAME TIME THE KNEES SHOULD NOT BE STIFF, BUT READY FOR ANY SUDDEN SPRING BACKWARD OR FORWARD.



FIG. 2.—LEFT-HAND LEAD.



FIG. 3.—A WRONG LEAD.

STEP IN QUICKLY WHEN YOUR OPPONENT'S HANDS ARE LOW. SWING YOUR LEFT SHOULDER FORWARD FROM THE HIP, AT THE SAME TIME HITTING OUT IN THE STRAIGHT LINE. GET PLENTY OF "KICK" OFF THE RIGHT LEG, AND MIND THAT THE TOE OF THE LEFT FOOT IS STRAIGHT TO THE FRONT, NOT AS IN FIG. 3. TO "GUARO," RAISE THE RIGHT ARM TILL THE HAND IS NEARLY LEVEL WITH THE FOREHEAD. TURN THE PALM PARTLY OUTWARD, SO THAT YOU MAY AVOID THE FALL OF THE BLOW UPON THE BONE OF YOUR ARM INSTEAD OF UPON THE MUSCLE.

FIG. 3 SHOWS A THOROUGHLY WRONG LEAD, WITH THE TOE OUT OF THE STRAIGHT LINE, AND HENCE THE HIT PULLED OVER.

ride, it is something to know what the correct positions and movements are, before we meet the disturbing element of the noise and the kick of the gun, and the movement and perhaps the kick of the horse. The boy who in a street-fight swings round his arms like a horizontal windmill, will lose his balance, and meanwhile be hit on the nose by the smaller and weaker boy who has learnt the force and speed of directness. The straight hit from the shoulder shows that the latter had known or practised that simple little item of mechanism beforehand.

It is not chiefly as a training for the shoulder, nor, indeed, for the muscles, that people will wish to box and fence. They will seek them as recreations and for the fun of the game. And here let us at once do away with the fallacy that, because a thing is a recreation, there-

fore we should not prepare for it carefully and seriously. Loose thinkers by the thousand say that if the preparation for the thing is serious, the thing itself will be serious also. How little they know of the human mind! It is just the opposite in reality. Let a person have a correct mechanism, and he will enjoy the use of it; he will concentrate his mind on the game; *he will not have to think of the mechanism at all; he will use it as a neat tool or weapon;* he will get all the more pleasure out of it because it is neat, because it does what he wants it to do, while he himself enjoys himself by thinking of the tactics and living in the play.

Nevertheless, the training of the body is a real reason why boxing and fencing should be learnt. We are apt to look at the expert and to make a great mistake about what he is doing. We see

the boxer hit hard; we see the fencer lunge forcibly and fully. The boxer is supposed to be the man of fist, the fencer the man of wrist.

Both are pre-eminently foot men. There is an old legend in Germany of a mother who wished to train her son to perfect manhood, of mind as well as body. She put him in charge of someone whom she respected for his knowledge. This teacher told the boy to devote many months to the culture of the feet. The boy could not understand what this meant; yet he started very much as a man going through the Sloyd system might start to make a little wooden ruler. He did not know how to begin, and considered the task trifling and out of proportion. At the end of the period, however, he came back to his teacher delighted; and so the training of his body proceeded gradually.

Now the training of the feet is of vast importance, not only for games and athletics, as Mr. C. B. Fry has often pointed out, but perhaps for many reasons which would sound like the theories of a faddist or crank if we were to mention them; but here is a simple illustration, which we have given elsewhere, from lawn tennis. The feet are the foundations of your building. As your feet are placed, so will your building be placed. They are the legs of your clock. Your right arm is the pendulum of the clock. You wish that right arm to move with a free movement. The body is so made that the arm will move thus in a certain direction—that is to say, when the body is facing in a certain direction, the freest movement of the arm will be in a certain direction also. So get the feet right, and there will be a natural swing or lunge corresponding to that position. First be sure that you are in the

right direction, then perform your action.

It is as if a boy were going to take up some profession in life. If he sets himself in the right direction, then he can go ahead satisfactorily; but to take up the wrong profession and to go ahead may mean failure and misery. Possibly the finest hits at cricket, the finest drives at golf, the severest blows at boxing, the most killing lunges at fencing, have never struck the mark at all. They were perhaps made at the wrong times, though that would not apply to golf. It is more likely that they were made in the wrong direction. Now in a bedroom we are not likely to learn much about timing, but we can learn much about direction, and the direction depends largely upon the positions and movements of the feet. Those who would find the Ling drill of the feet extraordinarily dull would not grudge the time spent if they knew that after a time they would box and fence with greater success.

Boxing and fencing themselves are magnificent training for the eye, and for the power of calculation and anticipation—that invaluable instinct. But even these great powers, the powers of seeing, judging and pre-judging accurately, are not properly effective unless we have good tools to use. The Psalmist says, "My tongue is the pen of a ready writer." The writer may be very ready—much too ready; but he will not succeed duly if he has a crossed nib or a blocked fountain-pen; and the tools of the boxer and fencer are not merely his fists and wrists—they include his feet, his trunk, his poise and power of adaptation.

In both these games, if we may call them so, full force may have to be used, and the balance rapidly recovered afterwards; or, on the other hand, partial force may have to be used.

So diplomacy comes in—a power of concealment, a certain power of deceit within the limits of fairness. There are great laws which must not be broken. One may pretend to aim at one place, then aim at another; but one must not, for example, draw the opponent's attention to an imaginary object, or

anywhere without making a fool of himself; he can protect those who are weaker than himself. This will not usually lead him to abuse his strength and skill; only he will feel that he can act freely, and as a man should. We may compare him to the man of independent means employed in business.



FIG. 4.—LEFT-HAND BODY-BLOW AND GUARD.

AIM THIS BLOW AT THE PIT OF THE STOMACH, WHICH IS USUALLY CALLED "THE MARK." SOMETIMES YOU WILL FIND IT SERVICEABLE TO MAKE A FEINT AT THE HEAD FIRST, SO THAT YOUR OPPONENT MAY THROW OPEN HIS RIGHT-HAND QUARO. AS YOU STEP IN FOR THE HIT, OUCK TO THE RIGHT, AND TURN YOUR KNUCKLES DOWN AS YOU MAKE THE HIT. BE SURE THAT YOU ALWAYS HAVE ENOUGH ROOM BEHIND YOU TO GET WELL AWAY AFTER THE HIT. IN THE QUARO, PRESS YOUR ARM CLOSE TO YOUR SIDE, RECEIVING THE BLOW ON YOUR ELBOW. THUS YOU WILL AVOID THE JAR WHICH YOU WOULD FEEL IF YOU HELD YOUR ARM LOOSE.



FIG. 5.—RIGHT-HAND BODY-BLOW AND GUARD.

DELIVER THIS HIT IN THE SAME WAY, EXCEPT THAT NOW YOU OUCK TO THE LEFT INSTEAD OF TO THE RIGHT. TO GUARD THIS HIT, BRING THE LEFT SIDE FORWARD AND DROP THE LEFT ARM, SOMEWHAT BENT, AGAIN CLOSE TO THE SIDE, PRESSING THE ARM WELL IN FOR THE SAME REASON AS BEFORE.

shout, or otherwise put him off. Fair play is an invariable rule in these two games, as it is not in business or politics.

And they are training in control of the most general kind—control not only of feet, weight, and extent of movement, but also of temper.

This training of the body and of the temper leads to self-respect. Besides, the man who can box feels that he can go

This man is told to do something which he knows to be dishonest; he refuses; his master tells him he must either do this or go. He says, "I am independent; I prefer to go." He has the means of self-defence against starvation or discomfort. The man who can defend himself is in a somewhat similar situation.

But boxing and fencing are not yet practised in the most valuable manner.

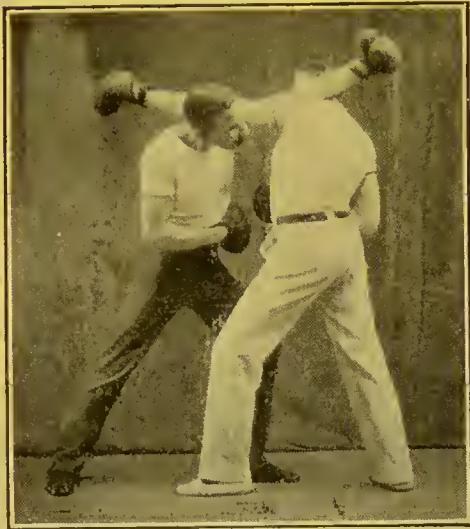


FIG. 6.—THE COUNTER AND DUCK.

BOTH MEN ARE HERE SHOWN HITTING AND "DUCKING" TO THE RIGHT. "DUCKING" IS ESPECIALLY USEFUL WHEN YOU ARE BOXING WITH A BIG HEAVY MAN. IT SHOULD BE PRACTISED THOROUGHLY. YOU DO IT BY LOWERING THE BODY SLIGHTLY, AND THROWING THE HEAD ON ONE SIDE. (THE TRUNK AND NECK EXERCISES IN THE "COURSE FOR MEN" WILL BE FOUND USEFUL.)

The reverse side is too often neglected in fencing. It need not be developed actually to equal the right side; but occasionally the man should play his game with his body reversed. It will almost turn the old into the new game; from quite a good player he becomes a duffer, and has plenty of fresh things to learn. The Editor's first attempts to play racquets left-handed were simply ludicrous.

The end and aim of boxing and fencing, however, is not to box well and to fence well, nor even to have learnt to breathe better, to last longer, to be more alert. The arts are chiefly of value for the qualities they produce, and especially, as we show in another chapter, as training for the nerves.

We will now consider them in turn, showing some of their particular merits, and offering a few exercises for home-practice.

In boxing, as in fencing and most

forms of athletics, the reverse side should be practised as well as the right—that is to say, the person should stand as if he were by nature left-handed. In estimating the arts we shall assume that both are practised in their reverse way also.

Boxing and fencing are alike in many ways, but they test somewhat different qualities. Whereas they both test accuracy, *finesse*, enduring strength, and good "condition," without loss of flexibility, boxing especially tests the wind. Five minutes of boxing might leave a weak-lunged man quite "puffed" and tired for the time being, whereas that same man, owing to a certain strength of arm and wrist and leg, etc., might be able to stand a long spell of fencing, though, of course, it is *possible* for boxers to play a very sedate game. We have actually seen tennis "players" sedate in the court.

Private practice is probably easier for the boxer than for the fencer. Although one may lunge at some object, or may follow the movements in Mr. Flynn's

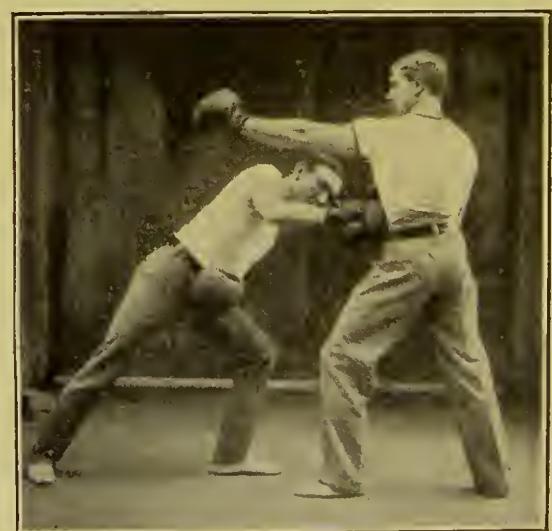


FIG. 7.—RIGHT LEAD ON BODY, WITH GUARD.

IT IS USEFUL TO PRECEDE THIS RIGHT LEAD BY A FEINT AT THE HEAD WITH YOUR LEFT AND TO DUCK TO THE RIGHT.

photographs, yet there is not the same reality here as in the use of the punch-ball. There is more life about the punch-ball, and more resemblance to a real opponent.

But in both alike there is need of correct position of the feet for control of balance and direction too, and for recovery of balance after a severe movement, of observation and alertness, and adaptation to new conditions. We remember the case of a man who could box very little, and who met a big bully in the streets of Oxford. He knew that he was no match for this bully at close quarters, so he described his tactics as "buzzing around." Eventually, the bully became giddy, then darted the little wasp, and left his stings.

In some ways boxing differs considerably from fencing. In boxing, the trunk and the neck move sideways and twist. Thus study the positions of Figs. 8, 11, 12. As one strikes now with one hand and now with the other, both sides are used, though not necessarily for the same purpose, the left being often the attacking and the right the defending side, though of course there are many exceptions. Both the trunk and the neck are moved sideways in order to dodge the opponent's blows.

Besides the control of the sideway twistings of the body, the control of the temper is perhaps more severely tested in boxing than in fencing, in so far as a hard blow at boxing may really hurt—the skin, as well as the pride.

Both are exercises in concentration as well as in control. In both it pays to use as little as possible the parts which are not required, to keep them not tense and rigid, but ready to help the other side.

Neither boxing nor fencing are perfect exercises. In boxing, as in fencing, there are few free sweeps of the arms such as one would get in sword play or lawn-tennis; nor is there much of the full free sweep of the leg from the hips, and the kick of the leg forwards or backwards, except in the French variety of La Savate; which certainly should be tried occasionally, if only

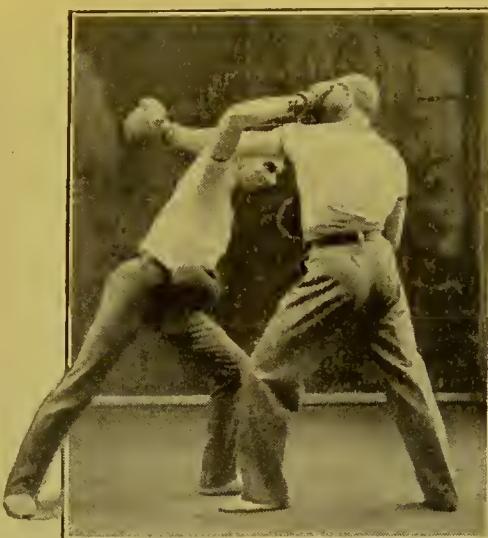


FIG. 8.—RIGHT-HAND CROSS-COUNTER.

THIS IS THE MOST SEVERE BLOW IN BOXING. AS YOUR OPPONENT LEADS OFF WITH HIS LEFT, YOU DUCK TO THE LEFT, AND SHOOT OUT YOUR RIGHT HAND ACROSS AND DUTSIOE HIS LEFT ARM, AND OVER HIS LEFT SHOULDER. TURN DOWN THE PALM OF YOUR HAND. DRAW BACK YOUR LEFT HAND READY FOR A SECONO BLOW, IF POSSIBLE, BEFORE GETTING AWAY. IN THIS BLOW THE IMPORTANT THING IS TO GET PLENTY OF SWING FROM THE HIPS. THIS YOU HELP BY JERKING BACK THE LEFT ARM AND SHOULDER. DELIVER THE BLOW AS NEAR TO THE POINT OF THE CHIN AS POSSIBLE.

for this reason, that it gives a better control of the legs as a whole. If gymnastics tend to make the arms serve as legs, Savate tends to make the legs serve as arms.

Needless to say, among the most useful exercises for boxing is bedroom or gymnasium practice with the punch-ball. Mr. C. B. Fry, in an excellent little chapter on Cricket, settles once for all the advantage of bedroom practice in making

perfect a mechanism which one can then employ without thought during the play itself. That is what the punch-ball will do. It will also move about, and to some extent represent an opponent. It is very useful for the practice of "head play." Special exercises are given in another chapter on apparatus.

In boxing, as in fencing, one has to possess the proper foot and leg move-

keeping his face towards the imaginary opponent. Notice, for example, Figs. 11 and 12.

Trunk movements must also be mastered which are not required for fencing. To be able to bend the body from side to side, and then recover the original position; to be able to bend the neck from side to side, and then recover also; to be able to bend the trunk in one direc-



FIG. 9.—LEFT COUNTER AT THE HEAD.

AS YOUR OPPONENT LEADS WITH HIS LEFT, INSTANTLY PUT UP YOUR RIGHT-HAND GUARD, OR DUCK TO THE RIGHT AND SHOOT OUT YOUR LEFT HAND AT HIS FACE.



FIG. 10.—UPPER CUT.

THIS FIGURE SHOWS A LEFT-HAND "UPPER CUT." WHEN YOUR OPPONENT LEADS OFF AT YOUR HEAD WITH HIS LEFT AND HOLDS HIS HEAD DOWN, YOU CAN DIVE THIS BLOW thus:—GUARD YOUR FACE WITH YOUR RIGHT ARM, STEP IN, AND HIT UPWARDS WITH THE LEFT.

ments. There is here the straight lunge with the left foot, and the recovery. There is here, as in fencing, the art of moving backwards or forwards in "the ready;" but there is far more sideway movement. The man that can only tackle an opponent who keeps directly opposite to him may be entirely nonplussed when he meets an opponent who, like our above-mentioned friend, "buzzes around." He must be prepared to move in "the ready," not only backwards or forwards, but also sideways and round,

tion and the neck in the other, always recovering the original position, the "ready," immediately afterwards—this is healthy for the body, but hard for the beginner. The best way will be to watch a really good boxer, determining to close your eyes to his arm and foot movements, and simply to observe his trunk, and afterwards his neck. You will then see how important a part its twists and turns and bendings play in success.

Useful alike for boxing and fencing is massage, which helps to remove fat, to

increase the circulation, and to "limber" the various joints. Massage will be dealt with in a special chapter.

Breathing has already been considered. Without a good wind, how can an ordinary man keep calm, and preserve what is known as a good eye? The man who is puffed does not see clearly; and, even if he saw clearly, he would not be able

boxing and fencing, endurance is likely to tell, except in cases of supreme skill, when the battle is won in a few moments or minutes. A simpler diet, especially when once it has become a pleasanter diet, also gives the best chances of success.

But, let us repeat, both boxing and fencing are imperfect as physical culture.



FIG. 11.

SLIPPING.



FIG. 12.

"SLIPPING" IS EFFECTIVE WHEN YOUR OPPONENT IS THE KIND OF MAN WHO WANTS TO "WIPE YOU OUT" AT ONCE. AS HE RUSHES AT YOU WITH HIS LEFT, DUCK YOUR HEAD TO THE RIGHT, AT THE SAME TIME STEPPING ABOUT EIGHTEEN INCHES TO THE RIGHT WITH THE RIGHT FOOT, AS IN FIG. 11. FROM THAT POSITION INSTANTLY PIVOT ON THE RIGHT HEEL TO THE GUARO POSITION OF FIG. 12. AS YOU DO THIS SLIP, TRY TO GET IN A HIT ON YOUR OPPONENT'S BODY OR ON HIS FACE. IN EITHER CASE AT ONCE COME TO THE GUARO POSITION WITH THE LEFT FOOT IN FRONT AGAIN.

to send quick and sure messages to his various limbs. His nerves are jangled and out of rhythm. Whereas he who controls his breathing, controls not only his temper, but also his eye. He sees better, and directs his movements better and with less effort.

Of diet we cannot speak here, except to notice that a "free" use of stimulants and narcotics, including tobacco (especially cigarettes), is generally found to be bad for the wind and endurance. In

Even with the other means of self-defence, such as Savate, Jujitsu, cane-play, sword-play, etc., they still are imperfect. They must be supplemented by other exercises, as well as prepared for by such exercises as we recommend, to which we may add some of those in the courses for men and women, especially the crouching.

Fencing is as good an exercise for the left side as for the right, and—let us

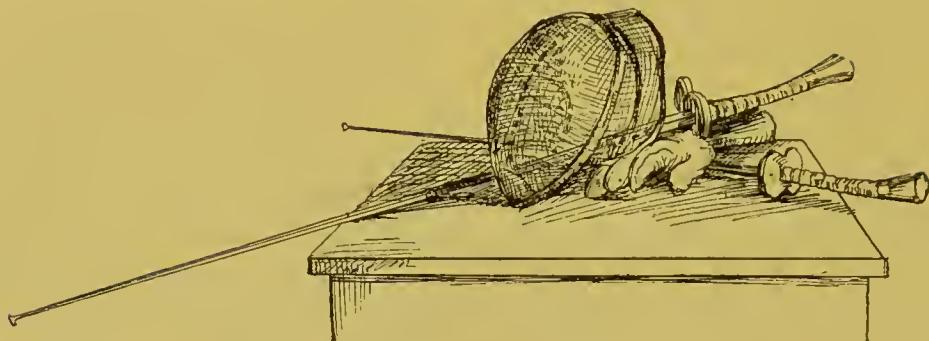


FIG. 1.—EQUIPMENT FOR FENCING.

insist once again—should be practised with both sides, if only to show one how awkward one is! Why should one be so awkward? There is no reason, except that other people are equally awkward, which is a poor reason at the best. We shall speak elsewhere of the training of the left side. Here let us urge, in favour of it, that it serves as one of the best *handicaps*. Let any man in the first class play lawn-tennis against some average woman player, and he ought to win almost every stroke; but let him try to play left handed, and the game becomes even. He learns more and gets better exercise; and it will do him good to be brought down from his pinnacle. So what we say here will be on the assumption that fencing is practised with the left side also. Anyhow,

it is fine training in accuracy. The play to an outsider may seem intricate within a narrow limit, but the accuracy is not merely an accuracy of a few tiny muscles; it depends, like skating, upon large muscles as well.

The feet must be in the correct position for poise, for full or partial power, and for recovery. Their movements must be in the right direction, so that no time or energy is wasted. Most people in walking waste a great deal of force by throwing their legs about or round, out of the correct lines of movement. Unskilful fencers err in the same way. The feet must also be alert. If the feet are well trained, the gracefulness as well as the "static" beauty of the lower part of the body will be increased.

The trunk itself receives some magni-



FIG. 2.—GOOD EXERCISE FOR WOMEN.

ficient exercise; especially from stretching during the lunge. The arms also get their stretchings and extensions. We see in fencing what Delsarte insisted on—*the firm centres, and the free extremities*; the extremities, free yet firm, supple yet strong, the foil being held in the hand, not with a tense grip, but with a pliant and what has been called a sensitive touch.

In fencing also we realise the power of the thumb as a pointer; it is the thumb as well as the first finger that directs the foil,* though the whole wrist is working constantly, and at fine work too. It has to obey the eye quickly; and, indeed, the whole of the play is training in alertness and rapid changes, as well as in steady endurance.

The eye is practised in concentration and observation, and so the nerves are improved. Special articles deal with nerve-training and sense-training. Here we must insist that the unused parts of the body should not be kept tense; and yet that the whole body should be prompt, and should use its power precisely as and when that power is called for, which depends chiefly on the opponent.

It is a merit of fencing, as of boxing, that the practice for it does not need an opponent, but can be private and solitary, though of course nothing can take the place of actual practice with the foils or gloves when we are ready for them. Still, the training we suggest will render the preparation for fencing quite an interesting art, in which it will be

* We ourselves use the thumb similarly as a director in back-hand strokes at racquets and lawn-tennis.

very easy to register the speed of one's progress.

But it must not be imagined for a moment that fencing, any more than boxing, is perfect exercise. We repeat, it gives no free swing of the arms as in sword play. It gives no free swing and kick of the legs as in football. In other



FIG. 3.

FIG. 4.
FIRST POSITION.

THESE SHOW FIRST POSITION, FRONT AND BACK VIEWS. THE POSITION OF THE ARMS HELPS TO BRACE UP THE TRUNK AND KEEP THE CHEST THROWN OUT. THE RIGHT HEEL MUST BE IN FRONT OF THE LEFT; THE FEET MUST BE AT RIGHT ANGLES; THE SHOULDERS TURNED HALF TO THE LEFT.

respects also it is deficient. It needs to be supplemented. It also needs to be prepared for, and some preparatory exercises may be helpful. Details will be found under the illustrations, which are specially designed and described by Lieutenant Flynn. Here is one of the practices.

First and foremost, the lunge must be mastered. Starting with the upright position, the heel of the right foot against the left heel, and at right angles to the left foot, bend both knees slightly. This is the position of animals when they crouch for a spring. The right foot is

firm and at right angles to the left throughout the play. In the bent-leg position, still crouching, take a short step straight out with the right foot. Then come back again. See that the step is straight out, and, in order to ensure this correctness, draw a chalk line at right angles to your left foot, or make use of some pattern on the floor. Your right foot must move along this line, not away towards the left, as the natural tendency is. When you can do this with a short step, make a fuller lunge. At the end of the fuller lunge, the left leg is straightened, but in order to get the lunge correct the left leg must first be bent. It is

by the straightening out of this left leg that the right leg is sent out. The beginner may think that it is a simple matter to lunge along this white line. It is really extremely difficult, and three or even six months may have to be given up to this one practice alone. For it must be remembered that *though in practice you may look at your feet to see that they are right*, in play itself this would be fatal. In play itself you must look at your opponent and his wrist and foil. You must have the straight lunge as your own habit ; not as a thing which you sometimes do, but as a thing which you can *always* do. It must come right



FIG. 5.—SECOND POSITION.

THIS IS EQUIVALENT TO THE GUARD WITH THE FOIL. STARTING IN THE FIRST POSITION OF FIGS. 3 AND 4, BEND BOTH KNEES TILL THEY ARE JUST OVER THE TOES, BUT KEEP THE BODY ERECT. THEN STEP OUT WITH THE RIGHT FOOT ABOUT EIGHTEEN INCHES (THE DISTANCE VARIES WITH THE HEIGHT) TO THE POSE SHOWN IN FIG. 5. THE WEIGHT OF THE BODY SHOULD BE EQUALLY DIVIDED BETWEEN THE TWO LEGS. THE BEGINNER WILL NOT FIND THIS A POSE DE LUXE, THE MUSCLES OF THE THIGH BEING BROUGHT INTO VERY FORCIBLE PLAY, BUT THE FATIGUE SOON WEARS OFF WITH PRACTICE.



FIG. 6.—THIRD POSITION.

INCLINING THE RIGHT SIDE TO THE FRONT, STEP OUT ANOTHER EIGHTEEN INCHES OR SO WITH THE RIGHT FOOT, THE KNEE BEING PERPENDICULAR TO THE INSTEP, THE LEFT LEG AND FOOT KEPT STRAIGHT, THE SHOULDERS SQUARE TO THE LEFT. BE SURE TO HOLD THE OUTSIDE EDGE OF THE LEFT FOOT FLAT AND FIRM ON THE GROUND. THIS POSITION IS KNOWN AS THE "LUNGE." NOW, IN ORDER TO TEST HIS BALANCE, THE PUPIL MUST PRACTISE CHANGING RAPIDLY FROM ONE POSITION TO THE OTHER. IN WHAT IS KNOWN AS "RECOVERING" FROM THIS THIRD POSITION TO THE SECOND OR FIRST, HE MUST PUSH OFF SMARTLY FROM THE GROUND WITH THE RIGHT FOOT. THE MAIN THING TO REMEMBER IS LIGHTNING RAPIDITY, TOGETHER WITH ACCURACY OF THE FEET ALONG THE LINE.

ADVANCE.

NEXT PRACTISE THE "AVANCE." THIS CONSISTS IN MOVING THE RIGHT FOOT ABOUT SIX INCHES, AND FOLLOWING IT UP WITH THE LEFT FOOT. LET THE FEET KEEP THE SAME DISTANCE APART—SAY, EIGHTEEN INCHES—WHILE ADVANCING. THIS "AVANCE," LIKE THE "RETIRE," GIVES FREEDOM AND ACTIVITY TO THE LIMBS BEFORE THE FOIL IS USED.

RETIRE.

FROM THE "GUARD" POSITION, MOVE THE LEFT FOOT LIGHTLY TO THE REAR ABOUT SIX INCHES; THEN MOVE THE RIGHT FOOT BACK THE SAME DISTANCE.



FIG. 7.



FIG. 8.



FIG. 9.

EXTENSION AND BALANCE MOVEMENTS.

LUNGE INTO THE THIRD POSITION OF FIG. 6, AND BRING THE ARMS TO THE FRONT AS IN FIG. 7. FROM THIS POSITION EXTEND THEM AS IN FIG. 8, THE RIGHT WRIST BEING ABOUT THE HEIGHT OF THE HEAD, THE LEFT WRIST ABOUT IN A LINE WITH THE LEFT HIP; KEEP THE SHOULDERS WELL DOWN. FROM THIS POSITION CHANGE AGAIN TO THE ONE OF FIG. 9 BY THRUSTING OFF WITH THE RIGHT LEG, AND STRAIGHTENING THE RIGHT LEG. THENCE CHANGE AGAIN TO THE POSITION OF FIG. 8. FROM FIG. 8 RETURN TO THE FIRST POSITION. REPEAT THIS PRACTICE TILL THE MUSCLES BEGIN TO TIRE. THESE ARE ALL MOST IMPORTANT EXERCISES, AND SHOULD BE CONTINUED TILL THE PUPIL HAS PERFECT COMMAND OF HIS BALANCE IN CHANGING FROM ONE TO THE OTHER POSE.

every time, even when you are not thinking about it at all. If you fail to lunge out straight with firm left foot, your lunge will lack power from body-weight, and your body itself will lack poise. You will make a less effectual attack, after which it will be hard to recover.

Rely, then, on the correct foundation of the feet; otherwise if you lunge out ten inches too much to the left, you must correct your mistake by arm and wrist play. You need your arm and wrist play for other purposes. Think of the photographic camera. The photographer arranges his cumbrous machine at about the right distance from the object; he does not arrange it haphazard, and then try to focus the lens by making the turn of the small knob. That is only to correct a mistake of inches; it is not meant to correct a mistake of feet. Your wrist is like that little knob; it and the fingers must do the fine work, leaving the general direction to be secured by

the feet and the trunk. The time spent on the lunge will not be wasted, because the command of the back and front feet



FIG. 10.—THE PROPER WAY TO HOLD A FOIL.

THE "ORIP" OR HANOLE BEING CURVED, PUT THE THUMB ON THE TOP OR CONVEX PART, BUT NOT TOO NEAR TO THE GUARD. PUT THE FIRST FINGER ON THE LOWER PART, UNDER THE THUMB, AND THE REMAINING FINGERS ALONG THE ORIP, NOT ROUND IT AS IF ONE WERE HOLDING AN OAR OR LIFTING A WEIGHT. THIS IS A MOST IMPORTANT MATTER, FOR A TIGHT ORIP DESTROYS ALL THAT DELICATE AND LIGHT PLAY WHICH IS THE VERY SALT OF GOOD FENCING. CULTIVATE WHAT IS KNOWN IN "LA SALLE D'ESCRIME" AS FINGER ACTION OR "OOIOTÉ." IT WILL HELP THE BEGINNER GREATLY IF HE THINKS OF DIRECTING HIS POINT WITH THE FORE-FINGER AND THUMB, USING THE OTHER THREE FINGERS FOR KEEPING STEADINESS AND BALANCE.

is no less important in cricket than in fencing, and, indeed, in most ball games it is a point of great moment. The Editor has practised his own foot-drill for games

expands the chest, and helps also to make the back hollow. The movement might well be incorporated in every "system."



FIG. 11.

ON GUARD: FIRST POSITION.

THERE ARE VARIOUS WAYS OF COMING ON GUARD. WE THINK THIS IS THE SIMPLEST FOR ONE WHO WISHES TO LEARN SOMETHING OF THE ART IN HIS OWN ACCOUNT. HOLD THE FOIL IN THE RIGHT HAND, AS DESCRIBED, WITH THE FINGER-NAILS UP, THE POINT OF THE FOIL TOWARDS THE GROUND, AND THE ELBOW IN A LINE WITH THE HIP. KEEP THE LEFT ARM CLOSE TO THE SIDE, ITS HAND TURNED PALM OUTWARDS. HAVE THE HEELS TOGETHER, AND THE FEET AT RIGHT ANGLES. TURN THE BODY TO THE LEFT. THEN RAISE THE FOIL TO ABOUT THE HEIGHT OF THE HEAD, AS IN FIG. 11.

WITH A CIRCULAR SWEEP BRING THE RIGHT HAND ROUND TOWARDS THE BODY, AND THROUGH THE LEFT HAND, WHICH LIGHTLY GRASPS THE FOIL (POSITION OF GUARD IN FIG. 12). AS YOU MAKE



FIG. 12.

ON GUARD: SECOND POSITION.

THE CIRCULAR SWEEP, RAISE THE LEFT ARM ABOUT THE HEIGHT OF THE TOP OF THE HEAD, THE HAND AND ARM AND FINGERS FORMING A CONTINUOUS CURVE. THE POINT OF YOUR FOIL SHOULD BE LEVEL WITH YOUR OPPONENT'S MASK, THE ELBOW ABOUT IN LINE WITH THE WAIST AND FOUR OR FIVE INCHES IN FRONT OF IT. THE FOREARM AND THE HAND AND THE BLADE MUST BE IN ONE LINE. AT THE SAME TIME BEND BOTH KNEES, AND ADVANCE THE RIGHT FOOT ABOUT EIGHTEEN INCHES, THE HEELS IN A LINE, AND THE BODY POISED EQUALLY ON BOTH LEGS. DO NOT TURN THE BODY TOO MUCH TOWARDS THE LEFT IN THE GUARD POSITION, AS IT UPSETS THE BALANCE. KEEP THE TRUNK PERFECTLY UPRIGHT. THE LEFT KNEE SHOULD NOT BE OVER THE LEFT FOOT BUT RATHER INSIDE IT.

ADVANCE AND RETIRE.

ONCE ON GUARD, AS IN THIS FIGURE, THE PUPIL SHOULD PRACTISE "AVANCE" AND "RETIRE" AS BEFORE, NOW PAYING PARTICULAR CARE TO KEEPING THE GUARD POSITION AS PERFECT AS POSSIBLE—FOR EXAMPLE, HE SHOULD NOT LET THE FEET GET TOO NEAR TOGETHER IN THE AVANCE; THIS IS A BAD FAULT. FOR BALANCE, THE FEET MUST HAVE A FAIRLY WIDE BASIS. ANOTHER MISTAKE IS TO GET INTO A STANDING POSITION AFTER A FEW ADVANCES AND RETREATS. THIS POSITION IS FATAL TO GOOD LUNGEING. THE LEFT LEG MUST BE WELL BENT TO GIVE THE NECESSARY SPEED AND POWER. HENCE THAT FREQUENT COMMAND IN THE FENCING ROOM, "SIT DOWN," "SIT WELL DOWN." AT THE END OF A SHARP LESSON WE CAN FEELINGLY SPEAK OF A KEEN DESIRE TO LIE DOWN RATHER THAN SIT DOWN. THERE ARE FEW EXERCISES MORE TRYING TO THE LOWER LIMBS THAN THE GUARD POSITION HELD FOR ANY LENGTH OF TIME, AS WHEN A LONG-WINED INSTRUCTOR IS SHOWING HIS GLIB KNOWLEDGE OF DETAIL BY QUOTING WORD FOR WORD FROM THE BOOK. LET THE BEGINNER WHO IS TEACHING HIMSELF SAY TO HIMSELF OFTEN, "SIT DOWN," "SIT WELL DOWN," "CROUCH." IN THE "AVANCE" THE MOVEMENT MAY BE DESCRIBED AS STEALTHY, THE HEEL OF THE ADVANCING FOOT TOUCHING THE GROUND FIRST, WHILE YOU CREEP NOISELESSLY ON YOUR OPPONENT. IN THE "RETIRE," THE RIGHT FOOT SHOULD BE SET FIRMLY ON THE GROUND AND THE MOVEMENT MADE DECISIVELY RATHER THAN STEALTHILY. THE "APPEL," OR STAMP OF THE FOOT, IS NOW A THING OF THE PAST. IT WAS SUPPOSED TO STRIKE TERROR INTO THE OPPONENT'S HEART (PERHAPS IN THE FOUR-BOTTLE DAYS NERVES WERE NOT SO STRONG AS NOW).

hundreds of thousands of times. It has now become practically unconscious—a part of him, to be relied on during play.

Having mastered this lunge, you should practise the very graceful and healthy arm exercise shown in Figs. 7, 8, 9. This

Diagrams upon the wall would show you some of the commonest curves which you have to master. We have not given any elaborate instructions here or with the club-exercises. We consider the A B C to be as much as most readers will take

pains to perfect. Remember that it is the thumb and first finger that guide the foil during its movements. In case you would rather, use the mirror, and see that your lunge is correct there. But, as Mr. Flynn says, be sure to get it correct before you do much loose play. Here is an illustration of its importance.

In most ball-games, success comes to him who moves about with the right position ready made. Elsewhere we have called attention to Latham's wonderful skill in this respect. He sees a ball coming towards his right side; at once he forms the correct position with his feet, facing sideways; he may still be several yards off the ball. Then, *in this position*, he runs with a kind of polka step, and, when he reaches the right place, he is all ready for battle. Most other players rush to the place anyhow, then, flustered as they are, try in vain to form the correct position. In fencing one must *be in* the correct position all the time, controlling the body's weight and direction persistently. Whether one stays still, or moves backwards or forwards, the body must be "ready."

Similar exercises—we cannot emphasise it too much—must be practised by the left side, for many reasons, not the least of which is that both sides of the brain should be developed. And while you move one side, do not let the other be tense. As a model, take the Dohertys during a lawn tennis stroke. In the illustrations, their left arm has a duty almost as important as their right. It goes through certain actions. But whereas the right is holding the racket, the left is loose and limber. No superfluous energy is passing through a gripped hand.

Of all general "systems" for the practice of fencing perhaps the Macdonald Smith is the best, since it develops in-

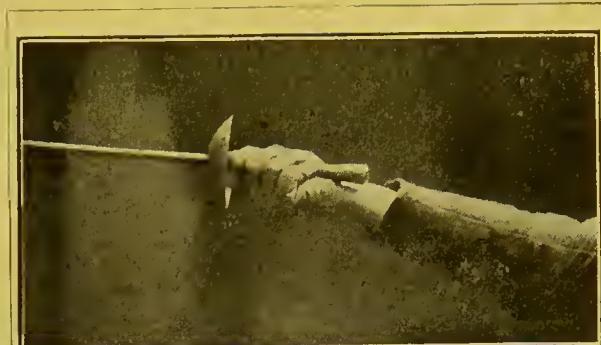


FIG. 13.—THE THRUST.

THIS CONSISTS OF A STRAIGHTENING OF THE ARM, THE FINGER-NAILS REINO TURNED UP. THE ARM SHOULD BE STRAIGHT, BUT NOT STIFF. THE HAND SHOULD BE JUST ABOVE THE LEVEL OF THE SHOULDERS AND THE POINT SHOULD BE JUST BELOW THE HAND.



FIG. 14.—THE LUNGE.

STEP FORWARD ANOTHER 18 INCHES WITH THE RIGHT FOOT, DROPPING THE LEFT HAND CLOSE TO THE LEFT THIGH (BUT NOT IN CONTACT WITH IT), WITH THE PALM TURNED OUTWARDS.

THE RECOVERY.

TO COME BACK OR "RECOVER" TO THE QUARO POSITION, THROW UP THE LEFT ARM; THRUST BACK AGAINST THE GROUND WITH THE RIGHT FOOT. BEGIN THE PRACTICE OF THESE VARIOUS MOVEMENTS SLOWLY, AND THEN INCREASE TO LIGHTNING RAPIDITY AND ENERGY.

dependent control of the various muscles, and brisk and prompt movements in various directions. A system which is good for piano-playing, by developing firm centres and free extremities, is likely to be good for fencing also. Of course other exercises have their value—for instance, the chest-expander, in developing some of the chest and back muscles, and giving still greater firmness to the centres. But for freedom and independent control and rapidity of the extremities the Macdonald Smith system, together with



FIG. 15.—WRONG LUNGE.

THIS SHOWS A WRONG LUNGE, THE MISTAKE BEING THAT THE RIGHT TOE IS TURNED IN.

the system of repose, are the best that we can find.

Fencing can be practised with safety and advantage by both sexes, especially if weak people are drilled judiciously and with gradual increase of difficulty in the elements of the art. In this respect fencing stands above boxing, Jujitsu, and other forms of attack and defence. Although we advise women to use the punch-

ball, we do not advise them actually to box. But all women's clubs should certainly regard fencing as a part of the equipment no less necessary than the looking-glass and fashion paper.

A monologue on any given subject should contain as much of the essence of that subject as can be compressed into the given space. We shall try, then, in our monologue, to bring to the reader's notice the main points of vital importance, without giving him theories about this or that technicality.

As "good wine needs no bush," so good boxing needs little advertisement. It appeals undoubtedly to two most striking characteristics of Englishmen and Irishmen—*pluck* and *endurance*. Some years ago it had fallen into disrepute, because of the shady practices of some shady members of "the talent." Now it has emerged pure, with flying colours, and is patronised by the highest civil and military authorities as one of the best of healthy outlets for virile energy, and at the same time a moral tonic (of an

SPECIAL INTRODUCTION TO BOXING.

BY LIEUTENANT T. A. W. FLYNN.

(*Of the St. Andrew's Gymnasium, Ealing.*)

SYSTEMS may come, systems may go; hairs may be split, and scientists and cranks may rave and rant; but Boxing—with a big B please—good old English Boxing thank our stars (and you do see them occasionally), goes on for ever; for "it's English, quite English, you know."

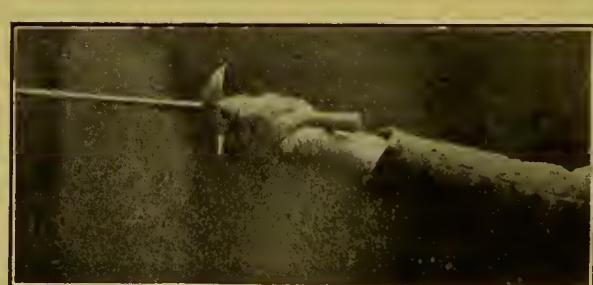


FIG. 16.—NAILS UP.

THIS SHOWS THE POSITION WITH THE FINGER-NAILS UPWARD; THIS IS CALLED HAND "IN SUPINATION."



FIG. 17.—NAILS DOWN.

THIS SHOWS THE HAND IN "PRONATION," WITH THE BACK UP AND FINGER-NAILS DOWN.

even higher order than so-and-so's phosphoric mixture).

And, now we are on the subject of moral tonics, just a word about hero-worship, which is so grudgingly offered to those who are in the first flight in this art. We can almost hear the arch enemy of play, the man about town or woman about town, say, "Why such a fuss for a mere fighting man?" Our answer is, If we can, by this admiration, by the over-dose of it, stir up a desire to emulate such courage and skill in hearts otherwise of the soft order, the over-dose is justified; for such a change would be to many a change for the better in their everyday life. To box well one must be fit all round, and therefore one must lead a wholesome life.

Apart from this, from a practical point of view it is a disadvantage not to be able to defend one's self. How often the writer has heard the remark, "If I had only known a bit about boxing I wouldn't have stood that," in reference to some insult which the narrator could not avenge. Or, again, viewed from the other side, what a comfortable feeling it gives to one who is biking or walking late at night along some lonely country road to know that, even if he is not exactly Fitzsimmons and Corbett combined, he

can at least give a good account of himself until about ten or a dozen rounds are over, and perhaps a local policeman appears.

Among other advantages, the smallness of space needed for the practice of the art may be mentioned, as almost any ordinary room will suffice.

Besides the need of little space, there is the need of little time, as well as of little money. In twenty minutes' loose play with a smart opponent one may get sharper and more concentrated exercise than in any other form of sport.

As to the danger, there is certainly not as much danger as in football or many other games, to say nothing of hunting or shooting. This should allay the fears of those mothers (of embryo champions) who perhaps may do us the honour

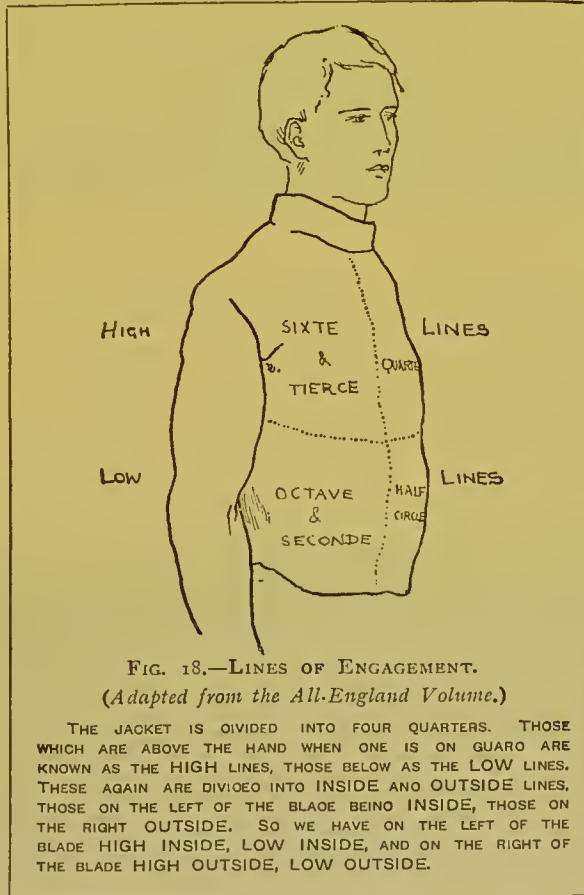


FIG. 18.—LINES OF ENGAGEMENT.
(Adapted from the All-England Volume.)

THE JACKET IS DIVIDED INTO FOUR QUARTERS. THOSE WHICH ARE ABOVE THE HAND WHEN ONE IS ON GUARD ARE KNOWN AS THE HIGH LINES, THOSE BELOW AS THE LOW LINES. THESE AGAIN ARE DIVIDED INTO INSIDE AND OUTSIDE LINES, THOSE ON THE LEFT OF THE BLADE BEING INSIDE, THOSE ON THE RIGHT OUTSIDE. SO WE HAVE ON THE LEFT OF THE BLADE HIGH INSIDE, LOW INSIDE, AND ON THE RIGHT OF THE BLADE HIGH OUTSIDE, LOW OUTSIDE.

of skimming over this article. That the men of England require any reassurance on this point we refuse to believe; they have stood some good hard slogging during the last few years, and when we reckon up the factors that formed their endurance and heroism, the boxing they learned at home will not be the least of them.

There is one fallacy, however, to which we should like to give the "knock-out," and this is the saying that boxing is a

natural means of defence. Every pupil the writer has ever taught has had more or less (generally more) difficulty in

"whip," or even make a near thing of it with, one who had the same qualities, and who had also been trained, is as

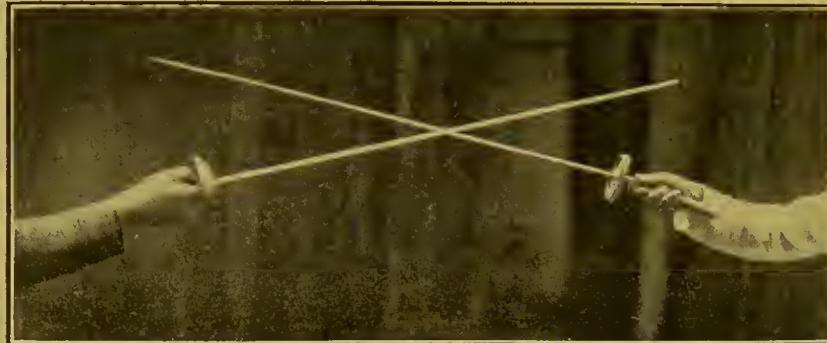


FIG. 19.

ENGAGING AND COVERING.—ENGAGE IN QUARTE.

OPPONENTS ARE "ENGAGED" WHEN THE BLADES ACTUALLY TOUCH. THE USUAL ENGAGEMENT IS "QUARTE." YOUR OPPONENT'S BLADE IS ON THE LEFT OR INSIDE HIGH LINE OF YOUR BLADE. THIS IS BECAUSE IN "QUARTE" MORE OF THE BODY IS COVERED THAN IN "SIXTE," WHERE THE OPPONENT'S BLADE IS ON THE RIGHT. ENGAGEMENTS ON THE LOWER LINE ARE RARELY USED.

COVER.

WHEN YOU ARE ACTUALLY AT THE "ENGAGE," ONE LINE MUST ALWAYS BE COVERED. TO COVER THE HIGH INSIDE LINE, BRING THE HAND SUFFICIENTLY OVER TO BLOCK YOUR OPPONENT'S STRAIGHT THRUST. WHEN YOUR HAND IS COVERING THE LEFT SIDE, YOUR POINT SHOULD BE IN A LINE WITH THE RIGHT SIDE OF YOUR OPPONENT'S FACE. THIS IS KNOWN AS THE "QUARTE" ENGAGEMENT.

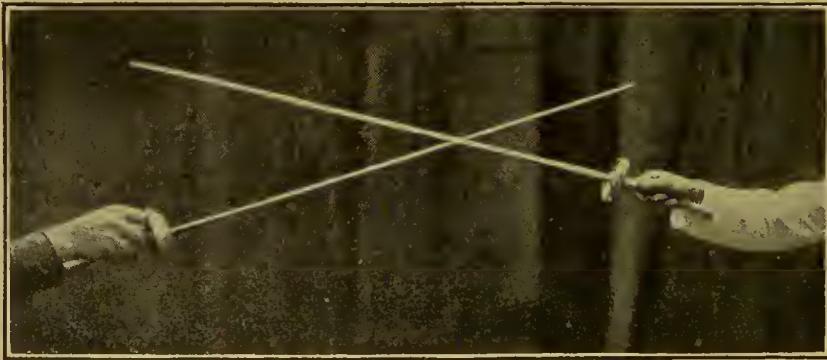


FIG. 20.

ENGAGE IN TIERCE.

TO COVER THE HIGH OUTSIDE LINE, TURN THE FINGERS UP, AND MOVE YOUR HAND TO THE RIGHT FAR ENOUGH TO PREVENT YOUR OPPONENT FROM COMING IN WITH A STRAIGHT THRUST. KEEP YOUR POINT ON THE LEFT SIDE OF YOUR OPPONENT'S FACE. THIS IS KNOWN AS THE ENGAGEMENT IN "SIXTE" OR "TIERCE." "OPPOSITION" IS THE TERM USED WHEN YOU CARRY YOUR HAND HIGH ENOUGH TO THE LEFT, DURING THE ATTACK IN THE "QUARTE" LINE, TO KEEP YOUR OPPONENT'S POINT FROM TOUCHING. IF THE ATTACK IS MADE IN THE "SIXTE" LINE, YOU MUST CARRY YOUR HAND OVER TO THE RIGHT.

acquiring the art. There are natural fighters, men possessing natural courage, endurance and alertness, and readiness to learn—no one pretends to deny this; but that a man of such a kind could

ridiculous an idea as to chuck a boy into a river and expect him to swim to the other side, just because some scientific genius, probably totally averse to water himself, once proved to his own satis-

faction—on paper—that swimming was natural.

To take a few examples. How many men will naturally lunge with the toe to the front, as depicted in these Figs.? Will their left at boxing always naturally come out perfectly straight? Will their heads always naturally be out of the way when their opponent puts in a hot "counter"? Will they naturally "advance" and "retire" in well-balanced order? Will they by instinct "slip," and get back on guard and "counter"? We fancy not. In fact, we are sure that they will not.

All you, therefore, who may be suddenly fired with a desire for *la boxe* are warned against listening to such old women's yarns. You must make up your mind to sweat at it just as at any other form of sport, and you will succeed in proportion as you sweat at it, and as your instructor can clearly show you the basic principles of a science which, in its way, is just as exacting as many others with more high-sounding names.

At this point let us say a word about instruction.

Do not go to a cheap man. If a man is any good, he can always command a proper fee, and will refuse to be sweated by anyone. This is especially the case with the manly men who have learnt the art of self-defence; and, in the end, these men are worth their price. Above everything, do not be in a hurry. You are paying for lessons which should permanently benefit you. Go through the drudgery of "footwork," "straight leads," etc., as the Editor is doing, having learnt them wrongly years ago.

Especially learn how to hit hard, getting into the blow that weight without which the whole thing is a farce. Remember that it is easy enough and time enough to "play light" when you have

learnt how to hit hard. If you start with flips and flops, then, when necessity arises for a good stiff punch, you will find yourself very much out of it. This is only what you or your instructor may expect or deserve as a penalty for starting at the wrong end.

Another word. Some years ago I gave boxing lessons to a very celebrated Indian club manipulator. He was naturally particularly anxious that his wrists should not be knocked about. So I devised a somewhat crude glove which, while not perfect, served its purpose. I have since improved on this, and I believe the result, which I call the Flynn boxing-glove, will be useful for golfers, cricketers, fencers, musicians, artists, writers, and those who have to exercise care about this part of their anatomy. Of course the objection may be raised by the expert that "you should not guard with your wrists." But how many beginners can help doing it? It is not for the "talent," it is for those who do want to box but do not want to have a damaged forearm, that this glove is intended.

SPECIAL INTRODUCTION TO FENCING.

BY LIEUT. T. A. W. FLYNN.

(*Of the St. Andrew's Gymnasium, Ealing.*)

"By my halberdine!" good friends, a "clinking" subject on which to write, and one worthy of our "steel," even if that steel is only our well-worn pen.

What a fascination the word "fencing" has, even for people who are ignorant of the art, as well as for those too who are versed in it! These must know the infinite possibilities of the "white arm," and must feel that there are worlds yet unconquered, combinations yet untried;

for it is in the new combinations that fencing stands supreme.

Perhaps in no small degree fencing owes its fascination, its "flavour" (the word by which a dealer in antique furniture described the effect of a few old pistols and flintlocks on the walls of a bachelor's room), to that courtly age when not to be able to take snuff with an airy grace, and not to be able to fence, were tacitly to acknowledge that you were quite beyond the pale of what dear old Toole used to call "the Upper Suckles." Those were the days of the ruffle and the fan, the patch-box and powdered hair, the graceful minuet, the days when men had time to be courteous —nay, more, chivalrous—and women had time to be both gracious and graceful.

To match such surroundings, what more suitably formed weapon of defence than the foil? From the tapering point of sinuous balanced blade to pummel and well-curved grip, it looks above all things a weapon of the aristocracy in the best sense of that word; of the gallant gentlemen who held their lives cheap while honour was at stake.

Is there a man among us, we wonder, so fish-like as to read unmoved Thackeray's description of Harry Esmond's duel with that arch villain Lord Mohun, when the former disables the latter by running him through the arm? Is there a man who would not have given much to have slapped the hero on the back, and said (in the language of the period, of course), "Well done, old cock!"? If there is such a man he will not be interested in reading this article any further. Good-bye to him!

Then, again, there is the famous (albeit improbable) and dramatic duel of the three musketeers against the Queen's Guard, so well depicted by the master-hand of stage-effect, Dumas *Père*. One can hear the pant of the beefy Porthos; one can see

the smile of contempt on Athos' proud lip, as with the sangfroid of his order he puts in *parry* and *repose*; and D'Artagnan the devil-may-care, the prince of good fellows, who does not long to shout to him (again in the language of that period), "Well fought, old chap!" when, with picturesque grace, he waves above his head the swords of the defeated guardsmen? Why, this situation is enough to save any play, however bad the acting may be! But then there is no bad acting nowadays. A man cannot possibly be a bad actor, and drive his own motor, and they all drive motors now. And then there is Beerbohm-Tree, whose stage-fencing is so excellent. Whatever may be said of the skill of to-day and the past off the stage, about the improved skill on the stage there can be no question.

Nor are artists behind dramatists in putting their best work into scenes where *l'escrime* is the ruling passion. Take that fine picture "La Rixe." Could anything be more typical of a swordsman vibrating with passion for his opponent, and impatience with those who hold him back? Or that other well-known work by a French artist, where the combatants, two women stripped to the waist, fight to the death, probably for the love of some man unworthy of either.

But all that array of art, genius, and romance is merely the setting of a gem which, in this case, far outshines its frame, graceful as that frame is.

It is not without a lingering regret that the prime motive for excellence in this art is a thing of the past—namely, the duel. Would there be, we wonder, so many nauseous *causes célèbres* flaunting their unwholesome details in the public Press were men allowed to settle such matters, as of old, at the point of the sword? Impulsive as this utterance may sound, would not the world be well rid



FIG. 21.—PARRY OF QUARTE.

TO COVER THE HIGH INSIDE LINE, TURN THE PALM OF THE HAND UP, AND CARRY THE HAND OVER TO THE LEFT FAR ENOUGH TO TAKE OFF YOUR OPPONENT'S BLADE. KEEP THE POINT OF YOUR FOIL IN A LINE WITH YOUR ADVERSARY'S MASK. DO NOT LET THE FORE-ARM BE PARALLEL AND CLOSE TO THE BODY.

© ©



THESE ARE THE FOUR PARRIES WITH THE FINGER-NAILS UP (IN SUPINATION). WE RECOMMEND THEM TO THE PUPIL AS BEING THE STRONGEST AND MOST USEFUL, FOR THE HAND IN THIS POSITION HAS A POWERFUL BICEPS MOTION TO BACK IT UP; THIS IS NOT THE CASE WHEN THE FINGER-NAILS ARE DOWN (IN PRONATION).

© ©

FIG. 22.—PARRY OF SIXTE.

THIS DEFENDS THE HIGH OUTSIDE LINE. TURN THE HAND UP, AND TAKE THE BLADE OF YOUR OPPONENT OFF BY MOVING YOUR HAND ONLY A LITTLE TO THE RIGHT. KEEP YOUR POINT ON YOUR OPPONENT'S MASK. BE SURE TO MAKE THIS PARRY STRONGLY ENOUGH TO CARRY YOUR OPPONENT'S POINT CLEAR OF YOUR BODY, FOR IN "SIXTE" THE HAND IS WEAKER THAN IN "QUARTE." REMEMBER TO USE YOUR WRIST AND FINGERS AS MUCH AS POSSIBLE, AND YOUR ARM AS LITTLE AS POSSIBLE.

© ©



FIG. 23.—PARRY OF SEPTIME.

THIS YOU MAKE BY LOWERING YOUR POINT WITH A SEMI-CIRCULAR OUTWARD MOVEMENT TO THE BOTTOM OF YOUR OPPONENT'S JACKET, TURNING THE PALM OF YOUR HAND UPWARDS AS IN "QUARTE" AND CARRYING THE HAND JUST FAR ENOUGH TO DRIVE YOUR OPPONENT'S POINT CLEAR.



FIG. 24.—PARRY OF OCTAVE.

THIS DEFENDS THE LOW OUTSIDE LINE. TO MAKE IT, DROP THE POINT TO THE BOTTOM OF YOUR OPPONENT'S JACKET, KEEPING THE PALM OF YOUR HAND UP.

of these stabbers in the dark, these carrion-birds of the club-houses, these male Merlins of society with their "Have you heard the tale about So-and-so?" who, could they work their own sweet will, would leave neither Launcelot pure nor Galahad clean?

How, then, does this art, which has far outlived its early *raison d'être*, still cast its spell and maintain it? The problem is not a hard one. To answer it, being Irish, we will "ask another." How do our best games still boast their countless followers? Undoubtedly because they exercise to the full the utmost powers of mind and body; they never weary one with a dry routine—except at the start—as so many "Systems" do. There is always that glorious god Chance who holds out an encouraging hand when all looks lost and the victory is a moral

one for the other side. They are not mechanical, but call out to the highest degree that grand quality, without which England's noblest honour, the V.C., has never yet been won—namely, *initiative*. This, then, is the reason why the foil holds its own. To play the game one must have many points in one's favour—absolute control of hand, eye, and arm, perfect balance, readiness to profit by an opponent's mistake, a special sense almost to foretell his attacks, quickness, energy, endurance, good temper. In a word, the fencer, to be really good at the game, must have his brain-pan clear and cool, and, from this headquarters, issue his orders to his auxiliaries, the limbs, on whose faultless knowledge of the technique of his art—not forgetting a good equipment—he must rely for ultimate success.

PARRIES IN PRONATION (NAILS DOWN).

ALTHOUGH WE THINK THE PARRIES WITH NAILS UP ARE THE BEST, STILL IT IS USEFUL TO KNOW THOSE WITH NAILS DOWN, SINCE THE MORE PARRIES YOU HAVE THE MORE OPPORTUNITIES YOU HAVE FOR ATTACK, AND THE MORE ALL-ROUND YOU ARE WITH YOUR PARRIES, THE BETTER YOU WILL CONTROL YOUR WRIST AND FINGERS. COUNTERS IN PRONATION ARE LIKE THOSE IN SUPINATION, BUT WITH NAILS DOWN.



FIG. 25.—TIERCE.

THIS SHOWS THE DEFENCE OF THE HIGH OUTSIDE LINE AS IN "SIXTE," BUT HERE THE HAND HAS THE KNUCKLES UP.



FIG. 26.—SECONDE.

THIS, LIKE "OCTAVE," DEFENDS THE LOW OUTSIDE LINE BY TURNING THE BACK OF THE HAND UP, AND LOWERING THE POINT TO THE BOTTOM OF YOUR OPPONENT'S JACKET, ENOUGH TO TAKE OFF HIS BLADE.

DIRECT ATTACKS

MUST BE DELIVERED WITH THE UTMOST RAPIDITY AT AN OPENING LEFT BY YOUR OPPONENT. THE STRAIGHT THRUST IS THE SIMPLEST; THEN COME THE THREE FOLLOWING. "DISENGAGEMENT" IS MADE THUS: YOU OIP YOUR FOIL UNDERRNEATH YOUR OPPONENT'S BLADE, AND BRING IT AGAIN UP IN THE OPPOSITE LINE, INSTANTLY STRAIGHTENING THE ARM WHILE YOU DO THE "OISENACE." "DEROBEMENT" IS AN ATTACK ON THE UNCOVERED LINE, EITHER HIGH OR LOW, ON THE SAME SIDE AS THAT ON WHICH THE ENGAGEMENT IS FORMED. IF THE ENGAGEMENT IS FORMED IN "QUARTE," THE LOW INSIDE LINE IS UNCOVERED. LOWER THE POINT, AND MENACE THE LOW INSIDE LINE. THE "CUT-OVER" IS TO BE TRIED WHEN THE OPPONENT HOLDS HIS POINT TOO HIGH. WITH YOUR

FORE-FINGER AND THUMB RAISE YOUR BLADE, AND PASS IT OVER YOUR OPPONENT'S POINT INTO THE OPPOSITE LINE, STRAIGHTENING YOUR ARM AS YOU DO SO, AND HAVING THE HAND WITH ITS KNUCKLES UP. "FEINT ATTACKS" ARE MADE TO DECOY THE OPPONENT'S FOIL AWAY FROM THE LINE ON WHICH YOU MEAN TO COME IN. "ONE-TWO" IS A GOOD EXAMPLE OF A "FEINT ATTACK." SUPPOSE THAT EITHER THE "QUARTE" ENGAGEMENT OR FIRST DIS-ENGAGE IS STOPPED BY THE SIMPLE PARRY OF "SIXTE." THEN OIP YOUR POINT IMMEDIATELY UNDER AND COME IN ON THE OPPOSITE LINE. YOU MUST FULLY STRAIGHTEN THE ARM ON THE FIRST OISENACE, AND ALSO ON THE SECONDO, AND BE SURE TO GUIDE THE FOIL BY THE FINGERS.

FIG. 27.—COUNTER-QUARTE.

ENGAGE IN "QUARTE." AS YOUR OPPONENT OISENACES TO HIT YOU IN "SIXTE," FOLLOW HIS BLADE BY DIPPING YOUR POINT UNDER HIS FOIL, THEN ROUND HIS FOIL, SO AS TO CARRY IT OFF AGAIN TO THE "QUARTE" LINE. GUIDE YOUR POINT BY YOUR FINGERS, KEEPING YOUR HAND AS MOTIONLESS AS POSSIBLE.

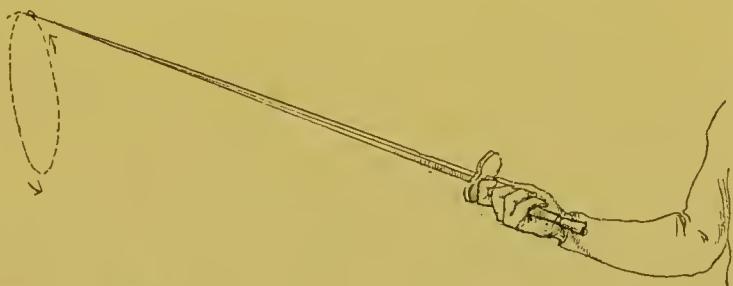


FIG. 28.—COUNTER-SIXTE.

ENGAGE IN "SIXTE." THIS IS PRECISELY LIKE THE ENGAGEMENT IN "QUARTE," EXCEPT THAT THE CIRCLE IS FROM RIGHT TO LEFT INSTEAD OF FROM LEFT TO RIGHT.



FIG. 29.—COUNTER-SEPTIME.

ENGAGE IN "SEPTIME." WHEN YOUR OPPONENT OISENACES OVER YOUR BLADE, RAISE YOUR OWN BLADE AND DESCRIBE A CIRCLE FROM LEFT TO RIGHT ROUND HIS BLADE, SO AS TO BRING IT BACK TO "SEPTIME."

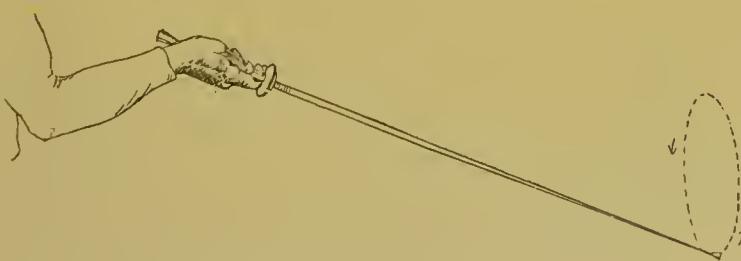
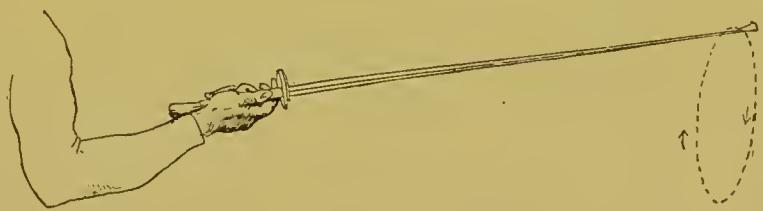


FIG. 30.—COUNTER-OCTAVE.

ENGAGE IN "OCTAVE." WHEN YOUR OPPONENT OISENACES OVER YOUR BLADE, DESCRIBE A CIRCLE FROM RIGHT TO LEFT, BRINGING HIM BACK TO "OCTAVE."

EQUIPMENT.

The faultless "turn-out" does not make a perfect fencer, but a faulty "turn-out" may often cause easily avoidable faults in beginners. It is best to get an expert to help you to choose your equipment, since the "cheap and nasty"

kind is not worth while. A reliable outfit at a reasonable cost is provided by several well-known firms.

FOIL.

The foil is usually about thirty-four inches long, and for practical purposes

may be divided into two parts; the thicker part next to the hilt is known as the "forte," and the remaining two-thirds as the "foible." The point or button at the end is flattened, and usually covered with a tip of rubber or leather. The rest of the foil is called the "grip" and the "pummel." The "guard" is made of a double loop of metal, faced with leather to protect the fingers. Some of our illustrations show a bell-shaped guard, which protects the hands more effectually. The "grip" or handle is a wooden frame covered with whip-cord or leather, and—a very important point—curved so that it may fit into the hand comfortably and naturally. The "pummel" is the block of steel or brass or iron which clenches the "grip" at the end, its object being to balance the foil. It is important for this part of the foil to have a well-curved handle, and a sufficiently heavy pummel to give the weapon just that "whip" instead of that dead wooden feeling which belongs to an inferior and ill-balanced foil.

GLOVE.

At one time it was practically impossible to get a good glove in England; the old gloves were like boxing-gloves, with what motorists would call "wind-guards" thrown in. Now the buyer has a better chance. He should note that the padding covers well the parts where it is most needed—namely, the back of the hand, and the end of the thumb. The glove should—to use a military term—"fit easy without gagging"—that is to say, there should be perfect freedom of hand and wrist. Care should be taken to choose not a straight gauntlet, but one of which the glove or finger portion comes well over the wrist. That makes the wrist more flexible.

MASK.

This essential item should be made of strong light wire, and should have ear-pieces, which give a more comfortable fit and are decidedly safer. It is not worth while to buy a "cheap and nasty" type. Be sure that the mask fits, and does not wobble on the head. The wobbly head-gear is a severe handicap in face of an alert opponent, who, very properly, is ready to turn any such distraction to his own advantage.

JACKET.

Like its "stable companion" the glove, the old-time jacket was of similar calibre, heavy, ill-fitting, uncomfortable—perhaps modelled on the "straight jacket" of the asylum. Now, however, our readers will find themselves well-catered for, especially if they be ladies. Indeed, we wonder whether it was keenness for the foil *per se*, or a wish to appear in a becoming costume of white canvas, "made in Paris and cut to the figure," that has caused such a rush to the various classes in which fencing is taught.

The main points in a good jacket are lightness of material, together with sufficiency of strength to give a good protection. We consider the best material to be white canvas properly padded. The collar must be high, and leave no gap below the mask. The sleeve must fit easily under the arm-pits, for otherwise one cannot take advantage of one's reach. It should also cover the wrist. The big, "beefy" man or woman in a too small jacket is as absurd a sight as one would wish to see.

It is worth while even to have an outfit made to measure. By this care at the start you avoid all such minor trials as we have mentioned—trials which are so apt to put you off, no matter what the

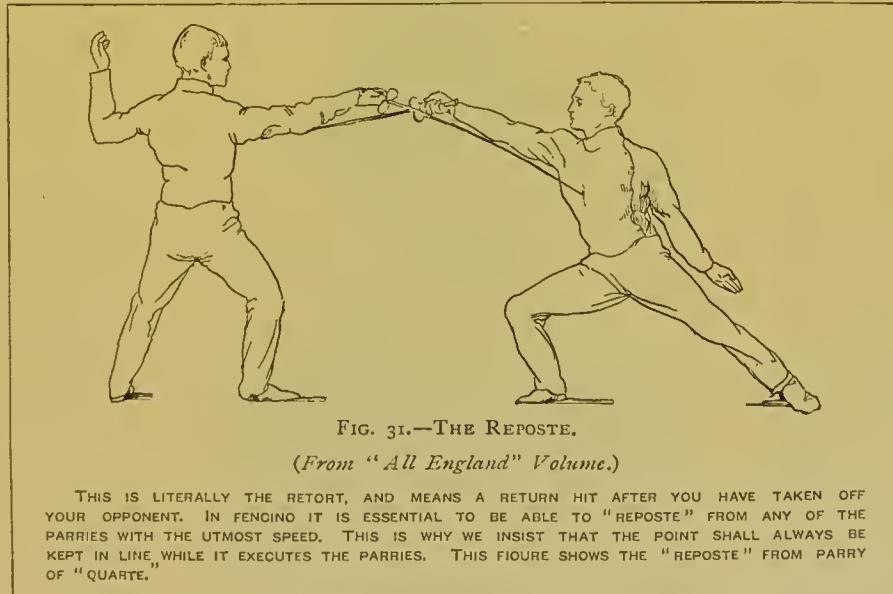
game may be. Then you are better able to do yourself justice, and, not least, you are better protected against the possibility of a broken foil, against which a low-necked jacket would offer poor protection.

PRELIMINARY MOVEMENTS ARE REALLY AND TRULY EQUIPMENT.

We strongly recommend the beginner to work ever so hard at the leg and balance movements (commonly known as "position drill") before he touches the foil. This task is as necessary as it is unexciting, though the Editor has found the gradual mastery of the correct mechanism really interesting. The essential value is that the beginner here has only one thing to think about at a time—namely, his legs and feet. Let him get

them in going order, and then tackle the foil. When he can devote all his attention to the foil, since the legs have now been brought into subjection by the preliminary canter, then he can get along with quite a minimum of that blessed commodity called co-ordination, the very proteid of the fencer. The Editor will appreciate this comparison, and perhaps will not respect articles on physical training which do not give it due prominence!

Having, we hope, compelled most readers—whatever their conditions—to determine that, as Anglo-Saxons, they will get some mastery of these two arts, and having done what we can to equip them, we now leave them and the Editor to practise what the photographs are preaching.



CHAPTER XVIII.

THE FAST FULL MOVEMENT SYSTEM ESTIMATED.

(*The estimate is chiefly based on the published writings of Mr. Macdonald Smith, with reference to Fast Full Movements, and not on his private instructions to individual pupils.*)

An Anglo-Saxon Invention—The “From Brain to Keyboard” System for Learning Part of Piano-playing—“Full Contraction” applied to other Muscles—Macdonald Smith’s attention to Diet, Baths, etc.—General Effect of his Movement-system on the Editor—The Theory that a Muscle’s Best Development depends on its being Nourished—The Right Directions for “Full Contractions”—How they Massage the Muscles—Sample Exercises—Brief—Economical—Brisk—Independent Control—The Left Side—Alertness—Some Strength—But are all Muscles meant to be used Briskly?—Breathing and Relaxing not Sufficiently Emphasised—Rhythm Omitted—Music Omitted—Apparatus Work Under-estimated—? The Interest of the Anglo-Saxon.

IN the PHYSICAL EDUCATOR, which appeals primarily to Anglo-Saxons, we choose, among the first systems to estimate, one that is the invention of an Anglo-Saxon. We have already said a few words on the general claims of these exercises, and have cited a few instances in the chapter on “What to Demand from Systems of Exercise.” We here weigh the scheme and its practice in more accurate scales.

Mr. Macdonald Smith’s first apprenticeship was engineering. This is, perhaps, the finest training for the study of the theory of physical culture. Then he gave his attention to music, and by degrees worked out a system by which people have to practise less those tedious and annoying scales and five-finger exercises. He knew that piano-playing was not a matter of fingers and wrists

only, but a matter of nerves also; so he did not confine himself to training the extremities of the arm. Among other merits he aimed at giving a pupil not only accurately working extremities, but also free extremities and firm centres or levers, including those of the shoulder and the arm.

Mr. John S. Borland, Mus.B., F.R.C.O., in *Music* (March, 1903), might be describing the Editor’s own sad drudgery in learning the piano at school—a drudgery which disgusted him from continuing to practise. We quote the passage verbatim:

“Pianoforte teaching, as carried on by a multitude of unfit



FIG. I.—MR. MACDONALD SMITH.

(Photo: J. Weston & Sons, Folkestone.)

persons, is in a similar unsatisfactory position. In beginning the study of the pianoforte there are four main things to keep in view: (1) that the ear and brain are to be trained to

appreciate and distinguish between musical sounds ; (2) that the eye is to be trained to associate these sounds with certain signs on paper ; (3) that the eye is to be further trained to associate the signs on paper with the proper keys on the keyboard ; and (4) that the fingers and arms are to be trained to do the work required of them on the keyboard.

" In order to make a successful pianist, all these processes should be separately undertaken, and the teacher who has not a clear conception of the importance of this classification has never yet been properly prepared for his duties. Yet until quite recent years it was the exception, and not the rule, to find a teacher who had any idea of the importance of analysing the complex problem before him.

" The first requirement—namely, the training of ear and brain—is often omitted entirely, and the others are so jumbled up that the pupil succeeds not so much by the aid of the teacher as in spite of him : in fact, more by good luck or by individual capacity than by good management.

" One of the elementary principles of the art of teaching is to introduce only one new idea at a time to the pupil, and yet it has been a common practice with teachers of elementary pupils at the piano-forte to sit down with the instruction book and endeavour to make the child learn something of musical notation, the names of the keys on the keyboard, and how to hold the hands and strike the notes, all at one sitting. The result is that probably ten or a dozen lessons are required on this muddling no-method before the child can make sure of the merest beginnings of the work. At a later stage an attempt is made to learn the scales (for example) with three objects in view at the same time : (1) the train-

ing of the fingers, (2) the learning of the notes of the various keys, and (3) the learning of the orthodox scale fingerings. What is the result ? We find young adult performers—and not the mere lazy and incompetent ones—who are not sure of their fingerings, and whose hands are only imperfectly trained after years of drudgery. All these operations ought to have been attacked separately, from distinct points of view, and the whole matter might then have been satisfactorily settled during adolescence."

The first and most obvious objection to the plan of learning to play the piano by means of free exercises was that this would not teach the art of playing, the musical ear, and the ready communicating between the seeing eye that reads and the thinking brain that gives orders. No, says Macdonald Smith in a little booklet, of course it will not ; but it will give you control of your muscles, and it will help your nerves to promptitude and to health also. It is only a *part* of the lesson of piano-learning, and our plea for it is not that it is complete teaching, but that it is simple teaching and scientific teaching, since it deals with one department of a complex art at a time. It deals not with the communication between eye and brain, when one sees the notes of the music, nor with the choice of movements on which the brain now decides, but on the rapidity and accuracy with which the brain can make the muscles execute its orders correctly.

In working out and practising his system, which is familiar to us as the " From Brain to Keyboard " system, he noticed his health improving, and his mental health also. The principle which he had found out by his researches on piano-playing he applied to muscles in general, with a view to better training of the body, the muscles, and the nerves,

and with a view to better health. Then, as his researches went on, he became convinced that diet was also important, and he himself gradually changed his diet to one of a simpler and less stimulating kind. He went into the question of water-treatment as well, and worked out a system of baths, including hot and cabinet baths. Fresh air he insisted on also.

But here we can only deal with his plan of exercises, for the rest of his work seems to us not peculiarly his. The principle of full contraction, as he calls it, is his very own invention, based, of course, upon all previous inventions.

To test the system of exercises the Editor some time ago practised them twice a day for a fortnight, and the results were increased flexibility and promptitude and rapidity of movement. The full course was not exhausting, but was rather invigorating, even in its immediate effects.

Working on our usual plan, we shall

give the *pros* and *cons* of the system as fairly as possible, remembering that, unlike many advocates of systems, Macdonald Smith does insist on sufficient air, on better baths, on simpler diet, and on games, etc., as recreation. He does not say that exercise as exercise is everything; though he is inclined to think that his is the only scientific system of exercise.

The health of a muscle, he maintains, depends on its nutrition, not on its use, especially if the use be a wrong one. The health of a muscle depends upon the supply of pure blood, and upon the removal of impure blood. This is a sound principle as far as it goes, and an illustration of a muscle-fibre, and its tiny blood-vessels running through it, helps to convince us that "full contraction" does empty the blood-vessel better than any other means, and does encourage the best blood in the body to come there instead. For example, pinch your tongue as hard as you can with your fingers and thumb. You would think that this would empty the little blood-vessels completely, and make the tongue quite white. We choose the tongue because it is the easiest example to see with the eye. Now Macdonald Smith has himself shown us his tongue made white, not by pinching, but by a muscular contraction. That principle he applies to most of the important muscles of the body.

But the art of applying this principle is a difficult one; we have seldom met a theorist who understood it, for it is largely a matter of choosing the right direction for a movement. Make a movement with the arm as in Fig. 5, and it will not give a full contraction, strive as you

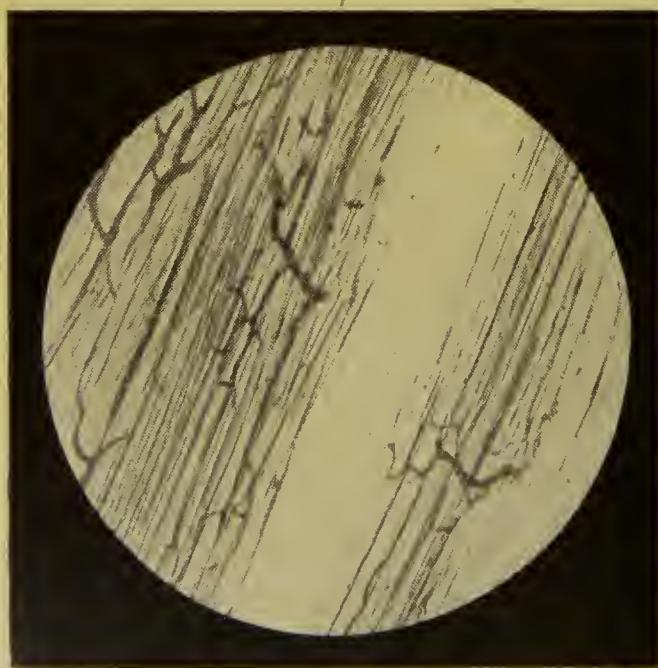


FIG. 2.—PHOTOGRAPH OF TINY BLOOD-VESSELS IN A MUSCLE.

(By permission of Newton & Co., Fleet Street, E.C.)



FIG. 3.—FULL CONTRACTION OF BRACHIALIS ANTIKUS MUSCLE.



FIG. 4.—FULL CONTRACTION OF BICEPS MUSCLE.



FIG. 5.—PARTIAL (NOT FULL) CONTRACTION OF BRACHIALIS ANTIKUS MUSCLE.

may; but turn the hand round strongly to right or left, bending the arm fully at the elbow, and you have in one case the full contraction (Figs. 3 and 4). To work out the right direction for a full contraction of every one of 170 pairs of muscles in the body has been Macdonald Smith's great achievement. Consider the trapezius, for example, what an awkward-shaped muscle it is from this point of view; yet he has overcome the difficulty (see the Figs. in "What to Demand"), and has devised movements for it, to give it the full contraction.

Another difficulty besides the direction is the attachment. One has to find out not only in what lines the muscle is longest or shortest, but also what movement will exercise it without bringing into chief play other muscles which are attached to it by tendons. It is not a matter of striving as hard as we can with movements which seem to be extensions or contractions of



FIG. 6.—FULL CONTRACTION OF THE LATISSIMUS DORSI.
N.B.—The hand is not gripped.

the fullest kind; we have to peer beneath the skin, to consider the muscles laid bare, and to watch them at their work. We may say without hesitation that Macdonald Smith has worked out the right directions for the completest contraction of nearly all of the important muscles in the body. Fig. 6 is a good example of an exercise for the *Latissimus Dorsi*, that very large and yet (in most people) undeveloped muscle on which so much severe work falls in swimming, riding, and so on.

Here are two other exercises of which the directions are scientifically devised. We quote Mr. Macdonald Smith's own words:—

"LONGITUDE" AND "LATITUDE" EXERCISES FOR THE SHOULDER.

"'Longitude' Exercise. (The hand describes partial meridians from the shoulder as a centre.) Start by standing very firmly and upright. Now swing the (right) arm, pendulum fashion, only as far back as it will go, and forward right up above the head. This we will call the Greenwich longitude (Fig. 7). Now keep on swinging the (right) arm, *always right above the head and always vertically*,

but make the plane in which it swings turn slowly to left till the arm, in making the semicircles, moving up and down, brushes the chest ; then let it turn again to the right, past the Greenwich longitude position, and on, till the arm moves up and down in the plane of the back. Stop the arm forcibly at the body in the last few downward movements of this exercise.

“ ‘Latitude’ Exercise. Stretch the arm out straight in front of you, and then move it round horizontally, describing, as it were, with the hand part of a parallel of latitude. This first arc, at the level of the shoulder, we will call the *equator* (Fig. 8). Stand firm, and move the arm in this arc two or three times to left and right as far as it will go, without bending the elbow, then shift it a little higher, still describing the horizontal arcs with the hand, and so on gradually up until the hand is almost straight above the head (North Pole position). Now down again in the same way, continuing the zigzag movement, past the ‘equator,’ and down till the hand is describing small arcs at the level of the thigh (South Pole position). These movements are very much as if in a small but very high room of a circular shape, lined all round with bookshelves, you were pointing out the length of each shelf successively.

“ The longitude and latitude exercises must not be done quickly until the shoulder-joints feel *very strong* ; after that, the quicker the better, as soon as the proper movements become familiar. A dozen of the up-and-down or cross movements with each arm will be found

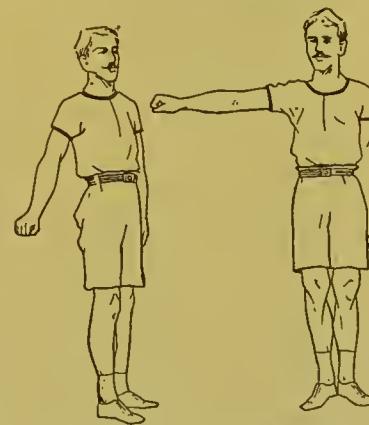


FIG. 7.—INITIAL POSITION FOR “LONGITUDE” EXERCISE.

FIG. 8.—INITIAL POSITION FOR “LATITUDE” EXERCISE.

enough at first. When no longer fatiguing, about twenty double movements may be done with advantage. Whenever the arm is moving *behind the back* in these exercises it is important to brace its corresponding *shoulder blade* as thoroughly as can be towards the spine, and downwards.”

It is the object of these and the other movements of the system not merely to massage the muscles thoroughly, empty

them of waste, and let fresh blood flow in and nourish them, but also to make each muscle do its own work instead of throwing that work on some stronger muscle. It is especially the weaker muscles that are wont to delegate their functions to the stronger. On this “contagion of the weaker muscles” Macdonald Smith writes :—

“ When a *strong* muscle is used for work which it does *easily* the little chemical ‘explosion’ in the nerve centres (we call this the nervous impulse) employed for its contraction is small, and therefore does not tend, by spreading to neighbouring nerve-centres, to cause contraction of muscles other than those intended to be used. When, however, a *weak* muscle is used for work which it is incapable of performing easily, or when a strong muscle is called upon for an effort which is excessive, the nervous impulse employed for its contraction is very great, and readily spreads to other nerve centres, causing unintentional contractions of the corresponding muscles. Practical instances of this principle abound, but the most striking one I know is that afforded by a stalwart man in the act of buttoning a

refractory collar to a stud at the back of his neck. The amount of actual force required is perfectly insignificant, but it so happens that in this particular position the only muscles available are some which he hardly ever uses at all, and they are wretchedly weak. Half-a-minute's work exhausts them, and if, as usually happens, the man is determined not to be beaten by such a small thing, he will go on forcing the contraction of the weak muscles by stronger and stronger nervous impulses until he is twisting every limb in his body and contorting every muscle of his face. Even bad language has been known sometimes to result."

Another merit of his system, besides the fulness of the movements and their well-chosen directions, and the careful training of backward members of our "troupe," is that the movements are brief and not too numerous; they economise time. If full contractions are made, fewer of them are needed than if partial contractions are made.

Except for the initial outlay in learning the exercises, which are taught chiefly by correspondence, the system is economical of money also, requiring no apparatus whatsoever, and a very small space; and being appropriate for most times of the day, so that odd moments can be used.

With regard to economy of a different sort, cyclists and others have told us that, after using the exercises, they seem to require less food, because they assimilate more of what they eat. To put bulk into the body is of comparatively little importance; the question is, How much can we use? On the principle explained above, this system is likely to help us to use most of what we take in, as well as to get rid of the excess and waste.

About the purifying of the clogged capillaries—that is to say, the tiny

blood-vessels—there can be no doubt whatsoever. For many muscles the system gives a perfect form of massage, and so relieves the heart of too hard work. Massage, as well as certain water-treatments, has been compared to the art of providing the body with a number of little hearts—local hearts, as we may call them—and so taking the strain off the one big heart. This is what the Macdonald Smith system tends to do; and even where the muscle cannot easily be reached itself, its neighbour can be reached and exercised and cleansed, and then the muscle itself benefits.

There is another very striking benefit in the plan. The exercises are all brisk and smart and snappy, and most of them are a refreshing and invigorating nerve-tonic. While little severe work is done, the nerves are well-trained in that particular respect—not at the word of command given by another—but, if one likes, by one's own word of command given from within.

When inventors have alighted upon a new thing, or have re-alighted upon an old thing, if it is a good thing they often



FIG. 9.—A TEST OF AMBIDEXTERITY AND INDEPENDENT CONTROL.

find that it has an advantage beyond that which they first expected. Apparently Macdonald Smith's first discovery was that this full contraction emptied the clogged blood-vessels much as one might squeeze a dirty sponge with the two hands. That was by itself an advantage. Then there was the nerve-tonic ; that was another merit almost equally obvious. A third advantage, he says, came to him as a bonus, unexpectedly ; he claims no credit for discovering it—it discovered itself. Let the reader (*see Fig. 9*) try to describe a square with one hand and a figure 8 or a circle with the other hand ; or let him describe an upright 8 with one hand and an 8 lying on its side with the other hand. If he finds this easy, let him also describe a triangle with his right foot. Let him practise these things sedulously day after day ; he will still find them hard. Now Macdonald Smith and many of his pupils have arrived at success without much special practice. He did not train himself in these tricks at all ; but once a fortnight, while he was going through the general system, he tried these tricks for a minute. That cannot fairly be called sedulous training for the trick ; yet in a very short time he found he could do the movements quite easily. Independent control, the power to perform a new movement of quite a complicated kind promptly and accurately (*see Figs. 10 and 11*)—this was his bonus. And it is delightful to find a person who admits that an idea was not created by effort within his own brain, but came to him by an accident.

For the nerves, then, the system is, like all good physical culture systems, a help to concentration, strength, and vitality ; but it has the extra advantage of being practice in alertness ; the person is more on the *qui vive*.

Among the most astonishing results of

the exercises is that they give strength also ; for instance, they give strength to the hand-grip, and even to the weight-lifting power. One can easily understand that what we prefer to call the fast full movements, or the brisk full movements, should make a boy or a man smart and accurate and alert ; but we should not at first expect them to increase his strength as well ; yet this seems to be a general result of the practice.

From every point of view it is an advantage to have prompt control of the body and its various parts ; but most of us neglect this principle and have a very incompetent left side. Now Macdonald Smith develops the left side as much as the right, and he does not fall into the clumsy error of many Continental systems, and develop it generally with the right. Notice the average drill. Both arms come to the front together. Both arms are stretched back together. Both sides are made to work together. The left is not taught to act without the right. It is as if a woman were not taught to act without a man, nor a man to act without a woman. The Macdonald Smith system trains the two sides and their various parts to original and independent activity—not perhaps in the ideal way, but still in a way which is far ahead of the Continental.

It is needless to say that for special purposes the system is extremely valuable. Who does not loathe the drudgery of scales and five-finger drills ? Everyone would like to play, but scarcely anyone cares for the monotonous practice which is the orthodox way of learning. Macdonald Smith does not claim to do away with all practice ; only he finds, after an experience with many hundreds of pupils, that he reduces the practice within very small limits. We imagine that the same would apply to any fine

mechanical work with the arms and wrists and fingers.

It might seem, then, that the system was quite perfect; but no system is. The principle itself appears sound, but it is not the only principle of physical culture, nor does Macdonald Smith claim that it is.

But what we do think likely is that it is not a sound principle for all muscles in the body * to move them equally briskly and smartly; all muscles have not the same functions. Some are by nature quick movers, sprinters, and race-horses; others are weight-holders, the pillars of the body; others are weight-lifters, the cranes of the body, or pushers against resistance, and so on. It does not suit all muscles to be moved fast. That which might be an appropriate pace for the fore-arm and wrist might be objectionable for certain trunk muscles, and even unpleasant or dangerous for certain neck muscles. In a few types of movement, at any rate, we should prefer a more deliberate slowness, with equal concentration of mind. That is the sole principle of some other systems. We believe that one of the myriad American "Complete Culture" men has a system consisting entirely of slow movements.

Quite apart from this, one must learn not only to move fast, but also to wait and to move slowly, and, indeed, as we shall see directly, not to move at all, and, more important still, not to use any exertion at all.

This is true not merely of the muscles within the single body, but also of many muscular movements of women as distinct from men. Instead of sharp and snappy flicks and jerks, there should be

for them a tendency to slower and more curved and more graceful movements, which need not be the less full contractions for that.

Above all, there is need for more attention to the different kinds of breathing. The system does not neglect them, but it does not cultivate them, so we think, nearly enough as a special art. It is the relaxed breathing, described in another article, which is the most serious omission.



FIG. 10.—A POSITION IN THE CLASS EXERCISES. FULL CONTRACTION OF THE FLEXORS OF THE FINGERS, AND OF SEVERAL MUSCLES OF SHOULDER AND LEG.

FIG. 11.—A POSITION IN THE CLASS EXERCISES. FULL CONTRACTION OF THE EXTENSORS OF THE FINGERS.

Relaxing and repose do not belong to the system at all. Let us give the system its due. The inventor tells us of muscle-fibre, and shows us how his full contractions empty the capillaries, and let fresh blood flow in; that is good. He tells us how the nerves are stimulated by the briskness of the movements; that also is good. He tells us how, incidentally, the practice brings independent control of the various muscles; that is exceedingly good. But it is not complete physical culture. There is no training in repose, especially for the part which

* Nor for all people, as a habitual practice, since some are by nature too "jumpy" and "jerky" already.

does not happen to be used in the particular exercise. This training could easily be added, not only for the whole body, but also for the particular parts. It appears to us a matter of great moment that a person should be able to perform an unexpected and difficult movement correctly in a moment; but it appears to us equally important that a person should be able *not* to move or to work unnecessarily. It is that grand principle of economy with which we wish to interpenetrate the whole of the PHYSICAL EDUCATOR; but, let us repeat, there seems little or nothing in the Macdonald Smith system which prevents repose; it is another principle which could be added to supplement Macdonald Smith's.

Closely connected with repose is rhythm. For example, breathe rhythmically, and you will tend to quiet the whole system. If the heart did not work rhythmically it could not get through its day's labour; if the lungs did not work rhythmically, they could not either; and this applies to many of the large trunk-muscles of the body, and to the whole blood-supply. If we assume for the moment that all over the body there are numbers of tiny hearts helping the main heart, forcing the blood along, and so on, then we see the importance of rhythmical movement for the body, in addition to the prompt and sharp movements of the Macdonald Smith system.

Nor does this system include musical drill, though it might be made to do so. Music has many effects and many advantages in its proper place. To have nothing but musical drill would be a grand error; but the sounds certainly do give an interest to drill and help to take off some of the drudgery. Witness their effects during a dance, when the same amount of exercise without music would be neither enjoyable nor indeed possible.

The same applies to apparatus, which does not belong to the system. That also has its interest for many. Go to any Gymnastic or Athletic Institute, for example, and tell the many hundreds of members to come and perform Macdonald Smith movements when their day's work is over. Tell them that these movements are scientific, can be varied to any extent, can be performed by two or three together, one setting the exercises to the rest, and so on; still, it does not follow that the young men will be interested. But put them in a gymnasium, and the apparatus is their master and their reminder; it gives them more satisfaction; it gives them a clearer sense of having overcome an obstacle. Granted that certain movements are better done briskly and freely than with some cramping dumb-bell or bar, yet the dumb-bell and the bar may be invaluable as the primary attraction.

And, indeed, for certain purposes apparatus is better than freedom: it does free the parts. It is not easy to free the legs and the feet, but on the parallel bars it is quite easy. Step-dancing might be difficult to learn, but with the help of the parallel bars it becomes comparatively easy. And on the ladder and the horizontal bar and the quarter-circle one can stretch in a way which would be very difficult under other conditions.

Above all, by apparatus one can correct deformities. Consider the wrongly curved spine. Then look at the illustration of the quarter-circle in a previous chapter; here is a person on it, keeping stretched without violent effort, passively, for a long time together; and the quarter-circle is only one of a hundred good remedial instruments.

Besides, gymnastic apparatus does develop nerve too; it is nerve of a different kind, but there it is. For a man to jump,

vault, circle, and so on, is—as we show in the chapter on Nerve-training—a training of the nerves, not complete, but valuable.

An important branch of nerve-training is recreation. The Macdonald Smith system can hardly be considered as recreation. Much as we admire it, it, like the Ling system, lacks *abandon*. Recreation for an Anglo-Saxon seems almost to demand a ball to be hit or caught, or an opponent to be hit or caught or touched. Tell one person to set his own original exercises to a class of others, so that imitation may be combined with competition against others and against one's self; and theoretically we have a scope for endless variety and originality and skill. But, for all that, it does not seem to us to be play.

That is an important question with any system: not only, Is its theory sound? but, Is its practice interesting to Anglo-Saxons? The pleasant effects might soon give the system an attraction; and, anyhow, it would be more attractive to many than the Ling system, which has never yet, we believe, been called exciting. But does not the Anglo-Saxon seem to have in his blood a craving for real or mimic danger? Is it not this that makes him love our national games

or our gymnastics? The element of danger does not enter into the Macdonald Smith system. It prepares for Anglo-Saxon play and sport and real danger; but it does not involve these glorious things.

Interest, however, is not altogether lacking, for the system is taught only by a person, by Macdonald Smith himself. While it is an objection that the exercises are published nowhere, yet, on the other hand, there is much to be said for a set of exercises which are taught only by a person. After all, the personal element does give an interest to many things in life, which would otherwise be, if not dull, at any rate unattractive. It has been partly this personal element, doubtless, that has made the Editor appreciate the system. He was taught it by Macdonald Smith, who practises it regularly himself; and he has seen the inventor practising with his little boy, setting him all sorts of complicated exercises which the boy did accurately and smartly and enjoyed doing; he has seen the inventor adding to his system fresh ideas, and especially ideas about baths and simpler foods and open-mindedness. As an abstract theory he admires the system of movements; but it was the personal teacher that first induced him to try all these movements.

CHAPTER XIX.

TRAINING OF THE SENSES.

(*The Photographs are by permission of the Headmaster of Bedales School, Petersfield.*)

A Lesson from the Irish in the Sense of Humour—Senses Neglected by Culturists of Biceps, Triceps, and Co.—A Great Mistake—Man should be a *Machine de Luxe*, with Ball-bearings—A Sense-trained Cyclist—Avoids Accidents—Enjoys Himself—Sense-training means Pleasure in Listening—A Sense-trained Skater—The Sense of Humour—Why is Cooking not Taught, if only as Training of the Senses?—Practise the Mechanism of Life till it becomes Skilful and Automatic—Weighing Letters—Sloyd System—Gardening—Carpentering—Cricket—A Good Exercise that Few will Keep Up—The Sense of Smell—Training at Bedales School—The Imagination and the Picture-gallery Within—Judge Distances—Turn a "Serious" Pursuit into a Game—Training the Ear—Need to be able to Close the Senses of Smell, Taste, etc.—Why the Impassive Face During Employment?—The Sense of Touch—Discrimination—Poise, Physical and Mental—The Plank—Reading Leisurely—Sense of Happiness—Sense of Health—Of Excretion—Of Concentration—Will Not the Practiser become a Self-conscious Prig?—Not if the Sense of Humour is Kept—Dr. W. G. Anderson—Relaxing—The Mirror—Comparison with the Punch-ball.

THE Editor asked Lieutenant Flynn to write him some notes on the training of the senses, including the sense of humour, and we cannot do better than begin with extracts—modified slightly here and there—from the excellent materials which he supplied. Mr. Flynn was asked to say something about the sense of humour—for certainly the English people do need a little more Irish flavouring, and especially that Irish wit which, as he says, is so smart and quick without being offensive and cruel.

"Eton we know, Harrow we know, Winchester we know, but who are ye?" Such was the historical reply of the captain of one of the great Public Schools when he was sent a challenge—we forgot for the moment at what form of sport—by a school which, he considered, had not around it that halo of traditions indispensable in an opponent. Some of our readers with similar vanity may feel inclined to sneer: "Biceps we know, triceps we know, dorsals we know, but who are

ye? The senses, forsooth! Why, we have never even heard of you since we left school and did our 'three times' and 'Thirty days hath September.' Pray, where did you spring from? Somewhere off the map, we are sure, for, up to now, we have not had even a nodding acquaintance with you. You are so very small, you see, while we, the great B, T and D Company, are massive. Do you pretend you can tell us something about ourselves that we do not know already? Of course, you know who *we* are; but in case you do not, let us inform you that we are *the* people, and move in quite the most exclusive set—not in the smart set: we do not play ping-pong or even bridge. We are really more for show-work, not to say slow-work, plenty of red plush and lime-light, and a nice background, you know, and all the pedestal business. Healthy? No, not always; but that really doesn't matter. We invariably look all right, especially in a good light. But do tell us a few quite nice things about ourselves. It doesn't very much matter whether they

are new, so long as you play the variations skilfully, with very little F-pedal on our minor defects."

Such, kind reader, is the way in which you, and perhaps your muscles if they could speak for themselves, would voice their surprise at such a new departure.

Some ten or twelve years ago, in the catalogues of bicycle-manufacturers, attention was called to the ball-bearings which a machine had in this or that part, or to the ball-bearings all over the machine if the machine was particularly good.



FIG. I.

Such a machine was very perfect, or, in up-to-date language, a machine *de luxe*. Now, for the sake of illustration, let us compare man to this faultless production of man's ingenuity. Let us compare his senses to the ball-bearings. Take a perfect type of man, and one not only of good muscular power, but with all his senses fully developed and under control. Mount him on his fine machine, and start him for a fifty-mile ride over all sorts of roads. Just as he starts—in fact, just as he pushes off his bicycle from the kerb, and is in the act of giving his first stroke to the pedal—a child runs across his path. Instantly his hand closes on the brake with that precisely controlled pressure by which he will avoid running over the

child, and—what will probably interest him far more—being thrown over the handle-bars himself. Our man's ball-bearings are perfect; he has muscular sense. It may be natural, but, in our experience, not many have it naturally. It can be acquired, and every effort should be made to possess a commodity so useful and so frequently demanded.

In a previous chapter we have illustrated an extreme type of this muscular sense by an example of the exquisite muscular sense of the famous juggler Cinquevalli.

Having avoided this first pitfall, our perfect type goes on his way rejoicing. He is now well out of town. Exhilarated by the fresh and pure air, his sense of smell (always keenest when fittest) gratified by the scent of the freshly mown fields, his sense of hearing charmed by the music of the birds and the whole music of Nature and even of man's art, he feels he would like to let himself go for half a mile or so, which he does. But, as he is rounding a very sharp turn, he hears a voice shouting, "Look out! There's a motor coming!" And sure enough the motor does come, goggles and all, full tilt round that beastly corner. Our hero (for really by this time, had he been in the late war, he would have got his D.S.O., and perhaps a look-in for a birthday C.B.-ship, since honours are very thick just now) takes in the situation at a glance. As a matter of fact, any other situation, even a totally unremunerative one, would have suited him much better at that moment. On hearing the shout, immediately the ball-bearing part of him acts. This part of him instantly brings to his aid the various complex powers of mind and body. The result is that, by running up a steep bank, our Admirable Crichton has again avoided an accident.

These two are merely rough examples of

what may happen in everyday life. One has only to reverse the illustrations, and put a man without such faculties in similar "hot corners," to point the moral and adorn the tale. So we see what crass stupidity it is to cultivate mere muscle at the expense of those finer auxiliaries of physical culture, the senses.

But here we once again repeat that no single system is perfect. A man must study many physical props, just as doctors—greatly to their credit—are not now above recommending even patent articles



FIG. 3.

when they genuinely think them likely to benefit the patient.

The question then arises, How may we develop our senses most perfectly? Now, for acquiring what is known as muscular sense, few practices are better than fencing and club-manipulation. In the former we get just that fine touch, that *sentiment du fer* (to quote a fencing term), which may be so useful in ordinary life. In the latter we employ an even more advanced kind of co-ordination, and an even finer sense of touch, as is shown in the illustration of a shoulder-roll (Fig. 2), where, almost throughout the whole movement, the clubs are out of sight, and therefore the most exquisite sense of touch is demanded for the success of the movement.

Let us take an example now of the want of this muscular sense. Imagine a callow youth who has had no physical culture of either muscle or sense. Put him in a drawing-room; give him a cup of tea, and surround him with light bric-à-brac, and some women with very long trains. Then ask him to get a book. If he does not spill his tea (Fig. 3), if he picks his way through the labyrinth of frocks without causing qualms to the owners (we deny ourselves the pleasure of



FIG. 2.—A SHOULDER-ROLL, BY LIEUT. FLYNN.
(Photo: C. J. Mann, Ealing, W.)

saying "fair owners," since it is so trite); if he does not nearly knock over that fern-pot or that photograph frame (it has quite a wrong resting-place on the grand piano, which ought to be open); if he can extract your book from the shelf without bringing all the smaller books, laid on the top of the others, down on his or someone's head; if he can return through the same labyrinth of flower-pots, etc., then he can lay claim to a fair amount of muscular sense. But the youth of both sexes, and not unfrequently adults as well, are far from having this intuitive sense of how to avoid the social Scylla and Charybdis. They lack ease, and knowing this they become self-conscious, and therefore awkward. All this would be avoided if a little time had been spent in giving just that freedom, just that right expression to our movements, which a proper physical and mental training alone can effect.

And now may we bring to our readers' notice another aspect of the subject not without its importance—namely, what is called *reflex action*? It is usual in some circles to sneer at a purely military training; and, as a mere adjunct to a civilian's life, perhaps that training is not unobjectionable. But surely we are all agreed on one point, and that is its thoroughness. Whatever the soldier knows, he knows thoroughly to its minutest detail. The best type of soldier, to whatever arm of the Service he belongs, is an artist in his profession. Not only does he know his drill; it has become so much a part and parcel of him that, on hearing certain commands, he executes them quite involuntarily, and not always to his own advantage. Let us cite two cases. When the authorities suspect a man to have had previous military training, and when, in spite of alluring baits, he professes profound ignorance of *res militares*, the quick command "About turn!" executed as

soon as given, has been known to solve the problem of his former experience or inexperience. The better-known case is that of the practical joker who, seeing a soldier carrying his dinner, suddenly called out "Attention!" when the "sodger man" instantly brought his hands to his sides and his dinner to the ground. Both these soldiers carried out the order, as it were, unconsciously, because of the frequent repetitions of the drill in the past. What was at first an artificial movement has become in time an involuntary and natural one.

From the point of view of physical culture, then, we conclude that the more thoroughly you are trained, the better attuned all your powers and senses will be to meet the ordinary incidents of everyday life.

Not only does this training of the senses quicken our mental faculties in an all-round way, but it often helps us immensely in a time of sudden and unexpected danger. Here is an international Rugby



FIG. 4.

forward. Let him be crossing a street, as in Fig. 4, and suddenly be knocked down by a passing hansom. The odds are on his

doubling himself up as though in the thick of a "scrum" at his favourite game, keeping his head well out of the way of the horse's hoofs, and coming out on to the pavement with a bound or two, free from a scratch and, let us hope, going for the Jehu afterwards for his careless driving. Reflex action, again, and very useful this time.

Many more instances might be given, but we merely wish to convince our readers how well worth while it is for them to cultivate their ball-bearings, especially if those bearings are weak.

Here a few words may not be out of place as to the right and the wrong way of listening, say, to a man who has thought out his subject well, but whose delivery is poor. Of course, at first we heartily wish that the person had taken a few short lessons in elocution before he mounted his pulpit or platform. At the same time we should discriminate between the actual matter droned forth, and the droning itself. Otherwise, good and sound ideas may be lost, if we let our æsthetic taste in the matter of elocution predominate.

Or, again, if we are listening to some Wagnerian triumph at the Queen's Hall, under the well-known conductorship of Mr. Wood, we should try to feel in touch with the composer, and realise the spirit of his sound-picture; this will enhance the enjoyment of the performance. The expression usually witnessed shows a want of control over the senses. The hearer has not the power to close them at will.

In either case we should be in touch and sympathy with those who are doing their best work for our benefit, since undoubtedly there is such a telepathy between actor and audience, and audience and actor. So, by cultivating all our bearings in this way, instinctively we get a better idea of what we may call proper proportion of things in general.

As an instance of this proportion, we invariably notice that people who have paid most attention to detail, especially in physical drill, show attention to detail in their manner of living, etc., *in propria persona*. Here is a skater, the best on the pond which you happen to have chosen for your afternoon's sport. He cuts the neatest figures with flawless accuracy. You look at the man himself, and you see a due regard to form, proportion, *équilibre*, cleanliness, written all over him. His clothes are of faultless cut and pattern; his skates exactly fit his boots, which were made for them. The bag in which he carries them is just the right-sized bag, neither too big nor too small. If he wishes to take *un petit verre*, he does so, but not out of a podgy flask which would cause his pocket to bulge, but, instead, from a concave flask which fits that pocket and shows no sign of being there. In a word, his bearings are very much of the *de luxe* pattern, and, consequently, he gets much more enjoyment out of his life than does the human machine catalogued as of the second grade.

And, discount him as you will, he is at least pleasant to look upon, and this, considering the number of uninteresting people we meet, is something to be thankful for. Especially is it so, if we contrast him with that sacerdotal specialist yonder, that one in flying cloak and broad-brimmed hat, trousers well turned up, and hair much too long. He has just tripped over his skate-strap—which is not really his skate-strap, but his Gladstone bag strap wound twice round his ankle. He is of the sloppy order, and we doubt whether physical culture could ever do very much for him—or, rather, whether he would ever do very much for himself by means of physical culture. You see, he soars above such things, and

consequently he forms a very unpleasant blot on an otherwise pleasant landscape.

And while our enthusiastic physical culturist will, we hope, make the study of health in all its forms a veritable hobby, there is really no reason why a saving sense of humour should not run through the whole. A little harmless burlesque of this or that theory, a little note of not

Nations that excel in humour, the Irish and the French, show how this fits in with their natural characteristics, in contrast with the nations of the stolid, fishy nature, especially the English, the Germans a good second, and the Scotch qualifying for a place in the final heat.

But, whatever the nationality of the speaker, it is his humorous sayings that



FIG. 5.—A COOKERY CLASS AT BEDALES SCHOOL.

too acrid satire, all helps to relieve our machine *de luxe* from feeling too heavily the burden which it has consented to carry, and sheds a gleam of sunshine on what may otherwise be a dull ride.

It is in teaching the young that humour should be allowed to enter, for it is always pushing its way in. The humour itself need not be young ; an old joke is generally a good joke, and humour survives the wisest things. It should be spontaneous, however, and not built up.

we remember. Think of the successful preachers—Spurgeon, Haweis. How did they hold their audiences ? Think of witty schoolmasters and their success through their wit. Run through history and trace the influence of women of wit. We wish we had space to enlarge on the different classes of repartee, of dry wit and college epigram, caustic wit, sardonic wit, and sheer poking of fun. We wish we had space to call attention to those who think they are witty and are not—for

example, most headmasters on most speech-days, and the majority of self-made local mayors.

Applying the sense of humour to physical culture, we should urge readers to laugh and grow fat (but not too fat), to laugh as a help to the digestion, and, chiefly, as a help for the mind—to train their sense of humour and *joie de vivre*.

After this introduction, the Editor comes in as a kind of contrast, with some more heavy business. It is not really any more serious business than Mr. Flynn's, only it is treated in the solid English fashion which, perhaps, does not cover the ground any the more effectively for being heavy !

Sight, hearing, smell, taste, touch, the muscular sense (including the sense of poise) ; these are what most of us understand by the senses. Among the chief qualities needed by these senses are *discrimination*, *proportion*, and *memory* (or memories). To the above list we shall add a few other senses directly, among them the sense of health, and, once more, the sense of humour. But first let us be serious, if not positively rude.

Why is it that, though all reasonable people agree on one point—the importance of a better training of our senses—so many

of the easiest ways of training them are relentlessly kept out, almost boycotted, from our orthodox education ? How is it, for example, that a home, three schools, and a university never taught us anything about the art of cooking ? Already, by the way, young as we are at the art, it has attracted to us a hundred useful friends, and bids fair to earn for us some hundreds of pounds !

Think of what it means to be able to cook really well ! Leave on one side the sympathy with cooks, and the power to control cooks (since the mistress who can herself show the servant how this or that should be done has a great hold over the servant) ; leave on one side the capacity to save lots of money by giving lessons to or by cooking meals for others—a step towards real and true independence ; leave on one side the pleasure and health which you can offer to others as well as yourself ; leave on one side the value of cooking as a hobby and a field of interesting study. Simply consider it as a training of the senses. Why should it, at some schools (Fig. 6), be regarded as an offence almost on a level with stealing apples ?

Let us notice a few items. You train your sight to discriminate and remember as to freshness or staleness, quality, quantity, and so on. You train your hearing to know when a thing is cooked rightly or sufficiently ; you train your smell continually ; you train your taste continually ; you train your touch and your "muscular sense" continually, with regard to consistency, temperature, weight, and distance. Discrimination and proportion—what is just the best thing to use with these ingredients, and just how much or little of it—and observation and memory, are exercised incessantly, yet in ever-changing ways. And last, but not least, you can judge each theory by its concrete effects. Is the theory,



FIG. 6.

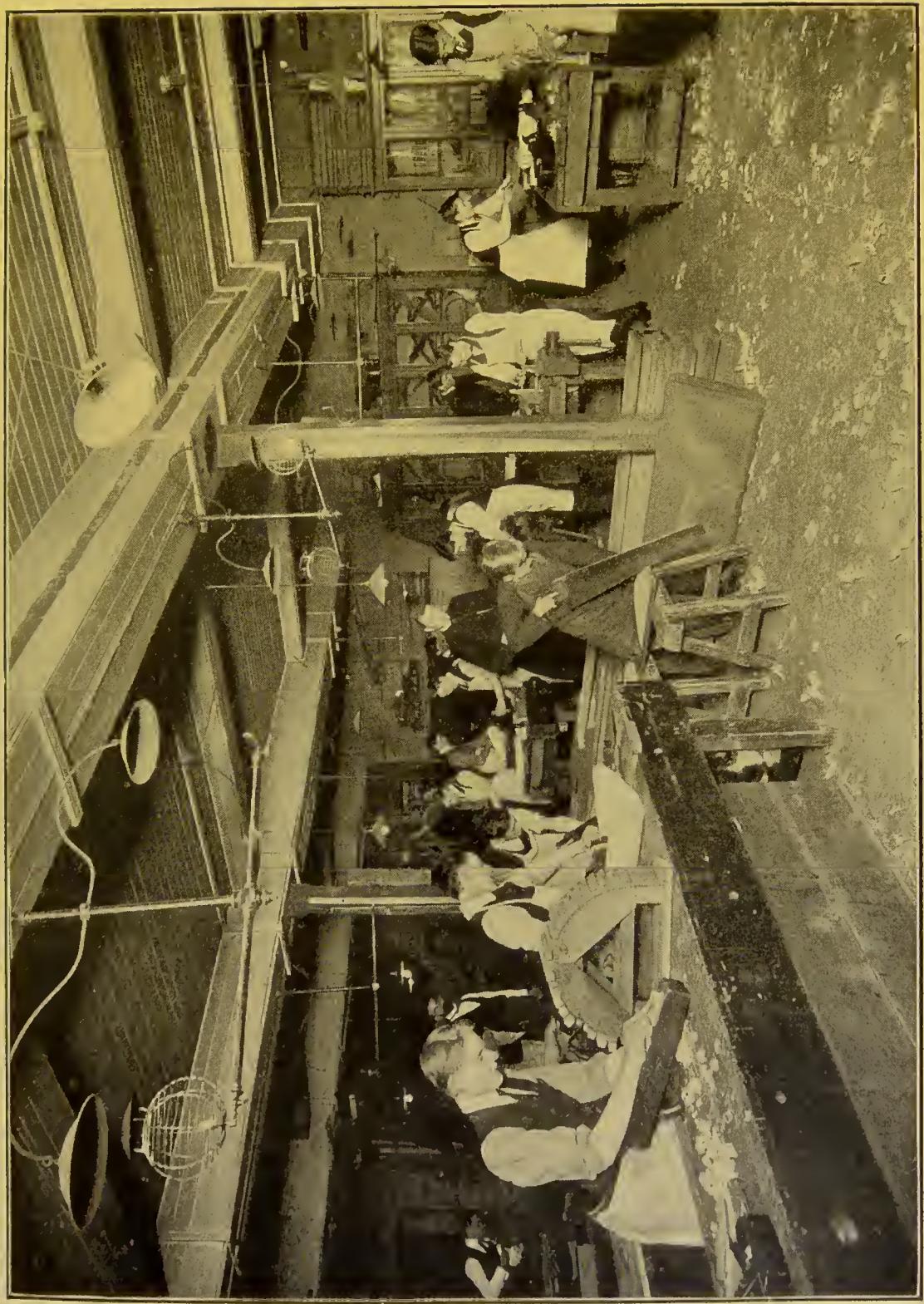


FIG. 7.—SENSE-TRAINING BY USEFUL MANUAL WORK AT THE POLYTECHNIC.

(Photo, by permission of the President of the Polytechnic.)

the experiment, good or bad? You will hardly make any mistake about the answer, will you? Or, if you do, the eaters will not!

That is only one instance of how the senses of all of us—male and female alike—should have been trained long ago in the very A B C of life, so that now we should have been relieved of the bother

it is that makes you like or trust this person, dislike or distrust that one. Of course, behind your judgment is something subtle, the person's self; but there also is something obvious—the person's eye, face, expression, attitude, dress, and so on, which you can trace back, if you have that special sort of memory, to certain actual cases where similar faces, expressions, and so on have been accompanied by similar characters and characteristics. We remember one man who

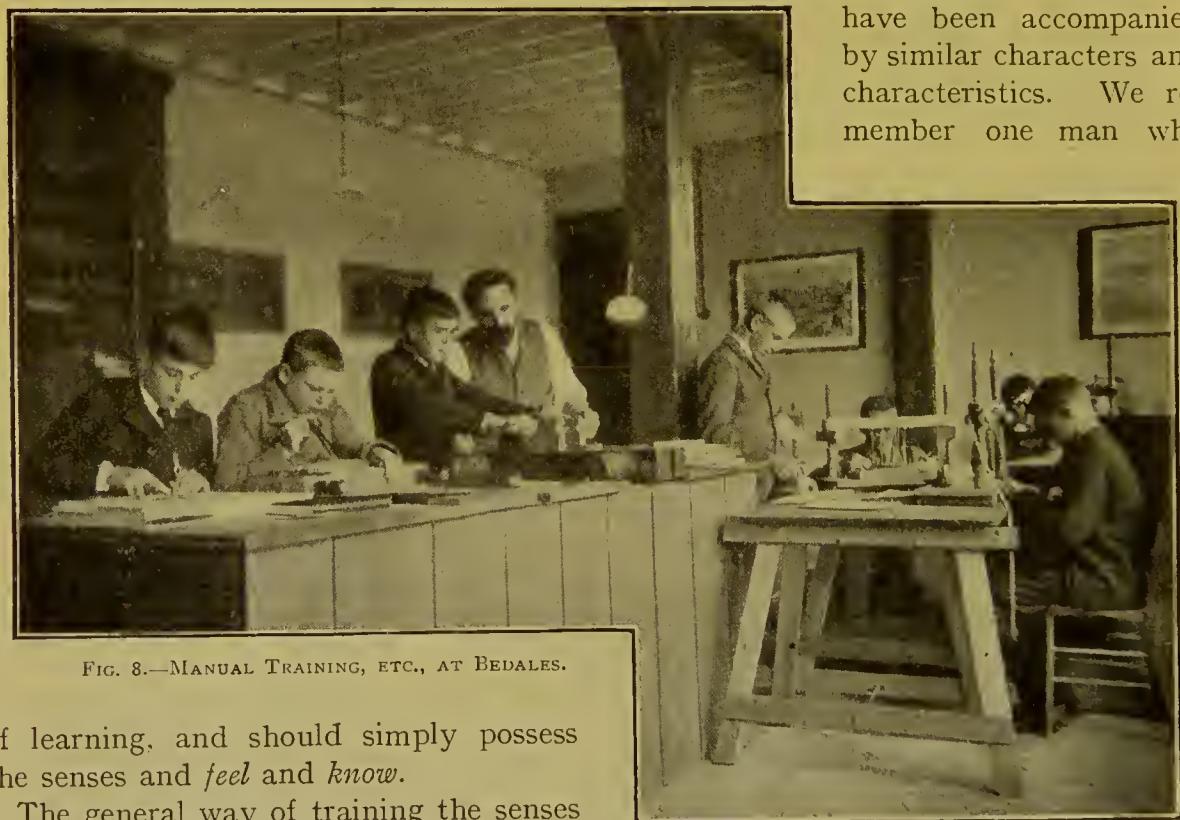


FIG. 8.—MANUAL TRAINING, ETC., AT BEADES.

of learning, and should simply possess the senses and *feel* and *know*.

The general way of training the senses is surely to master the mechanism of life, to practise until we have made good senses work to all intents and purposes unconsciously. As an example, think of your letters for the post. At first you have to weigh them in the scales. If you weigh them in your hand first, then guess the weight, then put them in the scales, and correct your guesses, after a short time you will get the power of calculating weight merely by holding a thing in your hand; you do not have to use the scales at all, except to verify results occasionally. As another instance, consider what

was remarkably stingy in small matters. He had a peculiar type of face, and we wondered whether that face or some feature in it was a symbol and token of stinginess. Since that time, we have met four people with similar features: these four people have been stingy. We learnt this type; we got this plan of "sensing" one kind of stinginess by means of a very easy instance. And that is the beginning of learning—to learn by easy and obvious examples, then to venture and experiment with harder cases. Test yourself and

correct yourself, be ready to see mistakes in your ways, and regard it all at the time as a sort of game to be played—to be played cheerfully but with increasing accuracy.

Of all trainings in accuracy and judgment by results, perhaps the Sloyd system stands pre-eminent. The training here is easy, not because the work is

like the pleasure of the exercise and its effects. The training of the senses is not our prime aim. So it is with carpentering in general. We perhaps make a bookcase out of an old box (Fig. 10). The work is useful, economical, and pleasant, because we feel that we are creating something. Meanwhile it develops our senses. Or we play Cricket. We catch or try to catch ;



FIG. 9.—GARDEN WORK AT BEADES.

easy, but because it is compulsory. You go to the training-place and serve an apprenticeship under a tyrant; you learn because you are forced to.

The early fields for training must therefore be either compulsory, or easy, or else interesting, perhaps because of some other motive. Gardening, which is an admirable exercise-ground for the senses, is practised not purposely for that reason, but because we like to tend the plants and see them growing, and because we

we play forward or try to play forward. Several senses have to work harmoniously together, to say nothing of the intelligence and the nerves. We do not play Cricket intentionally to improve our senses; we play it from other and more obvious reasons; but, for all that, Cricket does improve the senses, even if it is played as badly as it generally is. The same applies to the fencing and club-work which Mr. Flynn advises. Each has its own motives; each trains the senses on the way.



FIG. 10.

As a contrast to these, we have before us an American book called "Power of Will." It is offered as a complete training for the whole of man's mind. In it are hundreds of exercises that are theoretically admirable. The book is, at first sight, most methodical and complete, and many of its instructions are sound and feasible—for example, this one :—

" Determine every day, until unnecessary to recall it, at a certain exact hour some particular matter to which you will then attend. Keep the same hour for many days. Then change the hour. Continue until you are master in this respect. This will build up a habit of obeying your own orders."

Here is another quotation from the same book :—

" Exercise to develop the sense of odor. Take some fragrant flower; inhale its odor; walk about the room away from the flower. Now recall the quality and intensity of the smell. Repeat this exercise with various extracts and perfumes taken separately. Care must be had to give the nostrils sufficient rest between whiles; otherwise the sense of

smell will become confused. Repeat this exercise every day for at least ten days, with a rest of two days. It will be better to go on until improvement is certainly noted in keenness of scent and mental power to describe smells or odors. Always record results. On the eleventh day note and record improvement. During all the above and following practice, the feeling of strong will must be kept constantly at the fore. Put your mind into your nose. As a second exercise, while sitting erect, gently inhale the air, and try to name any odor perceived. Is it real? Where does it originate? Make a written, marked record of success."

There is no doubt that such exercises would be helpful if people would do them; but will people do them? No, they will probably be too lazy, and will excuse themselves by saying that such practices make one self-conscious. Thus they scarcely see that beautiful flower in the room; they do not admire the colour or proportion of it; they do not notice its smell; they have missed a pleasure. It is a question whether a little training of the senses would not have made them happier people, even if it had made them, for the time, *somewhat self-conscious, or—shall we call it?—somewhat observant of their own deficiencies with a view to self-correction.*

There are, however, large numbers of hobbies for those who refuse to perform such practices as the above. For instance, besides cooking, gardening, and carpentering, already cited, we have drawing, modelling with wax or Plasticine; and there are the occupations shown in the photographs from Bedales School at Petersfield, an admirable school, where the senses are trained in many useful ways, while games and free self-expression, and, on the other side, the discipline and work, are not neglected.

As training for the sight, one of the best plans is to observe something, whether it be a picture or a person or a piece of scenery, or even a common door—anything sane that you *have* to look at or *want* to look at. Observe it first with the eyes half-closed, then attentively and in detail. Now close your eyes again, and try to reproduce the sight of the

happy mean between being half an hour too early and two minutes too late for your train. To practise catching a ping-pong ball (Fig. 12) after throwing it against the wall of your bedroom—as suggested in one of the magazines—is a training for other senses besides sight and judgment of distance.

Here we may note that to turn a dull practice into a game may

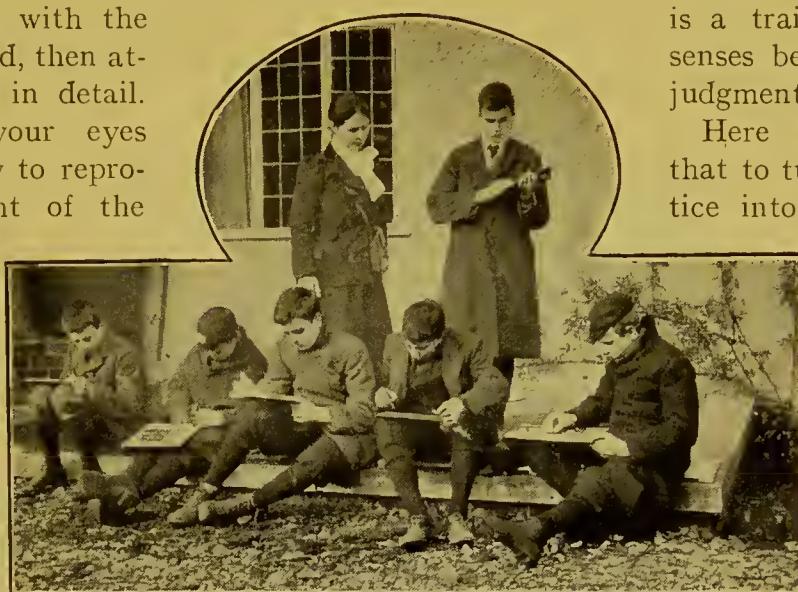


FIG. 11.—A SKETCHING CLASS AT BEDALES.

shape, colour, and shading, with a general impression of the surroundings. Open your eyes again, and correct your picture. Repeat this till you actually see the object, and recall it at will. It is important to repeat in fairly quick succession, striking again and again while the iron is hot. Choose your pictures carefully, and, as a great man has advised us, fill the picture-gallery of your mind with noble pictures, so that you may walk in it at times of leisure or temptation.

One of the best trainings for the sight is to judge distances. Calculate how far off an object is, and how long it would take you to get to it. Then walk there; count your steps and time yourself. By degrees you will have acquired a very useful sense, in which most people are deficient. You can practise it in walking to a station, and so learn to save many minutes, if not hours, by striking the

give it just that interest which it needs. As we have said above, tell a child to move its arms up and down, or in certain (probably very hygienic) directions, and that child is not attracted. But tell the child to imitate some animal or a windmill, and the child is attracted.



FIG. 12.

We can make a game of most of our serious things, and so relieve ourselves of the sheer drudgery of them.

As training for the hearing, calculate the direction from which a noise is coming, and guess what the noise is ; then correct yourself. In our games we depend considerably upon our hearing. Our oppo-

different footfalls of people who pass by, or train yourself to pick out each part, the bass, the tenor, the alto, and the soprano, while you are listening to music, and then afterwards reproduce the various sounds to yourself, though you need not trouble to produce them out loud, to the astonishment of your neigh-



FIG. 13.—A MUSIC LESSON AT BEDALES.

ment serves the ball at racquets. Of course, we watch his wrist and arm, and then the ball itself. But when there is a noise in the gallery, or when for some other reason our hearing is not acute, we are apt to misjudge the ball. Unconsciously our ear discriminates, and knows that this sound means a certain cut or twist which will make a difference of several inches or feet to the flight of the ball. Or, again, discriminate between

hours. But it will be better for you to work out your own favourite exercises.

With regard to the sense of smell, of which Haddock treats so thoroughly in the above-mentioned book ("Power of Will"), we know well how a smell can recall memories. There is an evening game played in certain houses at which each contributes some food or other article, and there is a competition, with prizes for the persons who guess most of

the articles right, blindfolded. But, in the case of smell—in London, at any rate, and in many parts of the country, alas!—it is more important to be able to close the sense of smell than to keep it open and receptive.

The same applies to the sense of taste, which is one of our most valuable, because one of our most pleasant. Yet at many times we have to close it. At other times we have a mistaken idea that we are fine people of the right stamp because we do not show, and in many cases do not feel, pleasure in eating. At many dinner parties where pounds have been spent in procuring excellent tastes, you look round and you see not a face move. Such is that Anglo-Saxon stupidity which is one of our grossest characteristics. Here we ought to learn a lesson from the Frenchman who enjoys his meal and shows you that he enjoys it. What shame is there in letting people know that you are happy during your meal? Surely it is despicable to spend five shillings over three dishes, and then pretend with great effort, till it becomes second nature (and an obliteration of our child-nature), that you would just as soon be eating plain and badly cooked food that cost twopence.

If the poor—and the rich—were educated in the art of taste, there would be far less over-drinking; the dipsomaniac is too frequently a man whose tastes are atrophied. The “whiskey and soda” person usually has no keenness of smell or taste or fine perception. He has small natural balance; he does not hear half that you say to him, and misses points. This, at least, is the dictum of a closely observing friend of ours.

Slow eating, with attention to the taste, should be part of the training of children. Their tendency is to enjoy nice things. Let them do so, and let them show that they do, of course without smacking

their lips. Why should you enjoy a fine picture or a pretty face or a good piece at the theatre, and not enjoy a good taste? *Is it any glory to look bored?* *Is it not senseless to be bored?* Of course, if the taste is bad or uninteresting, we do need something to arouse our appetite-juice, something to give us pleasure; it may be conversation, it may be a novel; but there is no necessity for us to rely on conversation, as Herbert Spencer came to do, when the tastes are fairly pleasurable. We need not go to the extreme of the Hindu Yogi, and concentrate our attention on the tip of our nose, in the hope that this will increase our power of taste; but, at any rate, we can attend to the taste when we are having a meal by ourselves. For our part, to give a recent personal experience, we are coming to taste and to enjoy the simpler foods more and more every year, and to eat them more slowly. Those who tried our first experimental meals either liked most of the dishes, and—having no fine discrimination here—failed to detect mistakes in others, or else—having fine discrimination here but no power to close the sense—detected the incongruous tastes, and were put off by them. Only a few persons appeared to have the power to detect incongruous tastes, and then to close the mind to the unpleasantness. This art of closing the senses is one of the most supreme in life. It may exist side by side with the nicest discrimination.

It applies to touch as well. While we should have fingers to appreciate the softest texture and the softest touch, and varieties of substance, weight, and so on, we ought, on the other hand, to be able to close our finger-senses to unpleasant and rasping textures. While we should enjoy stroking a horse or a dog, we should not be so terribly upset by scraping our nails against silk or slate or file.

The muscular sense has been dealt with

above by Mr. Flynn. Accuracy and discrimination are what we need. These depend on observation and memory. By training and practising them in one sphere we are training and practising them as general senses to be used in all spheres.

Poise may be considered as a special muscular sense. Poise and repose go closely together. Both are mental as well as physical ; both impress others mentally. Probably there are few qualities that impress people more, though they could scarcely tell you why they were impressed. Contrast the walk of the mentally afflicted—"all over the shop," as a schoolboy would describe it. Probably their mind is like their walk. Look at the portraits and statues of great men—Newton, Napoleon, Wellington, Gladstone, Cecil Rhodes, Kitchener. You surely find in them a certain amount of physical poise—at least, while they are in their prime. Afterwards, is not the mental want of poise marked by a physical want of poise also ? For example, look at Napoleon and Cecil Rhodes—both much too fat. Contrast Gladstone and Kitchener—firm and well poised in body as well as mind. We can cultivate poise physically by balance-movements, at first easy, then advanced. Besides those of fencing and skating, we find the inclined plank very useful as practice in poise, the difficulty being increased by use of the upper plank, which is only six inches wide. Mentally, we can increase our poise in many ways, by reading good books and reading them leisurely and reposefully, and by thinking more deeply than usual. The reading and thinking should be done calmly, not with knitted brows and clenched teeth and knotted muscles. An essential part of poise is repose, rest of those parts which, let us repeat, we gain nothing by using.

Closely connected with the sense of poise is the sense of happiness. But how

get it ? Perhaps we read a book with some such title as "Be happy." What preaching ! How much easier it is to express happiness than to feel it ! We can express it most easily by the face. Look at those two faces of Central Africans in the article on nerves. Does not the mere sight and the unconscious imitation of those two faces actually alter your mind ?

The sense of health, like the sense of happiness, is often appealed to. Preachers say, Do this and it will make you happy. Physical preachers say, Do this, and it will make you healthy. But the person preached to has not the sense of happiness or health ; he does not understand what it means, though it is among the most valuable of all senses, is a sense possessed by all normal little children, and by normal animals and human beings, who scent danger afar and avoid it. It has been lost by most of us. We once saw a child absolutely refuse to taste wine at the dinner-table, though his father again and again urged him to try it ; there was the healthy instinct, which made the same



FIG. 14.

child refuse to take a pull at his father's pipe (Fig. 14). This is an instinct or sense that we should endeavour by all means to recover—for it is our guide in physical, and also in mental and moral life.

A branch of it is what we may call the

sense of excretion. The advertisements of bath-cabinets, to say nothing of aperients, seem to prove that millions of us have lost this sense of excretion. Perhaps it should normally be felt and obeyed in the early morning, almost immediately we wake. But, if we no longer have the instinct to excrete regularly, then a good plan is to avoid eating those useless things which we are bound to retain within us.

The sense of concentration is again a lost one for most of us. Here and now, try to keep still and fix your attention on your hand for five minutes, merely in order to see whether you *can* concentrate at will. It is extremely difficult for nearly everyone; yet all authorities agree that concentration is the secret of strength and success. The channel narrowed flows swiftly and strongly; spread out over a wide surface it loses power. But with concentration should be practised change of concentration. You should be able to turn your attention and focus it upon a point, and then, more and more readily every year, turn it in another direction and focus it upon another point without great effort or loss of poise.

But, once again, will not the practiser of these exercises become a self-conscious prig? There always is that danger, unless all the time there is kept ready that other sense—humour. Here is a case in point, where humour might avail something. A friend of ours has a most exquisite sense of sight and touch and smell and taste. When beautiful things are offered to his eyes and other gateways of his mind, he is thoroughly happy, far happier than the ordinary atrophied person is; but, if unpleasant things are presented, he is miserable—far more miserable than the ordinary atrophied person is. He can see no humour in the unpleasant things; he cannot or will not close these senses of his. Always, it seems, he must be either very

happy or very miserable. He may read the advice of Richard Baxter: “If thou wilt keep a guard on thy thoughts thou must in the first place keep a guard upon thy eyes and ears, and taste and touch. Let not that come into these outer parts which thou desirest should go no further. Open not the door to them, if thou wouldest not let them in.” But it is philosophically vague, and easier to read than to carry out. Among the helps towards carrying it out is the sense of humour, so that we may see things and ourselves in a comic light, good-naturedly, yet none the less amusedly.

Another help is to practise concentration in a new direction. Dr. W. G. Anderson, of the Yale Gymnasium in America, has made very interesting experiments with regard to the circulation. By thinking of a part, you can, as Dr. Maudsley said, send more blood to that part. By looking at the part, you can produce a similar effect, as Professor Elmer Gates, of Washington, has shown. Those who have trained their minds in this particular way can even withdraw much blood from the arm by a mental process—by attending to something else. They can even render the part insensible, so that you can prick it with a needle, but they apparently feel nothing, and the needle is not moistened with blood. A white thread drawn through the part comes out white.

But a still greater help to many will be the art of relaxing. We may not perhaps entirely close our senses to the undesirables, but at least we shall be less annoyed at them if we cease to express annoyance by our faces and positions of our bodies. Relax and look calm, and you will tend to feel calm also.

So, in the training of our senses, we have a double object—first, to be able to open them to all sorts of useful impressions,

then to be able to close them to all sorts of useless or unpleasant impressions. For this latter art, we must learn more often to retire within ourselves and to relax. One knows how a drunken person, flabby and limp, is impervious to outside impressions, and even to danger. Some



FIG. 15.

wonderful super-conscious or sub-conscious mind guides him. He is not tense, but slack—a glance at his body will show that (Fig. 15). So, in listening to music, or to such a speech as Mr. Flynn mentioned, when the speaker's voice is droning, we can, by removing our tension and by ceasing to fidget, receive the good ideas without being exasperated by the bad delivery. And, if it helps us, we can "suggest" to ourselves that we are not going to be annoyed—beaten—by a little thing like that.

We must notice ourselves. In the New Testament we are told to watch, which includes to observe. Then we must correct and correct until we have restored the normal. A more frequent glance at a mirror (we advise a special training-mirror for athletes) will be a help. Dr. Anderson, mentioned just now, found that when a person looked at the reflection of the muscles during exercise, more blood

flowed to those muscles than when the person did the exercises without a mirror in front of him. By this means, or by looking direct at the muscles and sending the mind into them, as Sandow suggests, we get the "sense" of more of our muscles; we come to live with and sympathise with and be kind to more parts of ourselves. We have a thousand lives—a thousand lives to live—within ourselves. We should learn to live each one of these lives in so far as it can give us healthy satisfaction. Our aim is to restore the normal. Once having restored it, once being all-round in our development, we can cease to take much thought about ourselves, except in so far as we may get sane happiness from ourselves.

Anyhow, we should not give way to anxiety about ourselves, but perhaps should cultivate, as we have advised already, the play-spirit—the sense that life is the thing to be done well, and therefore the thing to be prepared for well. We do not practise with the punch-ball in order that, during our boxing-match, we may think consciously of the punch-ball practice and the positions and movements of our feet and arms. We practise for an exactly opposite reason—namely, that during the boxing-match, during the play, we may *not* have to attend to these details, but may play successfully and enjoyably, because now it is the play that we are attending to, not the machinery of the play. Most Anglo-Saxon boys, and, we are glad to say, many Anglo-Saxon girls, take their play more sensibly and do it more thoroughly than anything else in their life. So, in training the senses, the way to appeal to them may be to urge them to the play-spirit, to practise their senses and develop them, not with a view to self-consciousness, but with a view to a pleasant and safe self-expression in the future.

CHAPTER XX.

DRINKS, STIMULANTS, IRRITANTS, AND NARCOTICS.

(The Illustrations, except for the one by Mr. J. R. Monsell, are by kind permission of Mr. Wilhelm Pilz, of Berlin, from photographs in a most useful book describing the German Naturheil methods, "Practische Naturheilkunde," by Reinh. Gerling and E. Köhler. Some excellent articles will also be found in the "British Journal of Inebriety.")

Pure and Soft Water—Stimulants, etc., and Fallacious Tests—Against Alcohol—What is a Stimulant?—Tobacco—Tea and Coffee—Meat Extracts—Various Effects—Mental Stimulants—For Alcohol—Comparisons—Neglected Facts—Call for Substitutes for the Time—Causes of a Craving—Helps to Remove it—Need of Individual Decisions after Weighing Evidences—A few Questions—Alexis St. Martin—An Experiment, an Admission, and a Warning.

IT is generally agreed that the ideal drink is pure, soft water, since it both builds and cleanses the body, of which it forms the largest part. But it is not easy to get pure, soft water. (We shall deal with the subject in a later chapter.) Here we can only urge the use of distilled water obtained fresh or from a chemist or company, or made by means of a special distiller, and taken at the right times. These are generally agreed to be just before bed-time or long after the last meal, and long before breakfast in the early morning.

Pure and soft water may be obtained also from fruits and fruit-juices, from salads, and from well-cooked vegetables, or from vegetable-juices. There are many people who find that such things quench their thirst sufficiently without any extra drink, especially if they eat leisurely.

Probably few readers have thought how much water there is already in daily foods. Here is Dr. Edward Smith's table:—

	<i>Per cent.</i>
Beer and ale 91
Butter-milk 88
Carrots 83
Cheese 36
Coffee nearly 100
Cream 66
Dried bacon 15
Egg 74
Fat beef 51
Fat mutton 53

	<i>Per cent.</i>
Fat pork 39
Lean beef 72
Lean mutton 72
New milk 86
Oatmeal 15
Potatoes 75
Poultry 74
Pure butter and fats 15
Rice 13
Skim cheese 44
Skim milk 88
Sugar 5
Tea nearly 100
Turnips 91
Veal 63
Wheaten bread 37
Wheaten flour 15
White fish 78
White of egg 78
Yolk of egg 52

[Estimated Excretions (daily):]

Fæces 3 oz.
Transpiration 40 oz.
Urine 40 oz.]

There are many healthy people who find that these amounts are sufficient for the day. It is the clogged system that needs most flushing with pure (hot or cool) water which may absorb and remove the acids and mineral matters that clog.

With regard to stimulants, irritants, and narcotics, we may say at once that an ideal is to be able to give them up without discomfort, and an ideal above that may be to be able to take them without discomfort also, if not without

harm. The mistake is not merely to take stimulants, etc., but to be unable to give them up, to be unable to give up what is a costly luxury, and, so far as we know, not a vital necessity.

If we confine ourselves for the moment to the question of alcohol, the extremists will object—and many impartial scientific investigators also—that you cannot take alcohol without harm. They allude to the effects of alcohol upon blood, nerve, tissue, and so on. They say that flesh has been soaked in alcohol, and the

question has so many other aspects and factors, which true science must consider.

No amount of authority and desire to benefit the world can make us accept, blindfold, the decision of Sir Benjamin Ward Richardson (about 1870). He says: "After these researches . . . I learnt purely by experimental observation that in its action on the living body alcohol deranges the constitution of the blood, unduly excites the heart and respiration, paralyses the minute blood-vessels, disturbs the regularity of nervous action,



A MAN AT 30, 45, AND 60—THE DETERIORATION BEING SUPPOSEDLY DUE TO ALCOHOL.

result has been carefully registered. Although we shall deal with this matter in more detail directly, we may mention here that to soak a piece of isolated flesh in alcohol is not the same as to put alcohol into a human body interpenetrated by a living mind. To give alcohol to passive tissues is not the same as to give it to people depressed or to people exerting mind-power. To give alcohol to "subjects" who are experimented on by shoals is not the same as to give alcohol to people when they feel as if it would do them good. These experiments are not to be ignored; but, on the other hand, they are not to be pressed too far. The

lowers the animal temperature, and lessens the muscular power. . . . All persons who indulge much in any form of alcoholic drink are troubled with indigestion. When they wake in the morning they find their mouth dry, their tongue coated, and their appetite bad." Since we ourselves have known many striking exceptions, we turn away from such exaggeration with the thought, "If these anti-alcoholists err here, which of their other statements are any more reliable?"

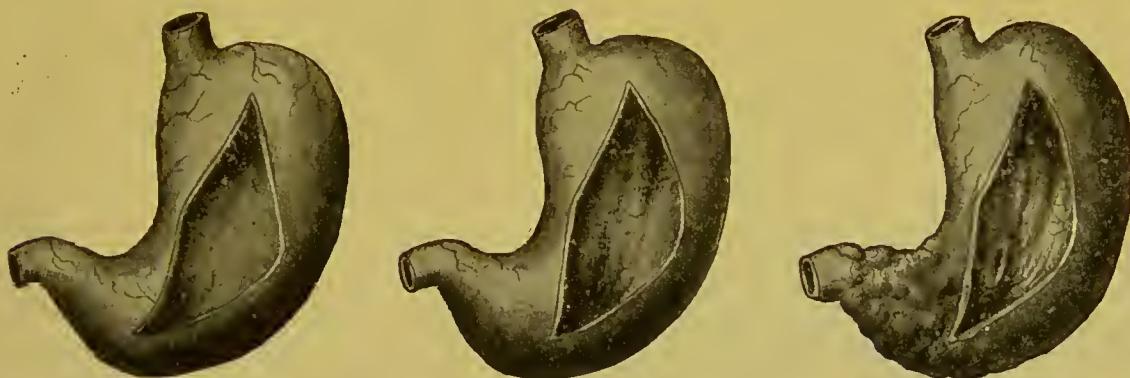
Let us, however, take the plea against alcohol as it is stated by extremists, and, in the case of many of the arguments, by "moderates" also.

AGAINST ALCOHOLIC LIQUORS.

First, there are the bad effects of overdrinking, which are not confined to what we know as drunkenness. Excess of alcohol may remove control, and without control man in his behaviour is below the beasts. "Excessive drinking will make the speech thick and hesitating, the emotions easily excited, the judgment impaired, the muscles no longer under mastery, the sight double," and so on.

Besides this, habitually to take alcohol makes alcohol, by nature an expensive

cannot be performed by something else, either by the mind, or by water, or by massage and exercises, or by rest, or by diet, or by light and air and breathing. In hot climates, it is urged, alcohol is bad; in cold climates it is useless. So far from warming us, it drives the blood to the surface, and thus gets rid of heat faster than it makes it. Hence Arctic travellers do not drink alcohol if they wish to preserve their animal heat. Nansen did not include it in making up his list of the *Fram's* equipment. To take the other extreme, the hot climate, Kitchener's



A HEALTHY, AN INFLAMED, AND AN ULCERATED STOMACH, THE TWO LATTER SUPPOSEDLY DUE TO ALCOHOL.

luxury, a still more expensive necessity. The expense is all the greater if we are slaves to the habit, and the expense falls on the nation as well as on the individual. So much grain, etc., is used for producing genuine alcoholic drinks, and not for producing nourishment, and the crimes prompted by excess bring the nation a heavy bill annually. If, on the other hand, the alcohol be cheap, the chances are that it is adulterated.

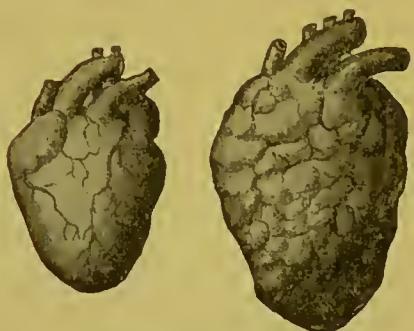
Alcohol is seldom an absolute necessity. The extremists say that it is never a necessity at all. It does not become an integral part of the human body like proteid, etc. Masses of people have thrived without it. It is doubtful whether there is any function of alcohol that

marches across the desert in the Soudan campaign were most successful when the troops had no alcohol. A world-famed boxer, and many other athletes, have put down their defeats to "the booze."

Whatever alcohol may do in the way of good or harm, at least it goes everywhere, to all tissues. It must have results everywhere. The mere fact that the changes are slow, and that the signs of these changes need not appear for a long time, and then may be put down to something else, is no proof that alcohol does not produce the changes. In fact, in estimating its harm or good, we must look at the next generation, its physique, its tendency to drink, and its morale. Most of those who have boasted that alcohol

has done them no harm are condemned by their children and grandchildren.

For the full harm which alcohol is said to do we must refer to special



A HEALTHY AND UNHEALTHY HEART, THE LATTER
SUPPOSEDLY DUE TO ALCOHOL.

treatises which any temperance society will send. We select a few statements of the most striking kind, prefacing them by the remarks of one of the most ardent and uncompromising anti-alcoholists, Dr. N. S. Davis, who, in the middle of the nineteenth century, maintained that alcohol reduced the temperature, the amount of carbonic acid exhaled, and the muscular strength. He says :—

" With the blood it is carried to every part and made to penetrate every tissue of the living body. . . . The presence of alcohol in the blood diminishes the amount of oxygen taken up through the air-cells of the lungs, retards the molecular and metabolic changes of both nutrition and waste throughout the system, and diminishes the sensibility of the nervous structures. . . . When these effects are continued through months and years, as in the most temperate class of drinkers, they lead to permanent structural changes, most prominently in the liver, kidneys, stomach, heart, blood-vessels, and nerve structures, and lessen the natural duration of life in the aggregate from ten to fifteen years . . . ending in kidney and liver dropsies, heart failures, gout, apoplexy, and paralysis."

Indeed, as early as 1839, seventy-eight physicians and surgeons signed a paper, drawn up by Dr. Julius Jeffreys, declaring that " even in the most moderate doses

alcoholic drinks did no good"; and Dr. W. Dickinson, in a paper read before the Medical and Chirurgical Society in 1872 said :—

" Alcohol causes fatty infiltration and fibrous encroachments; it engenders tubercles, encourages suppuration, and retards healing; it produces untimely atheroma (a form of fatty degeneration of the inner coats of the arteries), invites haemorrhage, and anticipates old age. The most constant fatty changes, the displacement by oil of the material of epithelial cells and muscular fibres, though probably nearly universal, is most noticeable in the liver, the heart, and the kidneys."

Without quoting at length the strong opinions of Sir Andrew Clark, Sir William Gull, and Sir Henry Thompson, let us cite a few views of investigators, in brief :—

That alcohol is a narcotic and an anaesthetic.

That it hardens and shrivels the oxygen-carriers, the red corpuscles of the blood. This is one of its most serious after-effects when it has entered the blood stream.

That it interferes with the passage of waste-matter out of the body.

That it causes fatty degeneration, because the cells receive less oxygen, get rid of less waste-matter, the growing cells shrivel, and their healthy material becomes almost useless connective tissue.

That in the stomach it lessens the secretions of gastric juice, except, some maintain, when it is given in very small amounts. It kills and precipitates the pepsine. It coagulates both albumen and fibrine, turning them into a solid substance.

" Gluzinski, with a syphon, drew off the contents of the stomach with or without alcoholic liquor at various times, and concluded ' that alcohol entirely suspends the transformation of food while it remains in the stomach.' See also Tracy's ' Physiology,' page 90, and Sir B. W. Richardson's statement that ' experiments on the artificial digestion of food, in which the natural

process is closely imitated, show that the presence of alcohol in the solvents employed interferes with and weakens the efficacy of the solvents.¹ So, again, Dr. Kirk, referring to experiments with gastric juice in vials, says: ‘Here is indisputable evidence that alcohol effectually prevents that process which is known as digestion.’”

That it hinders the kidneys in removing waste-products of a certain kind. The body uses up its own machinery. The worn-out results have to be removed generally by the urine through the kidneys, just as carbonic acid gas has to be by the breath through the mouth and nostrils. Cut out an animal’s kidneys, and the animal soon dies self-poisoned. Now alcohol may prevent these waste-matters from being oxidised. It may excite the kidneys unduly until at length they will not work without extra excitement; and it may turn the healthy excretory parts into comparatively useless connective tissue.

That in the liver, in the same way, alcohol may turn the healthy substance into connective tissue. This grows between the cells and crushes these cells, and so obstructs the blood-vessels.

That alcohol stimulates the heart.

It is said to do this by removing the check to its too rapid action. It takes off the heart’s brake down-hill. In an experiment made by Dr. Parkes and Count Wollowicz, the beats of the heart when water was drunk during twenty-four hours were 106,000; when alcohol was begun, 127,000; when alcohol was continued, 131,000.

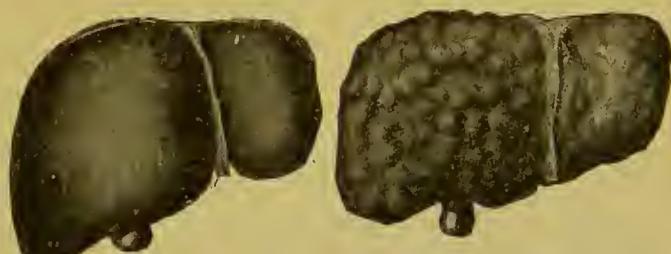
That, as to growth, if alcoholic liquor is given to puppies, it keeps them small. It is supposed to be with the object of keeping children small as well as quiet that poor people in the slums give them gin.

Alcohol may bring a comfortable sense of heat. It must be remembered, how-

ever, that many of our nerves of sense are skin-nerves. We cannot tell how much heat our organs are losing. Large doses of alcohol lessen the warmth of the body, and may paralyse the nerve.

Dr. W. A. Hammond, one of the visiting physicians of Bellevue Hospital, New York, states that at least two-thirds of all the diseases treated there originated in drink. “It is of all causes most prolific in exciting derangements of the brain, the spinal cord, and the nerves.” And Sir Lauder Brunton, in a most impartial estimate, says of the effects of excessive use:—

“In some the stomach suffers, in others the liver, in others the kidneys, and in others again the nervous system is most easily and seriously affected. Everything that is taken into the stomach and absorbed from



A HEALTHY AND A DISEASED LIVER, THE DETERIORATION BEING SUPPOSEDLY DUE TO ALCOHOL.

it by the blood must needs pass through the liver before it can get into the general blood stream by which it is to reach the brain and kidneys. . . . From the effect of the alcohol the liver is apt to become larger, and its structure loaded with fat, while the connective tissue which holds together the secreting cells which compose the main part of its bulk also increases. By-and-by the fat becomes absorbed, the connective tissue encroaches more and more on the secreting structure, and also on the blood-vessels, the liver becomes small and hard, the flow of blood throughout the stomach and intestines is impeded, fluid consequently accumulates in the intestinal cavity. . . .”

Such are a few of the real or supposed effects of alcohol on foods, on digestion-juices, on tissues, on nerves, and so on.

Much, however, will depend on the state of the blood and of the body; on the state of the mind—whether it be poised or unpoised; on the quality of the alcohol, the quantity taken, and the class of stimulant. As an example of the differences, a tired person may be refreshed by champagne, a fresh person may be tired by it. Neat whisky may act as an astringent; diluted whisky may act as an aperient. And different kinds of alcohol have very different results. We have been told there is a kind kept by a certain German hotel-proprietor which makes people want to sing, while he has another kind which makes them dream of murder.

Those who condemn alcohol say that it may have some use or uses which we have not yet found out, and that it is not our duty to find out the uses of all things. For example, we do not know the full use of snake-poison. *As an evaporating lotion to cool the skin, etc.,* probably alcohol may be of value. What they maintain is that it is not of value as a drink for the human body.

Before we take the arguments for alcohol, let us consider what a stimulant is. We might have done this at first, only it seemed better to plunge into the subject at once.

A stimulant, to the public mind, means pre-eminently alcoholic liquor, which is also a narcotic if its effect is to make people sleepy, and, in the widest meaning of the word, senseless. We have spoken of alcohol in particular. Later on we wish to broaden out the term, and include under stimulants and irritants and narcotics not only alcohol, but also tea, coffee, cocoa, chocolate, tobacco, morphia, etc., and many drugs, which may be stimulant or irritant or narcotic in themselves, or may owe these results to the alcohol with which they are prepared,

some sauces (*e.g.* some kinds of Worcester sauce), and flesh-extracts, such as beef-tea.

Of these examples let us take one, tobacco, quoting from Dr. J. Mitchell Bruce's "Materia Medica" (Cassell & Co.).

"Tobacco, taken by the mouth, is a gastro-intestinal irritant, causing salivation, nausea, vomiting, severe colic, and repeated evacuations . . . Nicotine . . . acts chiefly upon the nervous structures, which it first stimulates, if given in very minute doses; but afterwards depresses in an extreme degree, causing intense and universal debility, which, with the local irritation of the alimentary canal, constitutes a condition of collapse. On analysis it is found that tobacco causes pleasing cerebral excitement, decided stimulation of the motor centres in the cord, with a feeling and true increase of muscular strength (ending in convulsions and paralysis, in poisonous doses); excitation, followed by paralysis, of the peripheral nerves, both sensory and motor; but no direct effect on the muscles. Respiration is first excited, then disturbed, then finally arrested, death by tobacco being due to arrest of the respiratory centre. The action of tobacco on the heart is not directly the cause of death; the heart is first slowed, then accelerated, and finally weakened with slowing; but it beats after respiratory death. The blood pressure falls, rises, and falls again with the cardiac action. . . . The temperature falls. . . . Its depressant effects suggest its use as an antispasmodic, . . . but such a powerful drug is very seldom employed. Nicotine is excreted unchanged in the urine, saliva, and faeces."

It is as well for everyone to know the theories and facts before he commits himself to the regular or even occasional use of this or that stimulant or narcotic. And these quotations (*see* "Good Health," October, 1897) will help to give him an extreme view, which of course ignores the immediate effects of tobacco on the feelings and emotions, and hence on the whole system. The words are quoted from "Avenues to Health":—

I. "Put a tobacco victim in a hot bath; let him remain there till a free perspiration

takes place; then drop a fly into the water, and the fly will instantly die."

2. "W. E. A. Axon (in the *Popular Science Monthly*) asserts that the nicotine of one cigar, if extracted and then administered in a pure state, would suffice to kill two men."

3. "The Indians used to poison their arrows by dipping them into nicotine, convulsions and even death being the result of these arrow-wounds."

4. "Sir J. Brodie, physician to Queen Victoria, applied nicotine to the tongue of a mouse, a squirrel, and a dog, death being the result in each instance."

5. "Set an open bottle, containing a small quantity of this oil, under an inverted jar, taking care that the fresh air is not excluded.

"Tea and coffee are discarded from the Sanitarium bill of fare because they are poisons, mild intoxicants, and capable of producing decidedly injurious effects upon the nervous system, and are, to a high degree, detrimental to digestion. The digestion of starch ceases entirely in the presence of tea or coffee. Tea is, on the whole, more detrimental to starch-digestion than coffee, but both are in the highest degree objectionable. They interfere with the action of the salivary glands by rinsing the food down before it has been properly insalivated. They dilute the gastric juice and prevent the action of the saliva upon the starch both in the mouth and in the stomach. Sir William Roberts showed that *tea and coffee interfered with the digestion of proteid*,



Healthy.



Adipose.



Swollen.



Shrunk.

KIDNEYS, THE LAST THREE UNHEALTHY (SUPPOSEDLY) AS THE RESULT OF ALCOHOL.

Put a mouse or a rat under the jar, and death presently follows, simply from the animal breathing the poisoned atmosphere."

"The whole article, together with the statistics collected by Dr. Jay W. Seaver, of Yale University, from various students, with respect to their height, weight, chest-measurement, and so on, and those collected by Professor Hitchcock, of Amherst College, should be carefully studied."

With regard to tea and coffee, here is an extreme view by one who neglects—as most of the anti-alcoholists do—the immediate effects on the mind and emotions, and selects only the effects later on, especially upon the "digestion" of starch and proteid in test-tubes. Yet Dr. Kellogg has about twenty-five large and successful health-establishments in various parts of the world, and his experiences go for something. He says:—

and that their total effect is to delay or prevent digestion."

Dr. Burney Yeo sums up Sir William Roberts's experiments as follows:—

"Sir William Roberts's experiments on the influence of certain food-accessories on peptic digestion led him to the following conclusions:—Ardent spirits retarded digestion according to their degree of concentration. With 10 per cent. and under of proof spirit there was no appreciable retardation, and only a slight retardation with 20 per cent.; but with large percentages it was very different, and with 50 per cent. the digestive ferment was almost paralysed. Wines and beer retarded peptic digestion altogether out of proportion to the quantity of alcohol they contain. Port and sherry exercised a great retarding effect. Tea and coffee exercised a remarkably retarding effect on stomach digestion; strong coffee had a very powerful retarding effect. Beef tea had a powerful retarding effect on peptic

digestion, apparently due to the salts of the organic acids contained in it."¹ But see 1 (below).

What else is a stimulant or irritant or narcotic? The Pampas Indians live on raw flesh, somewhat as the followers of Salisbury live on slightly cooked flesh and water. Now since some of these people can thrive for years without touching other food, this diet must nourish them. Compare also the case of the strong man in the acrobatic troupe mentioned in another chapter. This diet has in it muscle-building proteid, "salts," fibre, and water, and must also give some fat and heat. Proteid certainly gives some. But is that all?

Dr. Haig and others have written elaborately to show that flesh-foods contain other elements which Haig calls uric acid, and which others call xanthins, or purins, or extractives, or waste-products. What is the effect of these acids? Let us take several examples.

1. Pawlow has made experiments to show their effects on a dog's digestion of proteid. Gastric juice flows more freely when such acids are in the food. So, although these acids may not be needed as proteid is needed, yet they may help to turn proteid into blood and body. We are not speaking of their full effects, but only of one effect—namely, that on gastric juice.

2. There are animals—some cats and dogs—which are quiet when they get their proteid from other sources, but become restless and cruel and wild when, for instance, raw beef-steak is given them. The diet of the carnivorous animals is different from that of other animals, not so much because of its proteid as because of its acids. The carnivorous animals are apt to be sprinters rather than lasters; their race is the hundred yards rather than the ten miles.

3 The Editor himself, when he takes

these acids by mistake (in any soup, etc.) gets a feeling of heaviness, and perhaps of cramp. So far as he is aware, he has had this feeling every time he has taken flesh-food extracts by mistake during the last seven years. Dr. H. S. Brewer, in the "Alkaloidal Clinica," has stated that "people who confine their diet to meat have higher temperatures; and higher temperatures consume the vital principle that prolongs life. The veins and arteries in meat-eaters are gorged and dilated, and fever is almost always present."

Now Pawlow's experiment alone shows that there is no hard and fast line between nourishment and stimulant. Nourishment builds and re-builds the body, and gives it fat and heat, etc., for work. Stimulant helps the body to use or not to use that fat and heat, etc., and that body itself. Between the two are many things, and especially that which helps the body to build itself. There is something in meat and milk and favourable emotions, which is not, as it were, a brick in the body, and cannot become one, yet helps the body to form its bricks. It excites to work not the bricks, but the brick-layers.

There are mental stimulants and irritants and narcotics as well as chemical. There is mental nourishment also. Information about health (exercise, food, etc.) is nourishment for the mind, but has to be eaten and digested and assimilated first. A sufficiently strong appeal to some emotion—for instance, the desire for a more attractive appearance—may help one to use this information. Now is this emotion a nourishment or stimulant? It is hard to say; but the offer of a £1,000 prize to the healthiest person in England would be decidedly a stimulant.

To take another example of a mental stimulant. You are too fat, and you are too lazy to go for a walk; but a friend suggests a game of Lawn Tennis or Golf.

Now the play element is the stimulant. You play and become slack ; you begin to lose ; then you determine to win. That loss was a stimulant and irritant. You feel tired ; you stop. That tired feeling was a narcotic.

Every emotion is a sort of stimulant or irritant or narcotic. Competition is one of the strongest of mental stimulants. Some Hindus would say that we are not acting without stimulant until in all that we do we are as passive as chisels in the hand of God. We wish to make the highest point of view perfectly clear, so that those who do not take alcohol may not set themselves on a pinnacle too far above the rest of the world. When a man can live and work—work well and play well and rest well—without what the people know to be stimulants, and especially alcohol, we may yet find in his food some stimulant (tea, coffee, cocoa, or even sugar). If he could live and work without that stimulant, we might yet find in his mind some stimulant, some desire for an external object—fame, money, or something else. He must not set himself above, and preach to, a world of other people as sinners. Not to take alcohol is a different thing from not to commit sins or make mistakes.

So, while we consider alcohol pre-eminently, let us afterwards see it as only one of many kinds of stimulant, and perhaps, in certain respects, not the most objectionable. Let us rank as stimulants, etc., a cup of tea or coffee, a pipe of tobacco, a cigar or cigarette, a bottle of medicine, a hot and strong sauce, and the imagination of a sum of money. These things do not build the body or repair its waste appreciably. Most people can live without them.

Here our object is not to arrive at any decision, but to set the facts as impartially as we can before the readers—as impar-

tially as we can, considering what we genuinely believe. This is, first of all, that the tastes of fine alcoholic liquors are unequalled ; secondly, that some of the immediate effects are generally satisfactory ; thirdly, that many habitual users are among the very best of men and women ; fourthly, that merely to repress a desire, and not to satisfy it in a different way, is far from the ideal ; fifthly, that those who refuse any merit to alcohol in the past are not to be believed. While other things might have restored life—for instance, some method of water-treatment or breathing, or prayer, or mental suggestion—yet alcohol has restored life when it had been despaired of.

The extremists, who say that all alcohol-drinkers are wrong, since all the effects of alcohol-drinking are bad, that everyone must give up the practice at once, that it is easy to give up the practice, and that alcohol-drinking is the sole evil—these people have not our sympathy. When they tell us that there is nothing in alcohol with which any part of the body can be nourished, that there is nothing in alcohol which has ever helped anyone to build his body, then they have passed beyond the realm of science, because, among other reasons, they have ignored the effect which alcohol may have on the emotions, and the effect which the emotions may have on the digestion. No one, indeed, is likely to write well on the subject until he knows what torment it may mean suddenly to give up all stimulants, not for a meal, nor for a day only, but for six months.

Let us now consider some of the arguments in favour of alcohol.

FOR (UNADULTERATED) ALCOHOLIC LIQUORS IN MODERATION.

Theoricus, a well-known German in the sixteenth century, says : “ It sloweth age, it strengtheneth youth, it helpeth digestion,

it cutteth phlegme, it cureth the hydropsia, it healeth the strangurie, it pounces the stone, it expelleth gravel, it keepeth the head from whirling, the teeth from chattering, and the throat from rattling ; it keepeth the weasen from stiffling, the stomach from wambling, and the heart from swelling ; it keepeth the hands from shivering, the sinews from shrinking, the veins from crumbling, the bones from arching, and the marrow from soaking"!!! This is the height of praise, and we are all familiar with the statement about wine making glad the heart of man, and the little that was to be taken for the stomach's infirmity.

Alcohol may stimulate a weak digestion, chiefly, perhaps, by its effect on the emotions. Some people have vast resistive or excretory powers. It seems natural to them to get rid of what might harm others. We once saw a man at the Aquarium eat the heel of a boot, tin-tacks, sawdust, glass, and an oyster-shell. This was not a scientific dietary, but it showed that the man had abnormal powers. Some have abnormal powers of taking alcohol with apparent impunity, their interiors shamelessly disregarding all the laws of teetotal text-books.

Its uses in disease are generally said to be the following, besides the help for the feeble digestion *pro tem.* in hours of depression and loss of appetite. It is said to support strength *pro tem.* in fevers, etc., when it may also reduce the general temperature ; to put the skin in action after a chill ; to stimulate the heart after faintness ; to stop diarrhoea or extreme pain ; to elicit extra work—"not increasing the amount of work, but increasing its distribution," giving us power to call forth a special effort at will. A man is exhausted either physically or mentally, or both. He has work to do. He takes a stimulant, completes his work,

and is happy. There may be a reaction, but he considers that it has been worth his while to borrow of the future. Better than failure, and depression, and the poisons it produces. Better still, if he had been so fit, through right living, that he would not have been exhausted. But we are considering the man *as he was then.*

Probably there are few of us who cannot recall some athletic feat or intellectual feat performed by a tired body with the aid of alcohol. More generally, we know that human beings seek not only athletic or intellectual or social success, but a feeling of satisfaction, and therefore a vigorous circulation, and therefore, if they know no other means, a stimulant. "Pleasure gives power, while painful impressions may even stop the heart." A narcotic may seem to take away the depressing influences, as Sir Lauder Brunton points out, and give play to the fancy and imagination. Perhaps to the individual it is worth the price. *Only let him know the price.* For at first "small quantities stimulate the heart, increase the circulation, give a sensation of comfort and strength, and may enable the person for the time being to do more work, bodily or mental ; but these effects are modified by the action of alcohol after it has been absorbed." Let him consider this action, and not confine his attention to one or two effects only. Let him realise what alcohol is and does.

With what comparison shall we compare it ? Alcohol is as a spur, as oil thrown on fire, as a cheque drawn on one's capital in the bank. We may contrast it with steady nourishment, or with a stimulant or narcotic like self-suggestion, which we always have with us. But we cannot get over the fact that alcohol has enabled many to make prodigious exertions and to produce splendid work

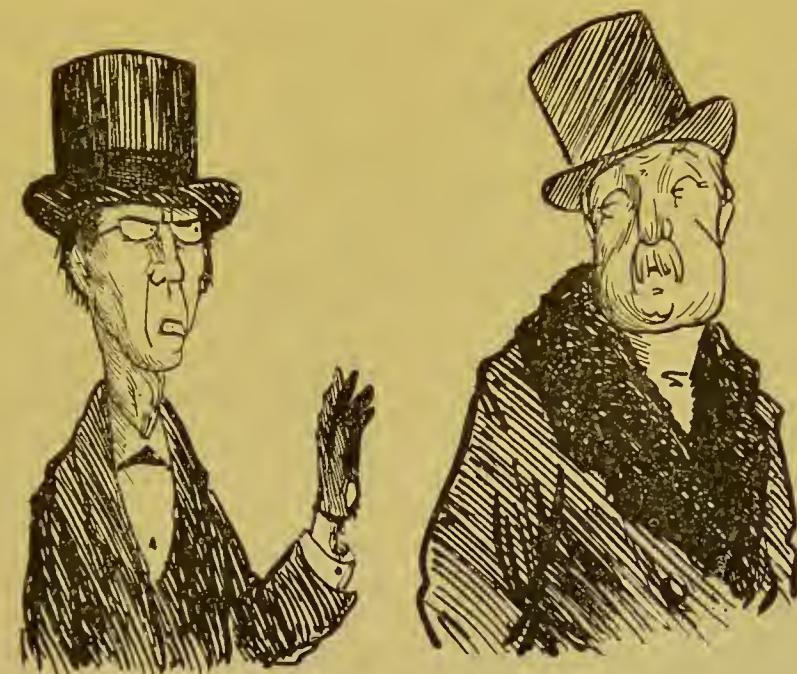
which, possibly, would not have been produced without it. The Editor wears on his finger a ring which was beautifully carved by a drunken man who only worked when he was drunk. Others have composed music or played the organ, or written poetry or other literature, or invented, only when under the influence of alcohol or another stimulant.

Two reasons for this are exceedingly

All that they needed was that little first start such as the chauffeur gives when he wishes to set a motor-engine going.

While alcohol may stimulate the circulation through the brain and through the skin, it may also be used to deaden the brain and to stop work—to stop overactivity of the intellect, and so give sleep to an otherwise sleepless worker.

It may also retard digestion and its



UNDESIRABLE EXTREMES WHICH NEVER MEET.

J. Munsell.

interesting. When our blood is clogged with poisons it is hard for us to do good work. The blood needs to be cleared. The acid in alcohol may clear it for the time. Dr. Haig would tell us that it was uric acid that clogged the blood, and that alcohol and other things might remove that and clear the blood of it for the time being.

Secondly, alcohol may make the heart go faster, giving a sense of fitness for the time being, starting the wheels of nature once again; and there have been many cases when afterwards the wheels of nature have worked of their own accord.

processes, and be a help to those who would otherwise digest too quickly.

But these advantages are advantages of alcohol used in emergencies. Directly we begin to rely on it for our work and health and sleep, then it becomes a danger. It has been well said :—

" We may consider that alcohol is a food ; but whether it is a convenient food or not is quite a different question. Alcohol undergoes combustion in the body, but at the same time it tends to lessen the combustion of other things. . . . Alcohol is, therefore, for healthy people a very inconvenient form of food."

But there is an opposite extreme—an opposite danger—that of the person who cannot work or be healthy or sleep well if he has gone a single step out of the path of the strictest *régime*. That person is a slave to abstinence, and in one respect may be inferior to the ordinary alcohol-drinker. His power of control is not tested. He may be further than the alcohol-drinker from fulfilling the prophecy, "They shall take poisons and they shall not harm them." He may be a slave to special conditions.

One of the commonest arguments for alcohol is its social value. What is the rule now we do not know, but not long ago officers in the German army were practically compelled to take alcohol. And alas! too often the typical teetotaller is a flat-footed and cold person.

Not unfrequently, too, he or she relies on other stimulants instead, perhaps worse stimulants than alcohol. Tea, coffee, ginger-beer, certain sugary and starchy foods, may all act as stimulants under certain conditions. Anyhow, to ignore the mental, and especially the emotional effects of alcohol, is a great mistake. Let us consider the person who is worrying. The worry is producing a chemical poison that is going throughout the whole system. A glass of wine may stop the worry, and stop the production of poison. Which is the worse—to worry and produce poison, or to take alcohol and stop the poison, in which case the alcohol itself must be got rid of? This effect on the emotions for the time being *must* be taken into account if an experiment is to be called *scientific*. Science is useful for us only so far as it takes into account the human body and mind. It is not fair to add alcohol to raw flesh, let us repeat, for that does not include the effect of alcohol upon the emotions.

Those who plead for the use of alcohol

say also, Is there a non-alcoholic treatment well known to have similar effects? When, in a certain case for which we can vouch, a man was dying and almost at the last gasp, and he was given a bottle of old brandy, and afterwards recovered and is still alive, was there a non-alcoholic treatment known to his friends or himself which would have had the same effect? It rests with those who say, "Do not drink alcohol," to provide attractive substitutes, and attractive helps towards cure. It is not enough to suggest some stimulant instead, to say, "Give up alcohol and take tea," which for the brain, and in many cases for the body also, is a far stronger stimulant than alcohol. Let the anti-alcoholists, while they forbid alcohol, work on the lines of the Frances E. Willard National Temperance Hospital, in Chicago, which boasts: "Our course of building-up treatment is, we believe, unique in hospital practice. It consists of treatment by massage, heat, rest, passive exercise, etc., together with proper medication and a thoroughly nutritious diet adapted to the individual needs of the patient." Till the anti-alcoholists offer such substitutes rather than no substitutes at all, or else substitutes that are highly objectionable, let them cease to be so self-righteous merely because they take no alcohol. Let them rather go more deeply into the matter, and compare alcohol in its full effects with other stimulants, and find out, not why people drink—for the answer is that they want to drink—but why they want to drink. The answer is, because they remember the pleasant effects of previous drinkings.

A short survey of a few causes may be of use. Why people want to drink alcohol is a question akin to why they want to over-eat. First, it is because of previous drinking and previous over-eating, which have produced fermentation and blood-

pressure and a feeling of discomfort. Then there has been too fast eating. The man who swills his food, loses half the taste of it, and starves not only his body but also one of his senses. We treat of him in the article on "The Training of the Senses."

Then eating of wrong foods, very rich in flesh, very rich in a bad form of starch. These foods are especially fatal when there is too little exercise, and when there is worry on the top of the many physical errors. *But at the root of every craving for stimulant or irritant or narcotic is a divine desire—the desire to be, or at any rate to feel, one's best self: the desire to restore poise, if only for a time.* It is assuredly no disgrace to have this desire to restore poise and to feel your best self. It may show that your heart is in the right place, your emotions strong, your mind *not unambitious*. Only be too proud, be too wise, be too strong, to seek poise in the wrong way.

As helps to those who would like to give up the alcohol-habit we are preparing a special volume, out of which we can only select a few general remarks.*

Among the helps which have succeeded are what we may call the disgusters. A man wants to take alcohol; his wife puts in his food some drug. After a certain time the person ceases to want alcohol, and, indeed, begins to loathe it. The exact mental effect we cannot discuss here; but this kind of cure, which we have not had time to investigate thoroughly, may be worth considering in extreme cases. The commoner plan is to substitute some other stimulant—tea and coffee are the most familiar. And we must probably class as stimulants those

acids which seem to satisfy the craving as well. Among these are vinegar, lemon, and other acid fruits, hop-juices, and sour butter-milk.

But the right foods, and especially the well-balanced diet of digestible and tasty foods, is one of the simplest ways out of the difficulty. The diet of fruits, well-cooked vegetables, salads, good grain-foods, and good milk-proteids, may be the best help. Besides, it may be of use to avoid flesh-foods and many of the ordinary pastries and too starchy foods.

The foods should be rightly eaten—that is to say, they should be eaten slowly and with due meditation (if the flavours are good). We need not go to the extreme practised by Mr. Horace Fletcher, and masticate every mouthful so long as it has any taste, and put out the rest. We can simply eat more slowly, masticating every mouthful say thirty-two times. This will help the general control as well as the digestion. With good digestion of good foods, it is very unlikely that we shall suffer morbid cravings. Moreover, we train our taste to be our safe sentinel.

Much depends on the times at which we take meals. Some are greatly helped by the no-breakfast plan, or the light-breakfast plan; others by the no-lunch or light-lunch plan; others by no breakfast *and* no lunch; others by sheer fasting, with or without the sipping of pure soft water. It would be easy to adduce hundreds of examples of cures through such helps.

Meanwhile, there are the excreting helps, as we may call them—sweats, massages, exercises, and various electric treatments.

It is not always easy for one person to attend to these things, or to go on attending to them. Many need external support during the first steps. Hence the value of associations or clubs or other

* The Editor has just arranged to give a Correspondence Course of Lessons in Moral Memory Training. His address is 10, St. Paul's Road, Cambridge.

means to encourage a fair trial during a fair period. Among the best known of such institutions is the Semi-Teetotal League of those who do not drink between meals.

But best of all is Self-suggestion, because it is so unobtrusive and so entirely within one's own mind, so entirely leading towards independence. The Editor knows a case of a dipsomaniac who adopted this sole cure: to suggest to herself every morning and every night, for five minutes, "I do not like"—then followed the particular form of alcohol which she did like, and of which she was the slave. After eight weeks she ceased to want or like that or any alcohol at all. Others would prefer the higher form of Suggestion, such as, "I do not need alcohol: I have power and energy enough without it." There are as many forms of Self-suggestion as there are individuals. And Suggestion by others is not to be altogether condemned if it only takes the right character. To say to another, "You shall not drink," is open to many objections. You are not strengthening the person's will; you are forcing your will upon his. But to suggest, perhaps without letting the person know it, that the person is not so degraded as to depend on alcohol, in that there seems no harm and much good.

In conclusion, we would urge the reader to study the above remarks, read up the subject for himself, get a fair and square estimate of the advantages and disadvantages of stimulants, etc., then talk the matter over with his best and least cranky friends, *and with himself*; and set down, in writing, his general impression. Might it be somewhat as follows, when, like Achilles, he ponders the matter in his own dear mind?

Apparently such and such a stimulant which you take is not necessary to life, as fresh air, water, proteid, etc., are.

Do you depend on it for your best condition of body and mind, for work, and comfortableness? If so, then find some way or ways of becoming independent of it. Feed a wholesome contempt within you for being weak-willed and without a moral backbone. Use other helps. For instance, if your liver is sluggish, squeeze it by some form of exercise that you like—rowing, running, jumping, climbing, riding, are among those which Sir Lauder Brunton has suggested. But make up your mind to be reasonably free from dominating desires which tend to a want of self-control as well as to considerable and increasing expense, and which produce no good result to show at the end of the year.

And, above all things, remember these two facts: first, that appearances and superficial judgments are deceptive. The case of Alexis St. Martin is one that must be studied before we decide that so-and-so "isn't doing us any harm."

Dr. Beaumont, who was able to see into the stomach of a Canadian hunter, Alexis St. Martin, owing to a wound, tells how, "after St. Martin had been drinking spirits pretty freely for eight or ten days he complained of no pain, showed no symptoms of general indisposition, *said that he felt well, and had a good appetite*. But on looking into the stomach the condition was very far from being healthy; its mucous membrane was morbidly red and congested; there were small white patches of aphthae on the surface, and the secretions were vitiated; the surface was tender, and blood seemed to exude from the congested parts. Even when the stomach became still worse, with more extensive congestion, with livid spots on the surface, from which small drops of grumous blood exuded, larger and more numerous aphthous patches, and the gastric juice so mixed with

thick,ropy mucus and rosy, purulent matter, slightly tinged with blood so as to resemble the discharge from the bowels in chronic dysentery, *St. Martin complained of hardly any symptoms*; all that was noticeable was a slight uneasiness and tenderness at the pit of the stomach; some giddiness, dimness, and yellowness of vision on stooping and rising; a thin yellowish-brown coat on the tongue, and rather a sallow appearance of the countenance; his pulse remained uniform; he rested normally, slept well, and had a good appetite." "A large quantity of alcohol," says Sir Lauder Brunton, who quotes this case, "prevents the body from being affected by shock, and continuous indulgence seems also to rob the body of the power of perceiving the injury which the alcohol is inflicting upon the stomach and other parts of the organism."

Secondly, remember that *immediate effects are not to be the criterion of a new way of living*. The things that will reform the criminal child include fresh air, good light, water, simple food, drill, and play, work with hand and brain, and so on. Is there any one of these from which the typical slum-child does not shrink at the start? The proof of the pudding is not in the eating, but in the digestion and after-effects, and in the state of mind and habits that it tends to. In order to show the contrast between the immediate and subsequent effects of a treatment, the Editor concludes this chapter with a recent experience of his own.

In December, 1903, he suddenly gave up stimulants—alcohol and tea—for three days, after having taken them, purposely, more frequently than usual during many weeks. He now found himself disinclined for difficult or monotonous brain-work, but able to take a great deal of hard exercise. In so far as others are

likely to feel disinclined for work, in a similar case, *let them experiment when there is no particular work to be done*—i.e. during holidays. The enforced brain-rest will do them good. The period of "trial" may last any time from a day or two up to a month or year or two (according to the amount of acids in the system, and so on). Afterwards energy should gradually return, and remain, independent of powerful stimulants.

For several reasons the Editor then decided to take tea again, once or twice a day. The result was some of the best and easiest brain-work he ever remembers to have done. And here is his general statement—it is simply his own personal experience, without consideration of after-effects of stimulants; and, of course, not applicable to others.

1. The best work for a short time has been after periods of great carefulness and strictness, followed by the use of tea.

2. The best play has been after periods of what he now knows to be over-eating and over-drinking and wrong eating and wrong drinking, followed by great carefulness and strictness. But sometimes the results have been *very unsuccessful* play.

He does not advise anyone to copy him in this "ups and downs" business. What he wishes to suggest is that certain persons may find their achievement under such conditions so satisfactory that for the sake of it they will sacrifice much health and even many years of life. They may prefer this to a *level standard of "fairly good."* They must decide, each for self, listening to what the extremists have proved against stimulants, especially that they cannot always be relied on to produce the brilliancy, and then seeing whether the occasional brilliancy is either worth the candle (burnt at both ends) or—isn't this perhaps a true way of looking at it?—fair play.

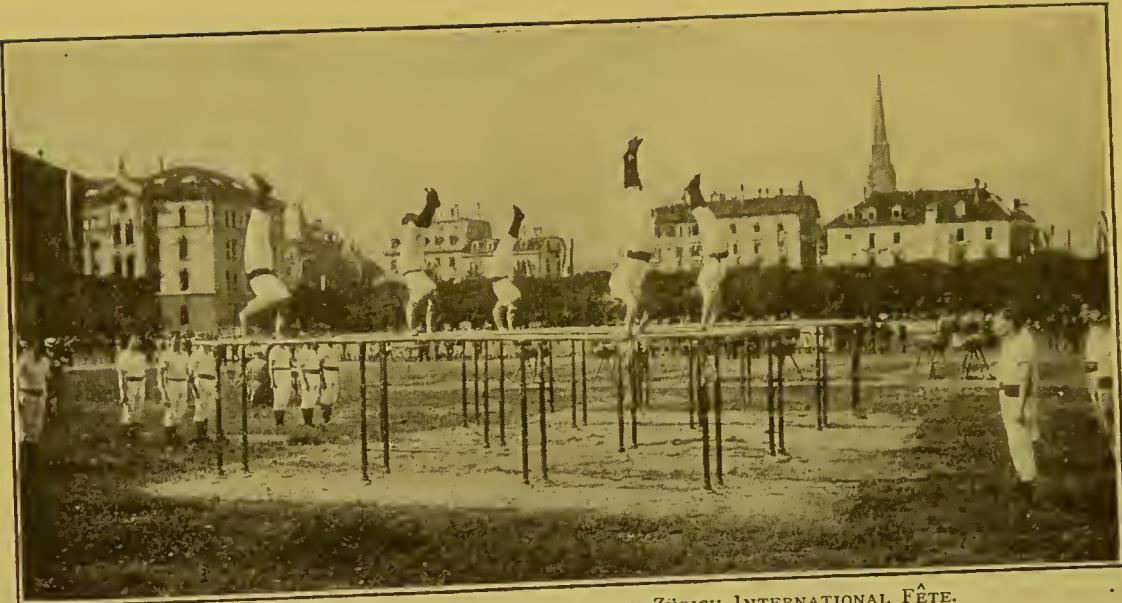


FIG. I.—SQUAD-WORK ON PARALLELs AT THE ZÜRICH INTERNATIONAL FÊTE.

CHAPTER XXI. PHYSICAL EDUCATION ON THE CONTINENT.

(Illustrated from Photographs by Messrs. Ph. and E. Link, Zürich, by kind permission of the firm and of Mr. E. Lawrence Levy, and from plain line-drawings adapted from the Antwerp Programme, 1903).

Physical Education at a Continental Fête—Why do they Do it, How have they the Patience to Do it? Anglo-Saxons Ask—Little Competition between Individuals—It is not Play—But can we Adopt Part of its Spirit or Practice?—Vast Groups—Varied Performances—Open to Nearly All—Supported by Central and Local Governments—Aim to Reach a Standard, Not to Win—Military Model—Seriously Dull, but Thorough—Most Muscles Used—It Suits the People—It can be Applied Safely to All—But Absence of Play-spirit—Play is Spreading, however—Does the Continental System Encourage Originality?—France an Exception—Original Specialists in England and America, which have some Mass-work also—But Here Play is for the Few—More Choice—Less Attention to Duffers and Average People—More Freedom to Advertisers—Would Uniform Drill be Better for Us?—Best would be an Alphabet of Physical Life—Then Freer Choice—We do Not Attend to Our Majority—They do Not Attend to their Recreation—We Foster the Genius—They (perhaps) Crush Him—We do Not Graduate—We May Need the Continental Mass-drill, including some Alphabet of Athletics—Both We and They Need National Recreation and Facilities for it.

PHYSICAL education on the Continent is something which a typical Englishman understands as little as a typical Swede understands our cricket. We are amazed, we can scarcely believe that 10,000 people would assemble together to go through a dull drill without a single competition between individuals! That they should have a grand meeting in which, for the

majority of the performers during the majority of the performances, no risk is possible, no sportsmanlike initiative is allowed—indeed, a meeting in which sportsmanlike initiative is, for a great part, mercilessly condemned, and strict accuracy, the performance of set movements in set ways and at precisely the same moment at which others are performing

them, is *de rigueur* and the only kind of skill; that people can induce themselves to attend to this sort of work for a quarter of an hour together, and even regard it as a sort of holiday, this we can scarcely understand at all. Where does the *game* come in? We may play games

ranged in teams, hosts of parallel bars, rings, vaulting-horses, clubs, wands, and other apparatus. Visit the Continental festival, let us say, at Antwerp, where we ourselves went to see a comparatively small *fête*, or some place—the place varies each season—such as Hamburg or Zürich.

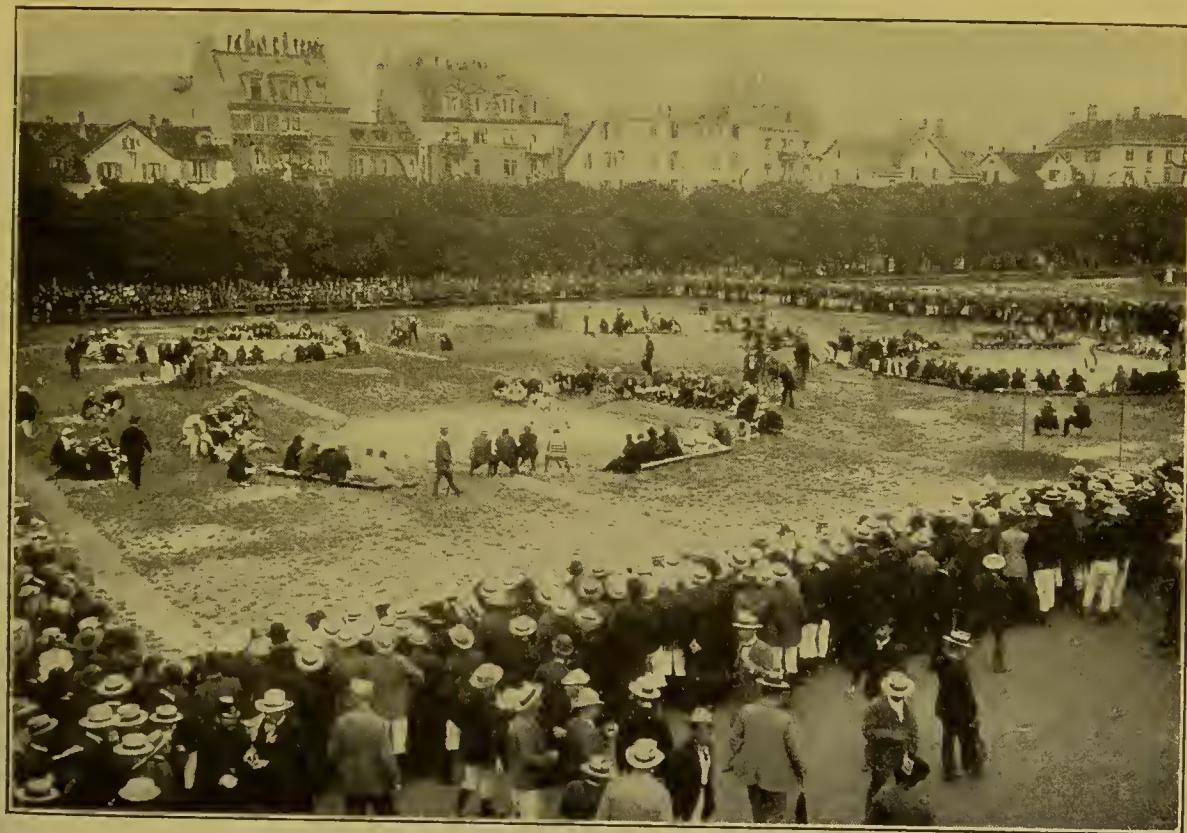


FIG. 2.—WRESTLING COMPETITIONS AT A CONTINENTAL FÊTE.

(Photo by permission of Mr. E. Lévy and Ph. and E. Link, Zürich.)

badly, thinks the Englishman, but at least we play them freely.

In this chapter we shall try to regard physical education on the Continent from a different point of view. We shall try to find out what its characteristics are, and what part of it we could with advantage adopt and adapt in England.

The first feature which strikes us is the vastness of the groups and the excellence of the organisation, including the equipment—hosts of individuals, mostly ar-

At Zürich, in July, 1903, about 7,000 performers were present, competing for laurel and oak leaves, medals and diplomas, and for the honour of excelling. Probably at this festival there were 45,000 "Turnvereins" altogether. The father of this type of physical education was Jahn, to whom the universities of Zürich, Basle, and Berne owe their systems. Here you would see competitions in walking, running, obstacle-races, jumping, climbing, wrestling, *Schwingen*, fencing, spear-cast-

ing, swimming, weight-lifting, throwing, free-drill with music, work on horizontals and parallels and vaulting-horses, as well as performances in shooting and singing, concerts, and the drama. The objects—as an able writer in the *Strand Magazine* pointed out—are friendship, patriotism, and competence for war and daily life. The qualifications are those of age—sixteen being the minimum—and a small subscription. At Hamburg, again,

prizes of any great value, and certainly no money prizes, are given; there is no pot-hunting. The effect of the drill of vast numbers will be realised by a glance at the photographs, reproduced by kind permission of the photographers.

Next to the vastness of the masses, we are struck by the serious dulness of most of the work—of course, from the English point of view, in contrast with that free competition, between individuals and

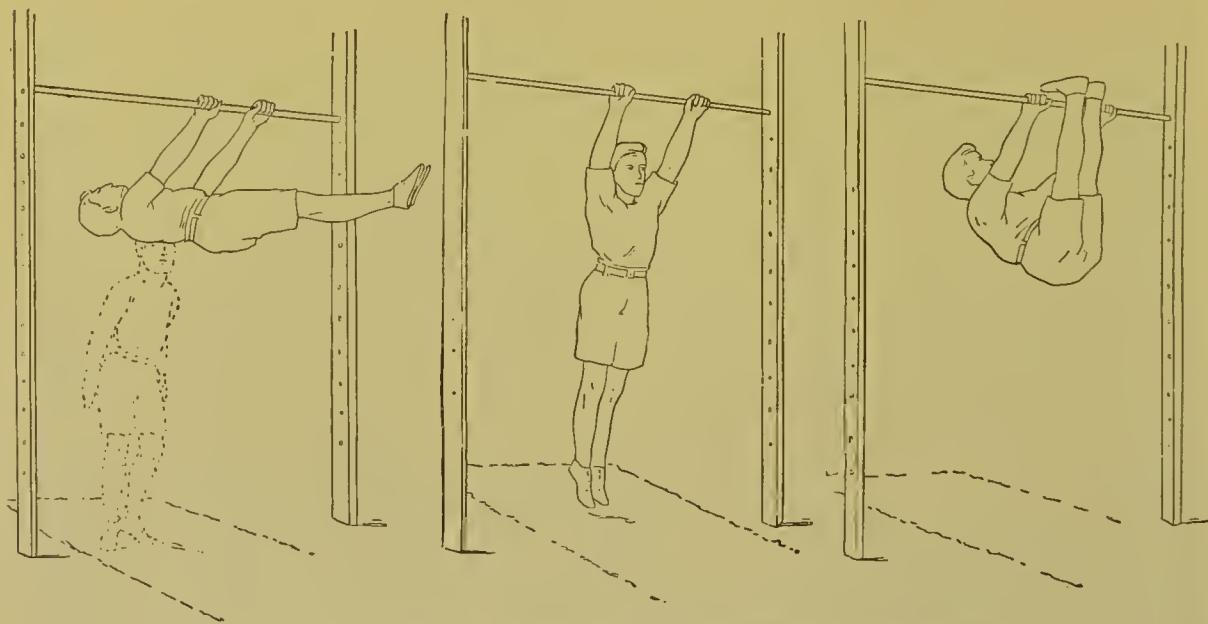


FIG. 3.—BEGINNING OF A SERIES OF HORIZONTAL BAR EXERCISES

(Adapted from the Antwerp Programme, 1903.)

in 1898, there was a festival connected with the “German Gymnastic Federation,” which has a membership of 500,000. The cost of this festival in buildings alone was over £3,500. As Mr. Harvey points out in his interesting book, a rich town like London does not guarantee as many pence for any gymnastic meeting.

Festivals last from three days to a week. Each day the work begins at six o’clock a.m. and ends at eight p.m. The kinds of exercises are varied, some being of a very advanced type for solo competitors on gymnastic apparatus. Here also no

between teams, which is the leading feature of our British games. On the Continent the competition is not so much of man against man, but chiefly of team against team, and is not so much a competition for victory as an attempt to reach or pass a fixed standard of excellence. Theoretically this is perfectly right, that each should compete against himself, and in view of an ideal competitor; but, in effect, there is an absence of *abandon*, and there is a sense of disciplinary duty to the nation, which probably we should not yet tolerate in England. It is not

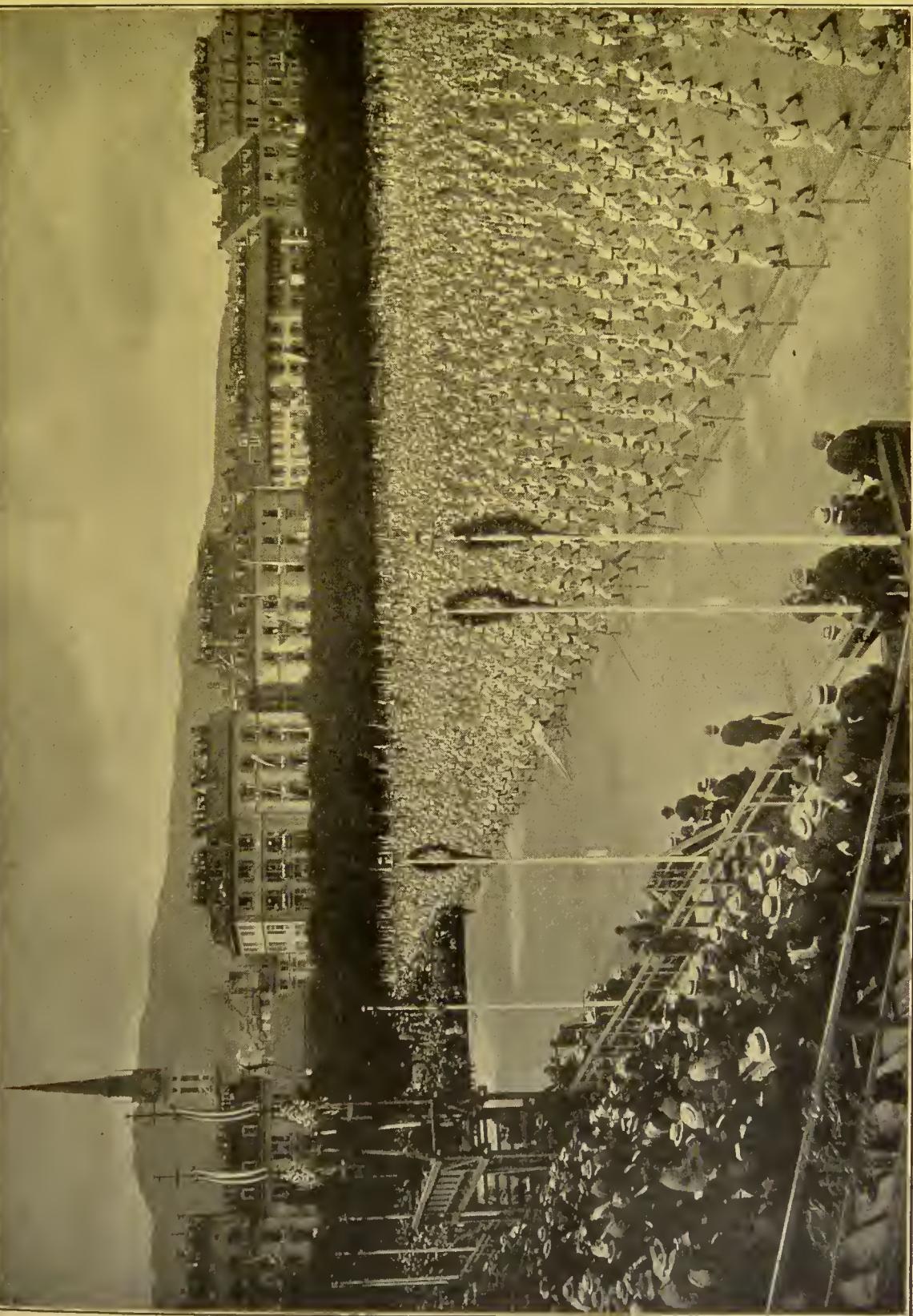


FIG. 4.—MASS DRILL OF FREE EXERCISES AT A CONTINENTAL FÊTE.

(Photo by permission of Mr. E. Lévy and Ph. and E. Link, Zürich.)

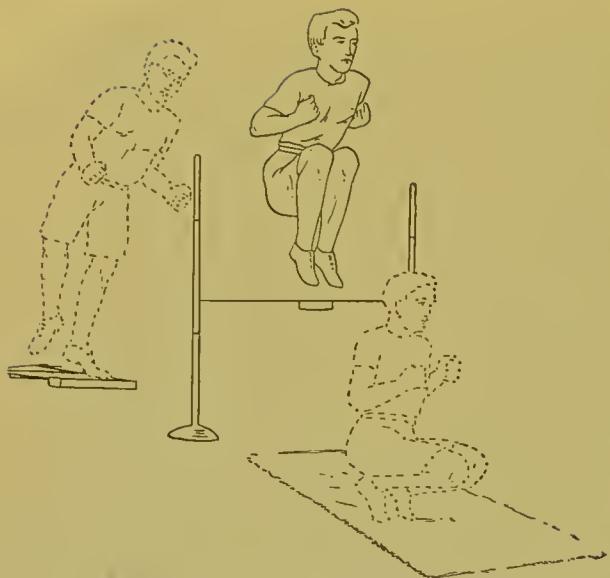


FIG. 5.—A JUMP IN CORRECT GYMNASTIC FORM.
(Adapted from the *Antwerp Programme, 1903.*)

as a duty to the nation that we play games.

Side by side with the serious dulness, from the English point of view, there was an accuracy and thoroughness which we can scarcely over-estimate. Both the work and the workers were singularly mechanical, so to speak. The work had been practised; the workers had been trained under certificated specialists, who had gradually and scientifically brought on the learners from easier to harder tasks. Most of the muscles of the body, and especially the important muscles, received some exercise, though, in spite of all boasting on the part of the theorists, we do not think that it is quite the best type of exercise. To use is one thing, to use rightly is another. Nevertheless, there is an increasing open-mindedness on the part of teachers. What one teacher knows, he tells to others; there is free interchange of ideas.

The work is pre-eminently of a national character. It is supported and organised to a great extent by the nation. The workers are, for the most part, workers under the Government. The model is

the military organisation, which of course is national.

And undoubtedly the type of work—mass-drill and team-drill at word of command—suits the present character of the nations. The Continental crowds seem to want to be drilled and ordered about. Besides this, it suits all sorts of people almost equally well—young men and children, old men and maidens, and even the weak and decrepit. It is not a drill for a few experts only; it is a national drill for the good of the nation—a drill in which the greater part of the nation shares, and shares with advantage. This is what we cannot fairly assert of our games.

As an example of this drill, we have already considered the Ling System. We have seen that it is applicable to boys and girls as well as to old men and old women. Its chief faults have been the too great contempt for useful apparatus and for music, and the absence of the play-spirit and freedom and training of the nerves.

The German system is another example. It uses apparatus most wisely and carefully, graduating the exercises in a way very rare in England. But, once more, it lacks play and the play-spirit, though already Lawn Tennis is becoming popular and the Emperor is doing his best to encourage games.

We naturally ask: With all this organisation for the masses, with all this serious, accurate, thorough drill for the greater part of the nation, what is left to be worked out by the people for themselves? What are they encouraged to work out for themselves? Are the individual teachers likely to experiment on new lines for themselves and for the people? Have the Continental nations contributed much in the way of original and specialistic physical education? Have they taught the people to

work out each for himself his own salvation of body, nerve, and mind?

France is an exception. Games, particularly Lawn Tennis, are becoming popular there; fencing—a magnificent training for muscle, nerve, and mind—has long been a speciality; and the French nature is more towards self-activity. On the whole, however, Continental work in physical education is not original; it conforms to a basic pattern.

Contrast with the above characteristics those of America and England. Here we find some large groups drilled together, as at the great American exhibitions in the large cities, and at our Government schools, and at occasional local *fêtes*. We find here also some dulness and seriousness, some accuracy and thoroughness, some national support, especially for the poorest and most degraded children. But these are not the leading characteristics of physical education in England and America. The characteristics, in England especially, are abundance of play—at any rate for the few, and benefiting the few rather than the many—a little work of an original kind by individuals for themselves, a great deal of work of an original kind by individuals for themselves and the public; that is to say, by professional people.

For one Delsarte or Ling with a special system, we have hundreds of independent Delsartean exponents and Ling exponents exaggerating some one side or two of physical culture. America has, and advertises, a Grecian system, a Thomas Psycho-physical system, a Swoboda system, a von Boeckmann system, a Stone system, a Ki Magi system, a Ralston system, and a host of others. England has a Macdonald Smith, a Sandow, an

Inch, a Mrs. Conn, a Vin Bullen, a Jujitsu system, an Athletic system, and even a Flynn system, which combines the most useful features of all, and contributes them to the PHYSICAL EDUCATOR. So in our games and athletics and the many professional exponents of them, we have—we Anglo-Saxons—a wealth of originality and variety which the Continent cannot boast at all. We offer more and more choice to the public—so long as the public likes to pay for it.

Now, are the Continentals better off than we are? Besides their army-system and their nascent games and athletics (including walking, running, and rowing), and their gymnastics, they have their national Leagues to organise and impose series of movements, very carefully graduated, and employing most of the important muscles of the body. This is surely excellent?

When we turn to England the picture seems darker. Here is no Government education for the nation; nearly all is

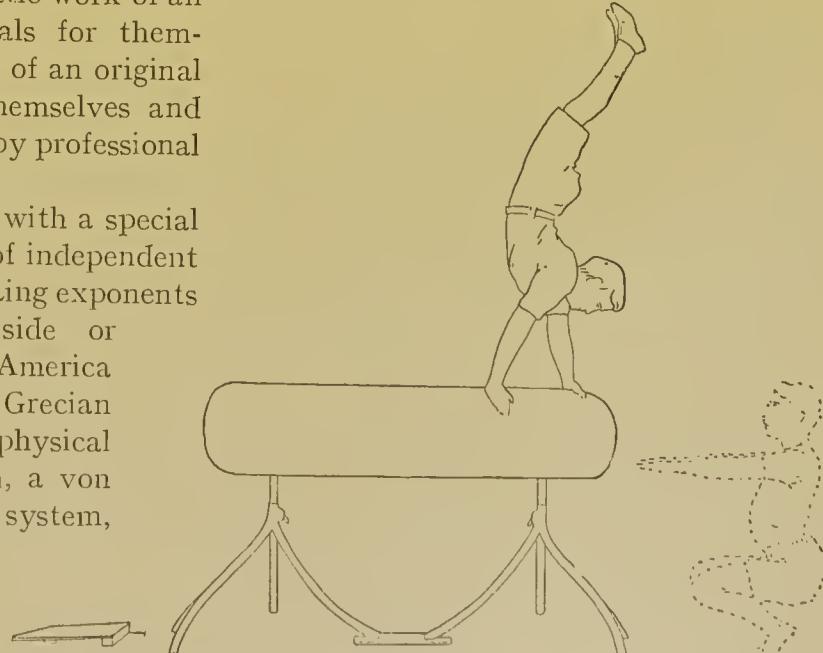


FIG. 6.—VAULTING-HORSE EXERCISE.

(Adapted from the Antwerp Programme, 1903.)

left to the individual and his own choice. He is to judge not by what he learns at school or elsewhere, but by what he reads in ridiculous advertisements ; and he is usually misled, for the systems are not advertised according to their excellence, but according to the amount of capital behind them, and so according to the amount of repetitions by which they manage to hypnotise an uneducated and unwary public.

We naturally ask: Would it not be better to map out the individual's physical education for him, rather than let him hammer it out for himself or leave it alone altogether ? For every one Benjamin Franklin, successful through self-effort, in spite of, or because of, great difficulties, there are a hundred premature failures through self-effort because of these difficulties.

So we come to the problem hitherto unsolved : Is it better to have a nation of free persons making their own mistakes, a nation including a few pre-eminently great, because self-made, men and women, but a huge majority of self-unmade men and women ? Or is it better to direct people in groups and flocks like sheep ?

Now probably the answer, from the point of view of strict and scientific theory, regardless of Anglo-Saxon likes and dislikes, would be that we should help all members of the nation to master the alphabet of physical life (such an alphabet, we hope, as we have outlined in the Course for Men). There might be in it the elements of self-massage, of various breathings, of washing, of free movements for arms, trunk, neck, feet, and legs, especially expanding movements, and relaxing movements also for economy and grace. This alphabet could be taught to all while they were still young and ready to do what they were told ; it should be made as interesting as possible. Then

there should be a little education about exercise and various exercises, and what they are likely to do for us, and about play.

Now would come the difference. We should have a wider system, a wider basis than the Continental nations at present have. Afterwards, therefore, we could allow a far freer self-expression than we allow or than they do. For their system is not nearly so perfect as they believe it to be. It contains a very great error, almost, if not quite, at the root of it.

They make the mistake of providing for most of their subjects discipline and drill of a uniform kind, or else nothing at all.

We make the mistake of providing for most of our subjects no discipline and no drill, but indiscriminate and self-chosen play if the subjects can get it and pay for it. Here is a case in point : it is less true of Football and Hockey than of Cricket. Two Cricket elevens are in the field. One eleven is fielding out. The bowling, wicket-keeping, and some places in the field give fairly good exercise, but among the fielders we notice at least four boys "slacking," and not interested in the play. The two batsmen are getting good exercise also. Most of the other nine of the side that is in are loafing. Four of these will have an innings of only two or three minutes. In other parts of England most boys of the same age are getting no play at all, and therefore very little exercise.

We see that it is the duffer at school, and the ordinary boy elsewhere, who suffer most. On the Continent such boys would be drilled.

On the Continent, however, it is the duffer who is catered for—the boy who, under our present system of teaching, would be no good at games, and for the

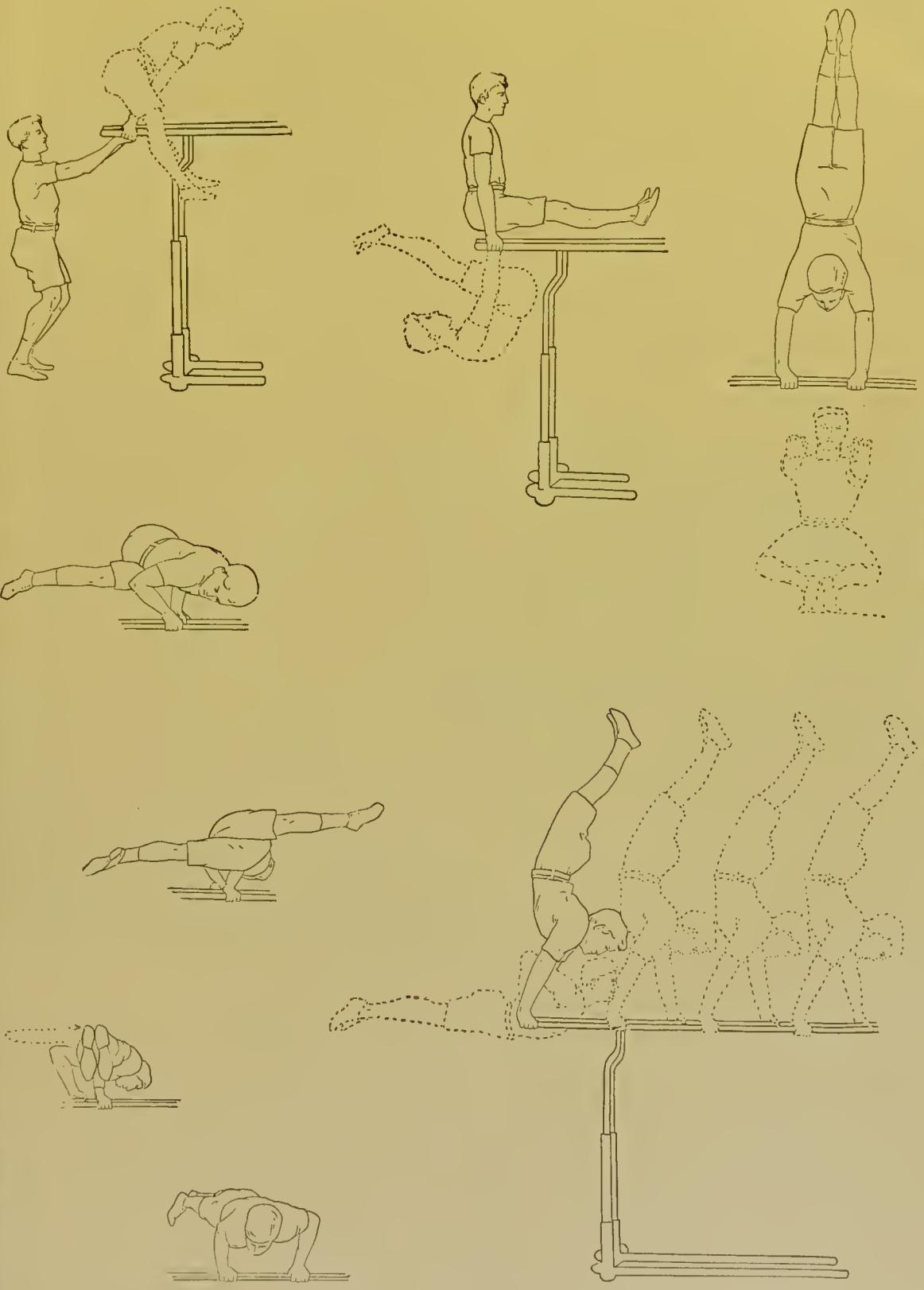
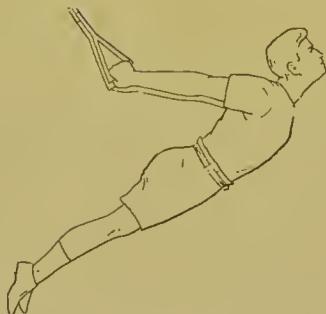
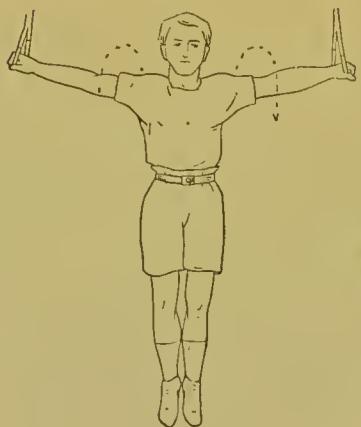
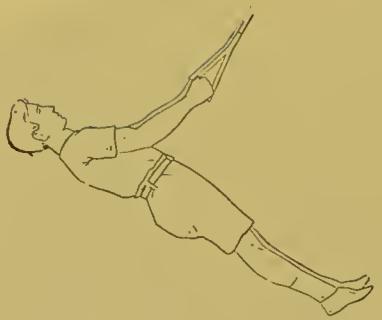


FIG. 7.—A SERIES OF PARALLEL-BAR EXERCISES.
(Adapted from the Antwerp Programme, 1903).



centre for hero-worship—and would the introduction of drill hurt the genius-player so much? It would certainly advance and encourage the duffers and the average boys; it would certainly breed the team-spirit which is so conspicuous on the Continent.

Another point about English as distinct from Continental methods:—See this boy come in from a long and exhausting run; see that boy finish his third strong and exhausting “pull-up” on the horizontal. Both boys are strained, perhaps badly strained, for the future, though the results need not appear till after thirty-five.

sake of whom the genius has to be drilled also. On the Continent it is the genius who too often suffers.

In England it is the genius who is catered for; Cricket almost exists for him. He is the autocrat of sport, served by the leather-hunters and inferior bowlers and inferior batsmen; they scarcely interrupt his triumphant progress at all. Always he is to the fore. It is the genius who seems born to shine. The others seem born to be run round or run through by the genius at Hockey or Football. It is the duffer who is neglected. It is the average boy outside our Public Schools who is neglected also.

We do certainly produce many fine men, but are they worth the price? How much is a genius-player worth to a nation—among other reasons, as a visible

FIG. 8.—END OF A SERIES OF RING EXERCISES.
(Adapted from the Antwerp Programme, 1903.)

On the Continent both the run and the (single) "pull-up" would be led up to by graduated exercise. Our physical education generally is altogether too haphazard.

What we suggest is another course in addition to, not instead of, much of the above Course for Men—namely, the free exercises for arms, trunk, neck, feet and legs, extensions, etc.—but not instead of the massage, breathings, washing, and

G. O. Smith, A. G. Steel, W. B. Thomas, and a dozen others.

About the interest of our masses there is no doubt whatsoever. The interest is *sport*. And about the enjoyment of sport, whether watched or performed, there is no doubt whatsoever. We should use this interest, and, while helping the masses



FIG. 9.—MARCH PAST OF THE GYMNASTS.

(Photo by permission of Mr. E. Lévy and Ph. and E. Link, Zürich.)

relaxing. We suggest a drill for games and athletics, on the lines of "An Alphabet of Athletics," but far better. It should be worked out by specialists at Ling and other kinds of physical culture, co-operating with specialists at games and athletics. Among the latter we should suggest E. F. Benson, Theodore A. Cook, the Dohertys, H. K. Foster, C. B. Fry, W. H. Grenfell, N. L. Jackson, Gilbert Jessop, Peter Latham, R. Lehmann, Alfred Lyttelton, Major Poore, Wilfrid Rhodes, B. Fletcher Robinson,

to play and giving them spaces for play, train their bodies and wills also.

The universal verdict of science about enjoyment is that it has a favourable effect on the blood and the whole system. It is especially true of healthy enjoyment in the open air. Yet neither we nor the Continental nations provide healthy enjoyment nationally. We provide neither it nor the opportunities for it, nor teaching about it. *We are apt to make our children think that when they enjoy themselves they are doing something wrong.* We tend to treat it as an evil, or, at the best, an extra, thrown in, rather than an absolute necessity.

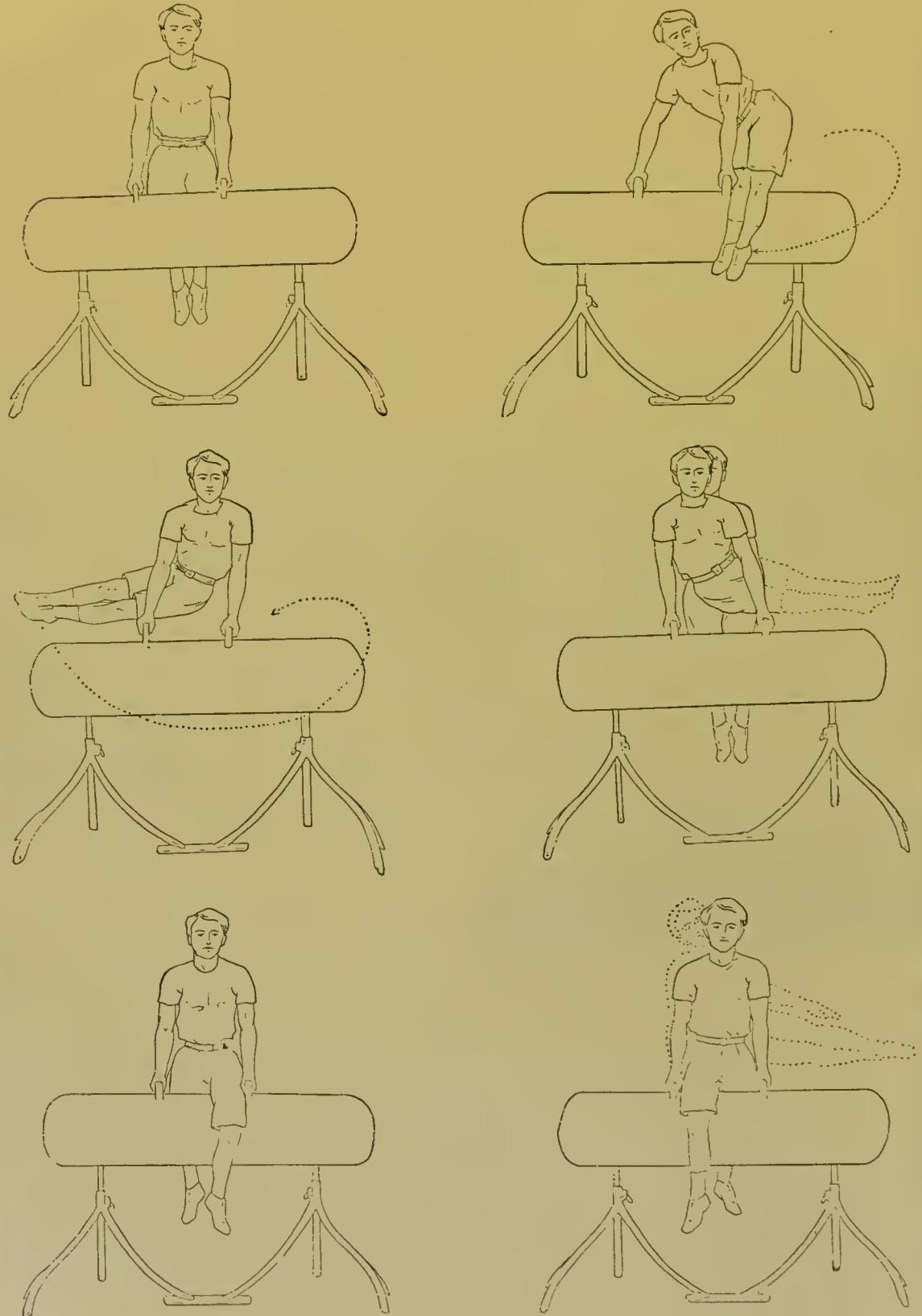


FIG. 10.—VAULTING-HORSE EXERCISE.

(Adapted from the Antwerp Programme, 1903.)

So the Continental nations have a lesson to learn as well as we, and, though they (or their writers) are wont to despise our country, throughout the Continent we can find no record of anything so good as what we get in the best English gymnasia when managed by educated and open-minded teachers, who will include some Ling and German drill, but add the play-spirit and the games utterly alien to the "pure" Ling and German systems. What on the Continent could excel the organised games and game-drills at Mr. Corsie's School at Wandsworth, or the physical education at our best English schools?

But these excellences are for the elect—or for the condemned. On the Continent all the excellences are for all alike.

To express a personal opinion, we should be sorry to see the main part of our physical education being carried out, on the Continental plan, at the word of command by an instructor. Let there be some of this; but let our drill be so interesting to us as Anglo-Saxons that individuals will be attracted by it, will practise it in privacy, or in groups that are voluntarily self-organised.

And let there be a national system to prepare for recreation as well as for health, as Sister Grace has done by her Guild of Child's Play at Bermondsey. Let us cease to cater only for those whom we may call the born experts—for the majority of English people are physical "duffers": let us begin to cater for the majority.



FIG. 11.—THE PROCESSION OF ATHLETES BEHIND A MILITARY BAND.

(Photo by permission of Mr. E. Lévy and Ph. and E. Link, Zürich.)

CHAPTER XXII.

POPULAR FALLACIES.

Most Fallacies Due to Omission of Some Important Point or Point of View—Or to Too Much Emphasis on One—Examples: That England is a Free Country; That City-life is Altogether Bad for All—Mistake of Not Viewing Life as a Whole—Mistake of Knitting the Brows—Fallacies About Games—Fleshless Foods—Stimulants—Physical Education—Part Mistaken for Whole—Omission of Education of Diaphragm and in Repose—The Bulk-Fallacy—The Test of “What Will He Do with It?”—Fallacy that Strength is Health—That All-round Athletic Success is Health—That All Use is Good Use—That All Practice Makes Perfect—Tests of Systems—Wrongly Estimated Because of Small Knowledge of Statistics—Fallacy of the “Golden Ager”—National Degeneracy—Fallacy of Relying on Present Conditions as Sufficient—That What is “Natural” Must be Best—That Games are Enough—That Any One System is Enough—That All Muscles Must be Treated Similarly—The Athlete of the Future—Fallacy that Physical Education is Waste of Time—That Holidays are the Opportunity Not for Experimentation, but for Excess—That Experimentation is Cranky—That there is Any Real Test Except “Judge Things by All-round Results after Fair Trial.”

“ENGLAND is a free country.” We have read it in papers and heard it in melodramas, and in general it may be true. Some fifty years ago, on a Sunday, one might not dress comfortably, nor take reasonable exercise or other recreation, nor read exciting books. The rigid *régime* still survives in parts of Scotland and elsewhere. To-day one may be far more free, yet not free altogether. Try the extreme. Try an air and light bath for the whole body (a treatment admitted to be excellent for the health), and, on the grass of a London park, go through the Course for Men, vigorously and with concentration. Then dress again, putting on flannels; run home, and, for your meal, insist on the diet that will really suit you best and help you to do the best work the next week. Out of hundreds of possibilities, it may be—who knows?—apples and nuts and whole-meal bread-and-butter, slowly eaten; not podgy white bread, mustard and pepper and salt with stimulating beef, badly cooked cabbages and potatoes

appended to them, clogging Yorkshire pudding, stodgy plum-pudding, a glass of beer, a slice of cake, a cup of coffee, a cigarette. This, or something like it, is perhaps what will be offered you.

No, England is not a free country, the mistake being that our informant has omitted something. Possibly he has seen how alien paupers are allowed to live here after having been shovelled out of their native land. He has seen how foreign manufactures “may be deposited here.” He forgets that the part is not the whole; he forgets that there are such things as customs and beliefs in England; that these are scarcely less compelling than policemen, and that they do not always leave room for personal freedom, unless you have a will of steel.

On the other hand, the despairing pessimists who tell us that modern conditions, this constricting dress, foul air, and fouler temptation, are altogether bad for us—that, for example, they deprive us of natural and healthy exercise and recreation—these people also are wrong. Their fallacy also is due to an omission—

to several omissions. Why should we not take the opposite view, and bless these very conditions and call them our stimulators and saviours? May they not be just simply the laws and bye-laws and etiquette of a magnificent game? Is golf a curse because its hazards, its restraint, and other characteristics, are difficult? Shall we not have evolved the more mind, nerve, and muscle, in direct proportion to the difficulties?

If modern conditions eventually force us (as they will) to choose and use saner and healthier food (perhaps some such twopenny or threepenny meal as we suggest in another chapter), healthier exercise possible anywhere (perhaps some such Courses as we advise), some healthier recreations possible almost anywhere (perhaps some such adapted games as we offer); if they force us to be sensible, shall we turn and curse them? If we can win this game against cities, shall we not be a stage above the much over-praised Golden Age-man? He, thanks to his Adamic and Eval life in the country, would, after a short while, fade away suddenly like *some* grass, if he had to face what we have to face and conquer inside our cities.

No. He who asserts that city-life and its conditions are altogether vile has omitted the truth that these conditions are a game to be played and won skilfully, fairly, pluckily, cheerfully. We prophesy that

city-life has many functions that are simply indispensable even to the physical health of humanity at large. If, eventually, it destroys the race of fast-eaters, over-eaters, careless eaters, hurriers, worriers, pessimists; if it proves that these minds (it is a matter of mind after all) are unfitted to survive, then welcome to it! It is the friend of posterity! To regard it as an entirely hurtful tyrant, or even

as an enemy, instead of as a worthy opponent in the greatest of games, is a fallacy and a stupidity. We have fixed our attention on one aspect or part, instead of half-closing our eyes and seeing the general scheme of life all round as in a mist, where cheerful proportion rules queen over self-important details.

It is surely an error so often with knitted brows to stare anxiously at life or some one department of life —this diet, those gymnastics, that money-grubbing, yonder cere-



FIG. 1.—“THE RACE OF FAST EATERS.”

monies—instead of looking at it pleasantly, if not amusedly, now and then, as we have seen Hackenschmidt look at a wrestling opponent. Such an attitude does not prevent the most superb watchfulness, strength, and endurance. On the contrary, it is likely to give the best and cleverest and most graceful self (our true director) the freest play. It may pass over some minor point which otherwise the starer with knitted brows might have observed, but at least it commands a good general view, and

avoids the fallacy that all life is grimly serious and heavy.

Most fallacies, indeed, resolve themselves into this one : that we look at a part and think it the whole ; that we label the whole with the label belonging to a part, and that we praise or blame the whole accordingly. Some labels are unfair eulogies ; others are equally unfair libels. Most advertisements are unfair eulogies.

As examples of fallacies due to the omission of some essential, let us cite the following :—

Games are often said to be " mere exercise for the muscles " or " mere amusement." They may have both these qualities for some people or they may involve little exercise and less amusement,

if any. Cricket for duffers at Public Schools may be classed in the latter category. On the other hand, when properly practised and played, games may be one of the best outlets for extra energy, one of the best preparations for life, one of the best developers of the senses, and so on. This we have already pointed out in the articles on games.

In the articles on diet we point out another fallacy : Fleshless foods are frequently condemned because some of them—badly chosen and badly cooked vegetables and other foods, with poor tastes and monotonous tastes—are offered as types. They are only a part of the simpler dietary. Let a person try one of our meals, of which the materials for four or five courses may cost less than sixpence. Let him try the taste and effect of our suggested dish of lentils, beans, and cheese, and he may come to change his opinion absolutely.

In the chapter on stimulants we have exposed another error. A lady once

wrote to a temperance paper to say that she had taken the pledge against alcohol and never took stimulants ; she only took meat twice a day, tea or coffee three times, and occasionally ginger-beer. By stimulants she meant alcoholic stimulants, and she did not know that ginger-beer may be one of them. As a matter of fact, to many people the flesh-foods, tea, coffee, and even sugar may be very powerful stimulants, acting as spurs rather than as nutriments. Here, again, the mistaken

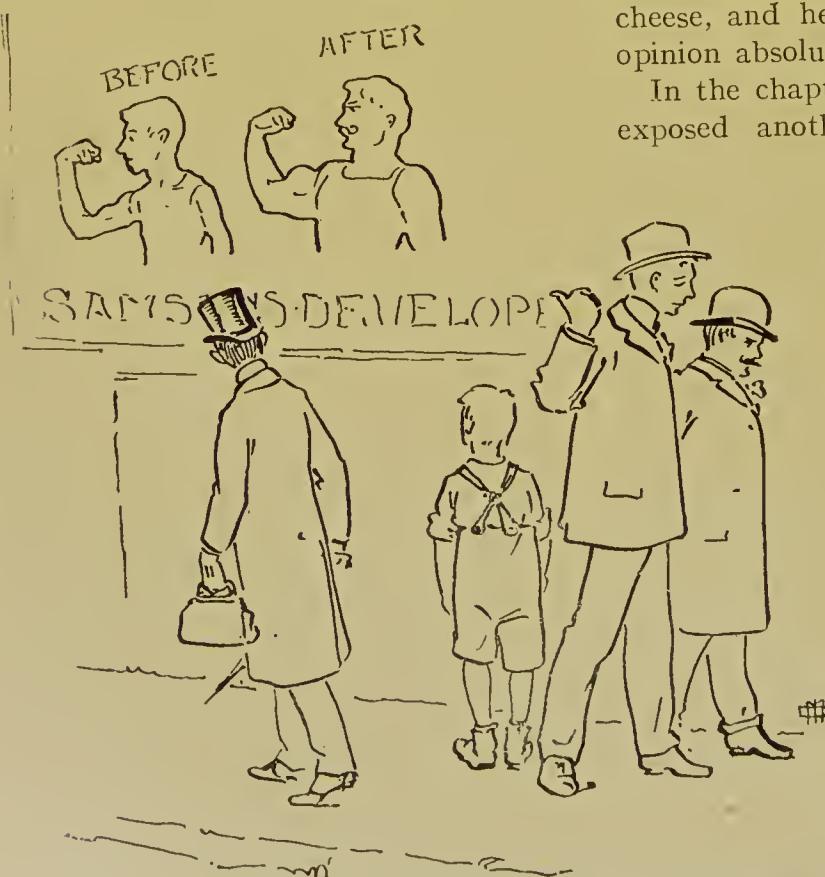


FIG. 2.—“ HOW SPLENDID IS THE PHYSICAL CULTURE WHICH HAS RAISED UP THAT BICEPS ” (p. 263).

person was treating a part as if it were the whole. She—like some corset-absainers—imagined that *not* to be guilty of one offence was the same as not to be guilty of any offence.

The words “physical education” give us another instance. What is or is not physical education? Some would pretend that games are; others would pretend that free movements are; others that only certain free movements are—say those of the Ling System; whereas all are physical education, at their own time, in their own place, for their own public.

And physical education is much beyond mere culture of muscles. It includes not only the work of muscles, but also the rest and repose of them. It includes the art of saving as well as the art of spending. Moreover, it includes the culture of all muscles, and especially the diaphragm, to help the breathing, digestion, excretion, circulation, and physical economy. Let us see for a moment how absurd is that idea that physical education does not include education in repose.

Compare our education with regard to money. Should we say that a man was thoroughly educated if he had been taught that it was good to spend pounds on this, shillings on that, but had not been taught that it was a mistake to let pennies, shillings, pounds, and banknotes drop from his trouser-pockets into the mud? “Buy that pencil; it will be a copper well-invested; never mind if you let two halfpennies slip out of your hand.” And that is precisely the error people make when they repeat like parrots, “Move, hustle, grip, swing, lunge, bend, jump,” and never, never say, “Don’t move, don’t hustle, don’t grip unnecessarily. Learn how *not* to use energy when you have no good result to show for the use. That is waste, as bad as the lavishness of a spendthrift, or even worse,

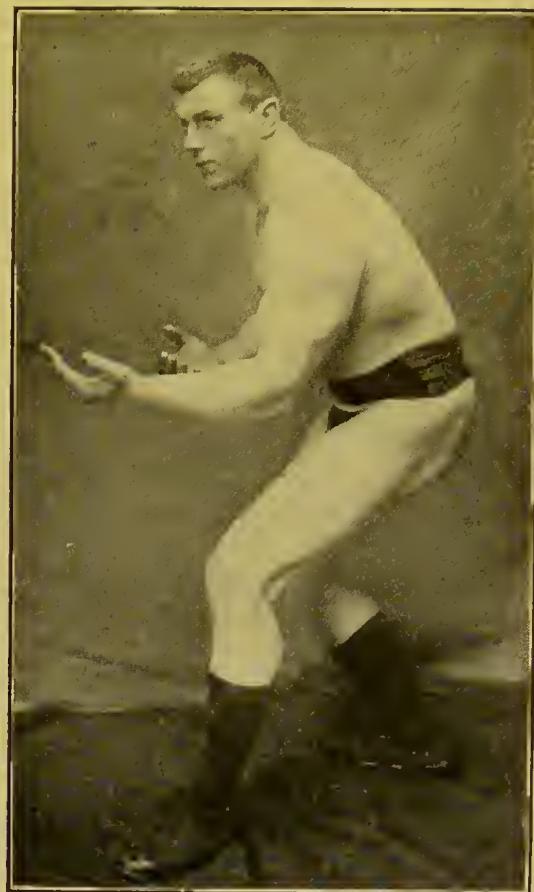


FIG. 3.

IT IS RARELY THAT GREAT STRENGTH AND GREAT ACTIVITY ARE COMBINED AS THEY ARE IN HACKENSCHMIDT.

(Photo: Marie Léon, Regent Street.)

since energy is more precious than money.” Physical education without training in the art of repose is a misnomer.

Too often, again, we find some “physical culturist” extravagantly praised because of one particular sight which he produces—namely, bulk. The populace, misled by advertisements, does not ask itself, Of what use is this bulk? It simply thinks to itself, How large it looks! What a size! Therefore, how strong! Then therefore how splendid is the physical culture which has raised up that biceps! A whole crop of fallacies.

The fallacy of confusing bulk with merit is seen all the world over, and not only among the uncivilised people, who admire a woman merely because (from our

point of view) she is disgustingly obese. We see it in the sale of books and papers. The people seldom ask how much nourishing matter. They ask *how much* they get for their money.

The same populace makes the same demand when it enters the eating-house. We admit the importance of a certain amount of bulk, and we know of others, as well as Hackenschmidt, who combine bulk with great agility and promptitude and versatility; but, beyond a certain point all is waste, to be excreted only with great loss of energy. The same applies to muscle. Bulky muscle all over the body, or bulky muscle in any one part even, bulky chest with little elastic expansion, that is again and again thought to be fine physique. It is not fine physique, still less is it fine humanity.

Bulk fallacy, as we may call it, is noticeable when a spectator praises and envies one set of hard local muscles, particularly those of the biceps, which are not elastic and flexible, but tough and fibrous—and, indeed, to speak accurately, are not all muscle, but to a large extent are connective tissue, which in literature we might call padding. Those who judge by sheer bulk err because they omit other considerations. When bulk helps, let there be bulk. When it does not help, when it is not wanted, let there be a smaller surface and a better quality. Let there be always power to perform. Let there be increased health for nerves, character, and intellect. Let there be asked that question, What will he do with it besides showing it? What good has he gained from having developed it? Is mere prominence of muscle of any use except to start a legitimate pride in the body? Is mere strength by itself of much use except for this and a few emergencies and feats?

That strength is health is an egregious

fallacy. Some of the strongest men have died of consumption. Professor Dowd, the (theoretical) authority on physical culture, was a striking (or weight-lifting) example. These have not developed either their diaphragm or their common sense.

Even all-round athletic success is not health. The man with a deadly disease may still be able to play a hard match admirably, owing to his eye, his constant practice, and perhaps even to the attraction of the system's poison to the one diseased part. We must judge these performers not while they are performing, say up to the age of thirty-five, but when they are fifty years of age. How suddenly do they consume!

Merely to have used the muscles, as these and many others have, is not enough. Merely to have used all the muscles is not enough. Recently we have read in the writings of ten high authorities that walking is perfect exercise because it brings all the muscles into play. For many it does not do so; it brings muscles into drudgery. Nor does it exercise all the muscles—for example, after abundance of walking practice, try for a change to skate or to play cricket for all you are worth, or to play the piano. You will find that certain parts have not been touched up at all by the walking. It assuredly exercises very few muscles fully. It gives comparatively few full contractions. It empties comparatively few muscles of their waste-products, so as to allow fresh blood to come in and nourish them.

Use does not necessarily produce good muscle; right use inevitably does. Right use involves many full contractions; it involves uses of the various muscles in their right ways and in proportion to their needs; it involves for most of us much remedial work, and for us all much repose. Exercise is not the same as good exercise, which is really a complex unity made up of

different, diverse, contradictory parts. It is only the whole that is a harmony.

Similar is the fallacy that mere practice makes perfect. In a previous chapter we have cited W. G. George's opinion on an apparently simple matter like running—form first, at the expense of great carefulness ; then abundant practice ; but not practice first, lest you simply establish a bad habit. All intelligent people are agreed as to this point. Mere movement, however often repeated, is not enough. We have a friend who practised a certain grip-system. It was a movement. His ambition was to be good at golf. The result of his movement was that he became bad at golf. It will take him months to recover his free drive.

Many means and helps which are offered to the public are erroneous, because they are one-sided, and because they are tested by partial results (as, in this case, the power of lifting big weights), and are founded on partial ideals (in this case the increase of the power for pushing and pulling and lifting and holding). We hope that in our special chapter we have enlightened our readers somewhat as to the ways of testing various systems. We hope that we have shown how false tests have produced unfair criticisms and condemnations as well as unfair eulogies. But perhaps a personal confession will be more effective than a vague piece of advice.

Nearly five years ago the Editor said what he thought of the Sandow and the weight-lifting systems, in "The Training of the Body." If any reader has that book, let him compare it with what we say in the chapter on Sandow in this PHYSICAL EDUCATOR. We had not applied all the right tests ; we had not kept in view all the requisites of a system. We know better now. At that time, too, we were convinced that England was in most ways degenerating. Now we modify our view.

We see excellent work done by many institutions. Poor Law Schools, Reformatory Industrial Schools, Boys' Brigades, the Physical Recreation Society, the Physical Education Society, and a hundred other influences. Such parts of the whole we had through ignorance omitted, nor had we quite realised that to-day there is a new battle for us to fight against cities.

We are fighting this battle better than our "Golden Age" man would. A Lobengula would succumb to his city-life ; we do not ; many of us flourish in it. A recent authority was perpetually repeating that we are degenerating, because a certain number of recruits are rejected, and a certain number are again rejected after having been trained by the army course. Loose thinkers accept this as a terrible condemnation of our present life. Might not the latter fact be rather a condemnation of the army system ? In how many cases have these recruits been ruined by a method, excellent as rapid training for discipline and obedience and hardy strength ; execrable for a weak physique and an independently intelligent mind. These articles about national degeneration are teeming with fungoid fallacies. Sir Lauder Brunton's expression "national deficiency" is free from fallacy. We can safely assert that we have relied too much on what already exists, and have been content with that. That what now is, is much worse than what used to be, we cannot safely assert.

Yet it is wrong for us to rely on present conditions, whether these be "nature," games, or any other branch of exercise. Let us take these three in order.

Many say that what is "natural" is best for us, that we ought to leave people to find out their own exercise as animals do. That is a mere excuse for laziness. In most cities our "natural" exercise is next to impossible. Some systems are

needed at the outset. If we were normal, if we had what are thought to be the normal conditions of animals, we should need less carefulness. As it is, look at the people in Fleet Street—or, as it has been called, Pipesuckers' Row! Now look at the men who were at a Public School twenty or even ten years ago! Do they "naturally" take the best exercise for their individual needs? Of course not.

Nor has the Public School boy had a reasonable physical education, in spite of all the money spent on him. The games are not all that he needs for his after-life. They leave many important muscles weak, as Mr. Flynn will point out in our Course for Boys. Games do much good, but they also do inestimable harm by covering the multitude of physical mistakes which in after-life will be laid bare, because there will be no longer sufficient games to cover them.

Just as severe a criticism must be passed on any other single system, especially one which aims at the culture of large muscle rather than of quickness, adaptability, nerve, character, intellect.

An "athlete," as we have seen, is not necessarily a healthy man. Neither is he necessarily a man of good nerve, good character, good intellect. He is not necessarily even a sportsman. Fenceis run down weight-lifters; weight-lifters run down club-experts; slow workers run down quick workers; gymnasts run down game-players.

No one system is complete by itself, though no one system is altogether wrong in its proper place and time and under careful supervision. That is the opposite fallacy. The idea that one system is complete by itself is due to the idea that all muscles are alike. Some are made to be hewers of wood; others are made to be almost as versatile as human beings themselves. We might compare the

muscles to a world of animals. If there is a difference between a carthorse and a racehorse in the class of horses alone, how vast is the difference between an elephant and an ant, an antelope and a porpoise! Yet perhaps there is scarcely an animal which will not find its like in the world of our muscles.

So for many muscles, many systems. Merely to have muscles and to exercise them is not the main thing. Neither is symmetry of appearance the main thing, for it would be possible to have a symmetrical appearance, we imagine, with most muscles of the wrong kind. What, then, is the main thing? What is the ideal?

Let us try to sketch the athlete of the future.

He will be able to live on a cheap diet. Simple things will be sufficient for him. He will breathe correctly, without conscious effort. He will not use muscles unnecessarily. He will not be obliged to exercise for hours and hours every day or even every week. He will be able to do plenty of brain-work when it is required. He will be master of himself, master of his muscles through his nerves. He will be able not only to control himself, but also to express himself in many spheres.

For it is a fallacy that first-rate excellence—or, at any rate, high excellence—is possible only in one sphere. When he expresses himself, he will do it safely and helpfully, and pleasantly for himself and for others. He will do it easily and gracefully and successfully in all departments of life. For all departments of life seem based on physical expressions and impressions. Even our knowledge of mathematics comes through these.

He will not regard first-rate excellence in one or more than one sphere as an excuse for failure in other spheres—for instance, in morals or nerves.

It is a mistake to suppose that nervous ailments are not due at all to physical causes, and therefore that physical education is not worth while. Occasionally a Joseph Chamberlain may be able to do without exercise, but he might be able to do better with it, and he may be ruining his magnificent constitution. Anyhow, he is an exception rather than a rule, and I suppose even he would not decry physical education for the majority.

For physical education is no waste of time ; still less is it a morbid and self-centred pursuit. The Japanese prepared for war during years past, though there might never have been a war. It was not considered morbid. For our bodies there certainly will be a war perpetually. If we are not ready, is it morbid to try to make ourselves ready ? What is the cost if we are not ready ?

But people are grossly ignorant. They wait for the war to begin ; then, at length, they prepare for it. Peace is the time for preparation for war. Holidays are the time for preparation for work.

It is popularly supposed that holidays



FIG. 4.—“FENCERS RUN DOWN WEIGHT-LIFTERS, WEIGHT-LIFTERS RUN DOWN CLUB-EXPERTS” (p. 266).

are only for slackness and enjoyment — temporary enjoyment. They are for this, of course, but also for experimentation, in order that we may enjoy ourselves during the greater part of our life, not merely during the few weeks of freedom.

Yet how constantly we are told that experimentation is cranky, faddy, neurotic. Rash experimentation is. So, generally, is what we may call guaranteed experimentation, as when a person tells us that the no-breakfast plan or the fasting plan or the raw food plan, or this or that system, is absolutely sure to suit everyone in the world.

That brings us to the last fallacy but one, which we shall treat of here —that hard and fast laws can be laid down for all others as to what they need, what they will do and continue to do, and what they will enjoy. There is only one law of universal application ; that is, Judge everything by its all-round results after fair personal trial. And here is involved the question, Will people give the plan a fair trial ? If they cannot be induced to do so, then the plan is not a plan for all.

For it lacks what all systems should have—interest and attraction. This is a gigantic fallacy, that a system can be scientific if it lacks interest and attraction



FIG. 5.—ONLY A PART OF PHYSICAL EDUCATION.

for those to whom it is recommended. It may be the most excellent plan in theory, but in practice it is not scientific in our sense of the word. We want our advice to be scientific in a new and human sense ; we want it to be tested by several questions—not only, Is the thing true ? Not

merely, Is it useful ? But, Is it not only true and useful ? Is it also attractive to the reader as an individual ? And is it feasible for him as a regular practice ? The exercise below may be attractive ; but it is not feasible for most of us.



FIG. 6.—A GOOD EXERCISE FOR THE AIR-BATH.
(By permission of Karl Mann, Organiser of the Open-air Gymnasium near Berlin.)



FIG. I.—BREATHING EXERCISE AT PERCY HOUSE SCHOOLS.

BREATHING ARM-BENDING AND HEEL-RAISING COMBINED. THIS CAN BE FOLLOWED BY MUSCULAR RELAXING.

(By permission of the Principal, Mr. P. Turner.)

CHAPTER XXIII.

BETTER VOICE-PRODUCTION AND ADVANTAGES OF BETTER BREATHING.—II.

We want Better Habits, therefore Better Practice—City-life Full of Bad Habits—A Lady's Experiences in Learning Voice-production—First Learn to Shut the Mouth—Then to get Rid of Tension and its Results by Relaxing—Cramping Clothing—Need of a Good Instructor—A Contribution by an Expert Teacher—The Direction of the Voice—Commonest Faults—A Useful Exercise—The Mirror as a Help—Valuable Comparisons—Full Movement System—Imagination and its Effects—A Few Breathing Exercises—The Pneumauxetor—What it Means to Add an Inch to the Capacity—Deaths from Lung Diseases—Undeveloped "Athletes"—The "Natural" Way is Usually Wrong—Need to Remind Oneself of Moving Motives—A Hindu Parable—An Interesting Study *per se*—Improved Appearance—More Charming Voice—Athletic Success—Greater Independence—Better Digestion—Prevention and Cure of Diseases—Worry, the Fatal Disease—More Comfort and Satisfaction—All-round Economy and Money-earning—Moral and Spiritual Effects—Effects of Practice Itself—Effects on Others—Long Life—A Matter of National Importance—Some Reasons Why we should Practise—The Practice is Unobtrusive—Progress is Easily Registered—The Most Neglected Art in Anglo-Saxon Life—Some Fallacies.

In an early chapter we offered some hints on better breathing, and we suggested some exercises. Later, we shall enter into more detail as to the advantages of better breathing, and we shall add some further hints and exercises. Here, after a brief allusion to the first mentioned chapter, we shall deal mainly with Voice-production.

The ideas most novel to the reader, in our general sketch, probably were, first of all, the relaxed breathing for economy, calmness, gracefulness, and other purposes; and then the slight and "gingerly" breathing when the air is foul. If food is foul, the less we eat of it the better, even if in that foul food there is some nourishment. We must make up for the

starvation by eating more of fresh and good food when we have the chance. So it is with foul air. But most people in cities have a similar way of breathing whether the air be fresh or foul, and that way is generally wrong in either case. They err as much by breathing in a certain way when the air is foul as they do by breathing in that way when the air is fresh. In the former case, they inhale too deeply and fully; in the latter case, they do not inhale nearly deeply and fully enough. We leave the reader to practise our exercises daily until better breathing shall have become as much a habit and as little a conscious effort as, let us say, the leg-movements of a walker, the arm and finger movements of a writer, the tongue and lip movements of a speaker, the poise of a cyclist. Meanwhile we proceed to vary the lesson by an interlude on Voice-production.

The subject of voice-production, and the experiences of those who have tried to learn it, would require not half a dozen but six hundred pages of manuscript and a whole comic paper to themselves. Here is an account as described to us by a lady of our acquaintance, herself now a leading exponent of physical culture.

Her first instructor informed her that in order to get rid of her nasal accent she must pitch her voice from the back of her neck till she could pronounce the word "pay" with a steady vibrating sound. This, he explained, would clear the nasal passages, and direct the voice easily through the nose or throat. The result was inflammation of the mucous membrane lining of the throat till the voice was reduced to a whisper and the back of the neck was extremely painful.

The next teacher saw the error of this way, and told her to pitch her voice against the top part of her chest—

"Nature's sounding-board," he said. The right word here was not "pay," but "halt." (Most people will find it better to "halt" *before* they "pay.") This word was to be repeated a hundred times in succession. Now the chest became painful, and the voice went entirely.

The third teacher knew far better than either of these "charlatans," as he called them. He began by a lesson in anatomy; then told her to breathe from the base of the spine, and use only the back part of the lungs. The pain which resulted here was in the "lumbar region." That was quite a change.

The next "expert" was a lady who knew that the only kind of breathing was the abdominal kind, because the largest part of the lungs was in the base of the chest, just under the floating ribs. The lady herself had a wonderful abdominal



FIG. 2.

protuberance which she had worked up and out by lying flat upon her back and placing weights upon her abdomen. She could move these weights up and down with perfect ease by means of the abdominal muscles. She perhaps did not realise that to move the abdominal muscles—and, indeed, to move the chest-muscles—is not necessarily the same as to breathe fully.

Finally, of course, the pupil met a teacher who did know everything. That is always the way. And this final teacher, a master, taught her all that was to be known or that ever will be known about the body. It seemed to us—we may be quite mistaken—that the final system

was not to use the abdominal and not to use the diaphragmatic breathing, which is a different matter; but to keep up the diaphragm and to breathe with the middle and upper breathing.

Now in this complicated subject is there any certainty? Must the learner always be tossed from teacher to teacher till he or she finds his or her harbour of safety—which, perhaps, may be altogether different from someone else's harbour? For we have seen good results from many systems. First, let us take what does seem certain, and that is a list of a few faults.

A great fault is to use the voice at all when silence would be golden. George Catlin (quoted by Behnke) has an admirable treatise on the subject. He remarks: "If I were to endeavour to bequeath to posterity the most important motto which human language can convey, it should be in three words: 'Shut your mouth.' It is one of the misfortunes of civilisation that it has too many amusing and exciting things for the mouth to say, and too many delicious things for it to



FIG. 4.—SLEEPING WITH THE MOUTH OPEN: A BAD HABIT.

taste, to allow of its being closed during the day. Do keep your mouth shut when you read, when you write, when you listen, when you are in pain, when you are walking, when you are running, when you are riding, and by all means when you are angry. There is a proverb, as old, as unchangeable as their hills, amongst North American Indians: 'My son, if thou wouldst be wise, open first thy eyes, thy ears next, and last of all thy mouth.' The practiser would soon find the habit running into his hours of rest, into which he would calmly enter, dismissing the nervous anxieties of the day, as he firmly closed his teeth and his lips, only to be opened after his eyes and his ears in the morning. Mothers should be looked to as the first and principal correctors of destructive habits."

The first law, then, seems to correspond to most of the Ten Commandments: to learn to abstain before we proceed to action; and in the same direction is Mrs. William Archer's (Delsartean) method of teaching us how to relax. It also is a law against wrong use, before we have many hints about right use.

Among the main faults which we all admit to be faults are harshness of voice and the rasping sound which prevails in certain parts of America. This we may remove to some extent by removing muscular tension—that gripping habit.

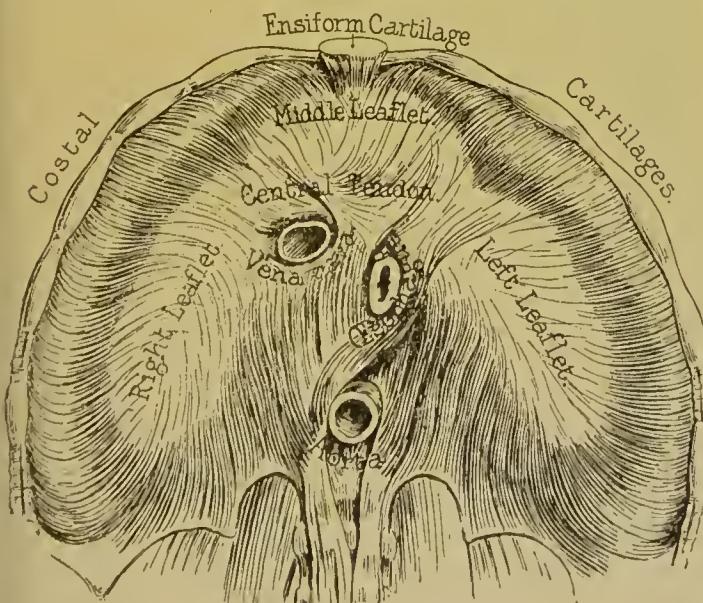


FIG. 3.—PHYSICAL EDUCATION OF THE MUSCLES HAS TOO OFTEN NEGLECTED THE MOST IMPORTANT MUSCLE IN THE BODY—THE DIAPHRAGM, WHICH SEPARATES THE LUNGS AND THE HEART (ABOVE) FROM THE STOMACH, LIVER AND SPLEEN (BELOW). ITS UNDER-SURFACE IS REPRESENTED HERE.

Listen to this unpleasant voice. Can you not perceive the tense grip somewhere in the apparatus? If you removed that kink or obstacle, would not the sound be far less annoying? As we have seen, we can remove some of the ugly tension by taking advantage of the outward breath to relax more and more.

To keep the mouth shut, to relax the muscles which we should gain nothing by contracting—these are two good practices. A third is not to wear cramping clothing any more than we can help. As Behnke says, in an excellent little book called "The Mechanism of the Human Voice," the folly of tight-lacing, or indeed of in any way interfering with the freedom of the waist, will be apparent from what has been said above about midriff (diaphragmatic) and rib breathing *versus* collar-bone breathing. For such clothing will prevent our control of the diaphragm."

The next piece of advice to our readers is that they should go to some singing master who, on the one hand, himself produces his voice well, and who, on the other hand, knows why and how he produces it well, and why and how most people produce their voices badly. The teacher need not necessarily be a musician with an Italian name, nor need he be, according to the next craze, a musician with a German name, or even a German name without the musician. Of course, after many years of experience the clever musician can give some excellent advice on any branch of musical art, but we would rather go to a professor who could give some good examples and could let

us hear what he meant, than to the apprentice who is learning his business—if he is learning it—and getting his experience at our expense. We went to such a teacher as we recommend, and asked him to put down his views in the smallest possible space, leaving to throat-doctors and other specialists most of the scientific details of the anatomy of the vocal organs. He writes us the following brief notes:—

"I think that it is quite enough for any practical purpose to know that we sing by the combined action of the lungs,

the larynx, and the pharynx with its adjoining cavities. It may be superfluous to explain that through the act of 'inspiration' the lungs are filled with breath, and that through the act of 'expiration' this breath is expelled through two thick

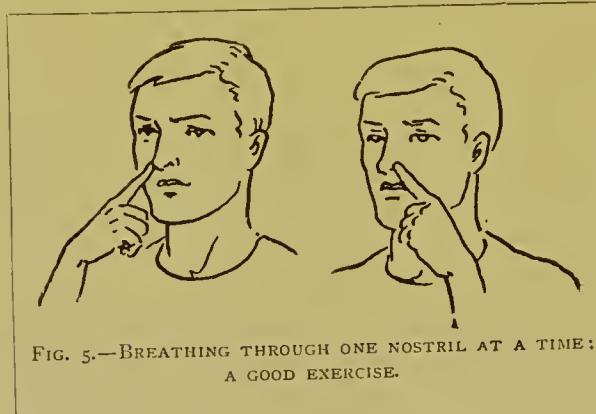


FIG. 5.—BREATHING THROUGH ONE NOSTRIL AT A TIME:
A GOOD EXERCISE.

tubes called 'bronchial tubes,' placed at the end of the lungs, and which lead into a still larger tube called the 'windpipe' (trachea). The windpipe itself terminates into a kind of triangular or oval-shaped box called the larynx, in which are found two horizontal mucous membranes (the vocal lips) in close contact with several other cartilages and ligaments, some of which (as in the case of the arytenoid cartilage) cause the vocal cords to be brought together or separated, stretched or relaxed. The space between the vocal lips is called the 'glottis.' In forcing its way through it the breath sets the vocal cords vibrating, and according to the number of those vibrations the different sounds are produced. The greater the number of vibrations the more acute the

sound. These sounds being produced in the same place and with the same means, it would be a fallacy to suppose that the so-called 'chest' and 'head' registers get those names because the 'chest register' produces its notes in the chest and the head register in the head. The chest and the head are simply the places where the low and the high sounds of the

original impulse given and on the elasticity of the vibrating body; the quality or timbre of the tone depends on the nature and the mechanical contrivances of the instrument which produces it, as illustrated by the difference in the quality of sound of string instruments, wood or brass wind-instruments, pianoforte, human voice, organ, etc.

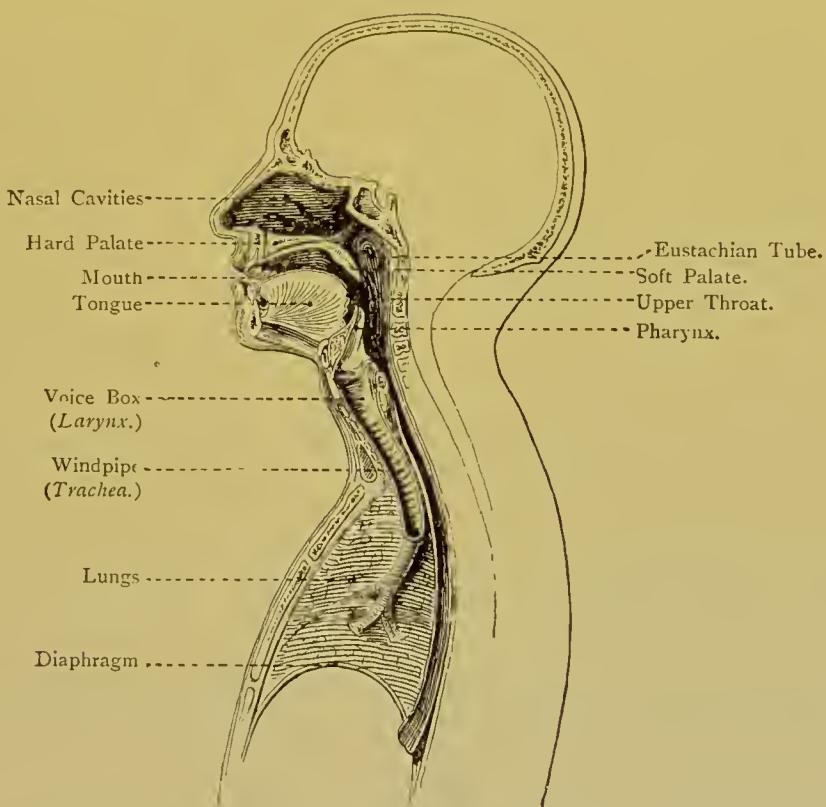


FIG. 6.—OUR VOICE-PRODUCING INSTRUMENTS.

(Adapted from Behnke's "Human Voice.")

voice find their characteristic resonance-chambers. This sound, high or low, whatever it may be, comes into the pharynx, which, with its adjoining cavities (the mouth and the nasal cavities), acts as a sounding-board. Its dimensions, size, and shape, owing to the great mobility of the larynx and of the soft palate, vary considerably. As with all instruments, the power or intensity of the sound depends on the strength of the

"In order to obtain both quality and quantity of tone when singing, it is essential to pay great attention to breathing. The breath should be taken in slowly, silently, and naturally—that is to say, with muscular movements of the lower parts of our apparatus. This last condition causes the lungs to be inflated from their thickest part, and so a longer and more powerful column of air is produced. Once the lungs are well filled with breath,

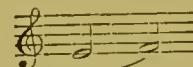
the greatest will-power must be used to control it, to avoid its superfluous expenditure, and to cause every atom of it to ring and come out as voice and not as wind. The steady flow of this column of air when directed towards the right cavity where the notes find their particular resonant chambers, 'fixes' the voice. *In a general way, one may say that for the low notes one may direct one's breath to the back of the top set of teeth, for the medium notes to the bridge of one's nose, and for the high sounds between one's eyes or towards one's eyebrows.*"

[It is needless to say that the correct singer will not think of these helps during a song. He or she will have mastered or mistresssed the mechanism by attentive practice, so as to hand it over to the under-mind.]

"Great discrepancy of opinion prevails about the vowel to choose when beginning to sing. Of the five vowels, *a*, *e*, *i*, *o*, *u* (pronounced as in Italian), three, the *a*, *o*,

and those I might describe as 'natural' productions. As a rule, I have found that the sound *aw* answered my purpose better, and in some rebellious cases I have even preferred the English vowel *e*, on account of the particular position of the tongue when pronouncing it.

"That great and most tiresome obstacle which is usually experienced when passing from the notes of one register into another, and which is commonly called a 'break,' I have found can be successfully overcome if the pupil is careful and patient enough to begin her exercises a note or two *above* the two notes between which the break occurs. I can strongly recommend the following exercises in reference to the break between the two notes:—



The following you ought to sing very slowly at first, gradually increasing the speed as the passage becomes easier:—

and *u*, are formed with the lips, and two, the *e* and *i*, with the tongue. The vowel which is generally chosen by the majority of professors is the broad *a*, as in the word 'arm.' I respect their opinion, and myself on a few occasions have used it with success; but as it must be admitted that, unless it tends towards the sound *aw*, the broad vowel *a* is naturally throaty and guttural, and as the throaty production is the one to be avoided above all, I hardly see the necessity to make a pupil begin with the very vowel which inclines to bring the voice where we do not want it. But, I repeat, there are exceptions,

"By these examples one sees at a glance that each lower semitone is made to assimilate itself to the upper ones, so as to produce the so-called 'blending' of the registers. For the 'head' register, the reverse system I believe would be the best—that is to say, to begin a couple of notes below the note which commences the head register and gradually extend the range of sounds, adding one semitone at a time.

"The depth, sonority, elasticity, and lightness are the characteristics of a voice; but at the same time the range of a voice being apt sometimes to deceive one as to

its real nature, it would be prudent, I think, to begin practising from the medium of the voice, gradually extending the series of sounds by semitones above and below, and judging by that process where the voice gives way more easily. Not only will the real character of the voice assert itself thereby, but one is sure not to injure

The book already cited should be read very carefully if one wishes to understand the mechanism of voice-production and many helps to it. The author points out some of the obstacles in the way of a good voice, and gives different vowels to begin with from our friend above. Here is a little exercise :—

one's own (or somebody else's) voice by forcing it either way.

" My limited space does not allow me to go further into such a complex and intricate subject, especially as, although the fundamental rules about voice-production are the same, *hardly any two voices can be treated exactly alike*; but the few remarks, fruit of my personal experience and observations, may, I hope, be found useful to the patient and attentive student. *Claudite iam rivos pueri, sat prata biberunt.*"

From this short and useful little treatise we see the need of freedom of passage, control of parts, and knowledge of directions. First must be the right stream of air; then must come its unhampered course; then its proper modulations; then its proper resonance by the help of the sounding-boards. With all there must be natural ease if you have it; if not, practised ease such as the fencer acquires.

For, as Behnke says, " I have found that among the most frequent and most injurious mistakes are :—

- " (1) Wrong methods of breathing and of breath-management.
- " (2) Loud singing and shouting.
- " (3) Neglect to cultivate the resonators.
- " (4) Forcing (a) the registers, (b) the top notes."

He suggests taking the exercise at a convenient pitch, then raising it semitone by semitone according to the requirements of individual voices. He says that one of the few points upon which doctors do not differ is that the tone, in order to be pure, resonant, far-reaching, must be allowed to *come well to the front of the mouth*. " It should, as the phrase goes, be directed against the hard palate just above the front teeth. But this is an unfortunate way of putting it, as the tone fills the whole cavity of the mouth, and cannot be " directed " like a jet of water upon any given point. Nevertheless the idea sought to be conveyed by the injunction is good, that the tone should be brought well forward in the mouth."

He then points out that often the soft palate is in the way, and suggests that you should *use the mirror* so that the light is reflected on the back of the throat, without the necessity of bending the head, stretching the neck, or otherwise assuming an awkward position. He says you will need another mirror in which to see the image. Now open your mouth and breathe through the nostrils. The soft palate will drop upon the tongue. Sing while it is in this position, and you will produce nasal tone. Now breathe through the mouth, and the soft palate will rise. Raise it

higher still by trying to yawn, till the uvula disappears. Sing again with the soft palate in this position, and, if nothing else interferes, you will produce pure vocal tone.

He also calls attention to the tongue as the unruly member. Instead of assuming the position necessary for the production of the various vowels, it rises in rebellion. It arches up, stiffens, and defies all attempts to keep it in order. Here, again, he recommends singing before the mirror, just as we recommend clubs and other exercises before the mirror. His vowel exercise, in order to bring the voice well forward, is to sing "oo," then to allow "oo" to dwindle to "o," and finally to allow "o" to dwindle to "ah." This he calls the *oo-o-ah* exercise, and urges pupils to precede it by staccato exercises upon the syllable "koo."

The advice to sing as if one were yawning is decidedly good, within proper limitations, and reminds us of another useful book, by George Thorp, published by Reeves. He also mentions the imitation of yawning. He says that masters, in their efforts to overcome the "breathing" sound in the voice, have used such expressions as "Drink in the tone," "Sing as though you were yawning," "Sing in," "Draw in the breath," "Drink in your voice," "Sing into your head," or "Sing into your chest." Now such little suggestions may be right or they may be wrong. They may produce a good or a not-good voice, or even a very bad one; but their merit is that they give one a definite and concrete idea which one can realise and carry out in practice, and judge by its results. And that is what the reader of these pages wants.

As a system for controlling, independently, the different parts of the body, and even some of the muscles of the throat, we should recommend *par excellence* the

Macdonald Smith system, which we treat in a special chapter.

Besides this, there is the need of general health to give us healthy nerves and tissues and to prevent too much tension.

Perhaps a more practical piece of advice would be that which we suggested just now; either *to practise* certain notes and sounds (particularly the vowel sounds and the nasal sounds) in a certain order, in our own rooms, or (if we dare) in the open air, or *in imagination*. This sounds cranky, this imaginary singing, but the evidence is most striking, that *to imagine an action is actually to do it in a mild way*. Dr. W. G. Anderson, of Yale University, has a very fine apparatus by which he tests changes in the circulation. There is a bed upon which the subject rests. It is accurately balanced upon knife-blades. The subject is told to think out a problem. More blood rushes to his head, and the balance shows the difference. He takes exercise with his legs. More blood is brought to his legs, the balance is altered again. Now, without seeming to move a muscle, he is told to imagine himself moving his muscles. Again the balance is shifted. So it is with singing. We can hum a tune to ourselves without uttering the slightest sound or showing the slightest movement, and many of the most useful exercises we can practise in that way by imagining ourselves shouting or singing or laughing. *Laughing is one of the best exercises in voice-production.*

But, for control of the diaphragm, breathing-exercises must not be neglected. Breathe in quickly and out quickly. Breathe in quickly and out slowly. Breathe in slowly and out quickly. Breathe in fully, holding your breath, and either walk, or do the exercises which Fitzsimmons suggests in his book on boxing (Gale & Polden). He uses the punch-ball

while he holds in his breath. His exercises in Figs. 7, 8, 9, one of them a squeezing exercise, force the breath upwards. But do not strain yourself.

Strain is avoided by gradual progress, by mastery of the elementary rather than attack of the difficult. Indeed, this seems almost the only way for most of us in voice-production. Notice yourself as you speak. You probably inhale through the mouth: this, among other disadvantages, may dry and irritate the tongue and throat. Yet try to inhale through

As a help in exhaling thoroughly we have found an instrument called the "pneumauxetor" useful. We do not believe that it can be obtained in England, but it is an interesting as well as a useful apparatus, being very like the spirometer, but better. You breathe into a kind of miniature gasometer. By the side of it is a white tube, on which are numbers up to 400. You fill your lungs as full as you can, and then slowly and quietly breathe out the air into the mouthpiece, and you see the index rise



FIG. 7.

FILL THE LUNGS, THEN WORK THE ARMS UP AND DOWN.

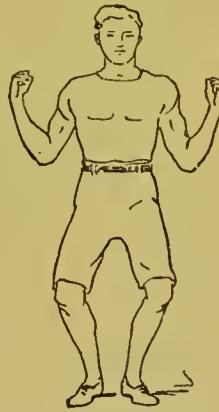


FIG. 8.

FILL THE LUNGS, THEN WORK THE ARMS ABOVE THE HEAD AND DOWN, AS HERE.

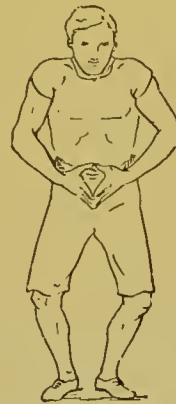


FIG. 9.

FILL THE LUNGS, THEN DRAW IN THE ABDOMEN AND ALTERNATE BETWEEN THIS POSITION AND ONE WITH THE FINGERS LOWER AND THE HEAD HIGHER UP AND THROWN BACK.

THREE FITZSIMMONS EXERCISES.

Adapted from his book on "Self-Defence." (Gale & Polden.)

the nostrils as you speak, and how hard it is. Will not these stages help you?

1. Learn to breathe in through the nostrils and out through the nostrils. The plan is important during the hours of sleep.

2. Learn to breathe in through the nostrils, with closed mouth, and out through the opened mouth; practise on ordinary occasions, but especially during the exercises (in a subsequent chapter).

3. Learn to breathe in through the nostrils, with opened mouth, and out through the opened mouth.

up the registering tube. In a few weeks it is possible to make it rise from a maximum of 150 to beyond 250. This is the finest exercise we know for practising the full yet controlled emptying of the lungs. It gives the spirit of self-emulation. It encourages you to practise filling your lungs fully also.

Though we shall deal specially with many of the advantages of better breathing, in a subsequent chapter, we must urge its importance here also, and indeed constantly throughout the PHYSICAL EDUCATOR.

To advise practice *qua* practice, without appeal to all possible motives, is not our plan at all. And we may as well begin with statistics that will convince. Now to add an inch to your height is something ; *to add one cubic inch to your breathing capacity* is much more vital. It has been calculated that this means eighteen additional cubic inches every minute, or about 112 additional gallons of

fifteen and have died afterwards (660,314), more than a third are said to have died of diseases due to weak lungs. It is an exaggeration, and not a cheerful one either, to imagine that one out of every three people you see walking in American streets will die some day either of consumption or of pneumonia. Mr. P. van Boeckmann, a "respiratory specialist" in New York, gives this figure in his little book, called

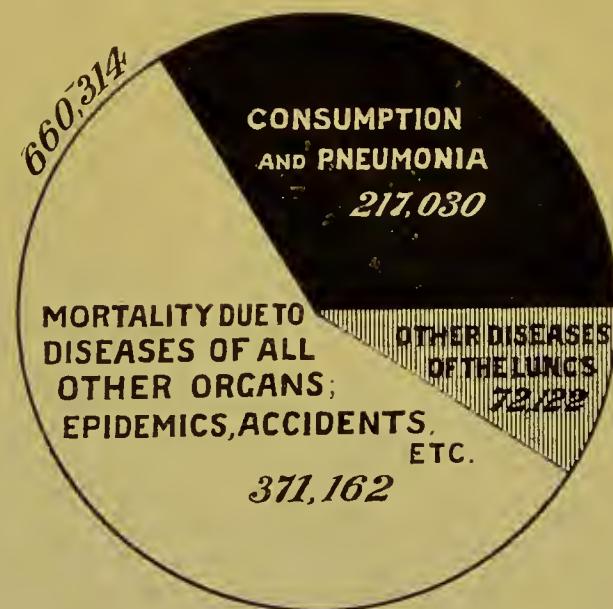


FIG. 10.—A UNITED STATES CENSUS OF CAUSES OF DEATH IN 1900.

(From van Boeckmann's book on Breathing.)

air every day. That is because breathing is the commonest act of life. To increase your breathing capacity by one inch, so that this fuller power becomes a permanent and subconscious habit, needs no great effort. To increase it many inches needs no great effort. Yet how few make even the tiny effort needed to gain the one inch.

Look at these statistics from the United States Census Bureau. In the United States over a million people die every year, and more than a third of these die before they have reached the age of fifteen. Of those who have reached the age of

"Breathing for Health, Strength, and Endurance."

He goes on to assert that even athletes with enormous chests may die of consumption. He cites "Pennell," the famous Hercules ; the "Jap," the celebrated wrestler ; Professor Dowd and Professor Winship, the well-known strong men and physical culturists ; Dempsey and Peter Jackson, the great pugilists ; Kennedy, the man who lifted over 4,000 lb. a few years ago in Madison Square Garden ; "Nick" Murphy, the world's greatest long distance pedestrian. All died of consumption.

These men developed many external muscles ; that great internal muscle, the diaphragm, with the lungs and heart above it, and the stomach, liver, and spleen below it, they neglected. Though, by the way, we should be wrong if we put down the whole mischief to the neglect of the diaphragmatic, as distinct from the other two breathings. Nor must we forget the many errors of eating and drinking and thinking which many athletes make. These affect the lungs very powerfully.

Carry on, then, side by side, the practice of better breathing and of exercises that help it (to ours here offered add your own), and the practice of better voice-production. *In a good position* (see below), *without unnecessary tension of the muscles of the face or hands, and beginning with the vowel sounds and the notes which you already do least incorrectly* (see above), *breathe fully, and produce your voice strongly yet calmly, either aloud or in imagination.*

Whatever exercises really help your breathing help your voice also—its power, its charm, its convincing effect ; exercises of the neck (as in the Courses for Men and for Women) to help the

chest, of the abdominal and spinal muscles (do.), walking, running, swimming, games, blowing soap-bubbles, anything that is amusing or which interests you.

And when you speak observe these rules—to take in through the nose a long breath that will last, so that you need not take many jerky breaths while you speak ; to pronounce your final consonants clearly ; not to mince or confuse your vowels ; and not to be afraid to gesticulate within reasonable limits.

Above all, do not imagine that the “natural” (which means the *thoughtless*) ways of “civilised” men are necessarily the best. Listen to the next dozen voices that you hear. Are they satisfactory ? Could training make them less unsatisfactory ? Do you like a person more or dislike him or her less when he or she has a satisfactory voice ? If so, take it for granted that others feel the same about you. And at odd moments—particularly when you are waiting, or otherwise idle, if not impatient—train your breathing and your voice-production until both can be safely left to your under-mind.

At present neither can be with any safety.

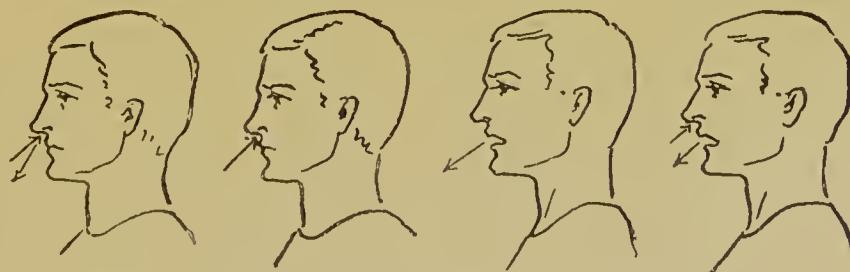


FIG. 11.—SOME SIMPLE BREATHING EXERCISES.

CHAPTER XXIV.

THE SANDOW SYSTEM ESTIMATED.

(For the original exercises from which most of these illustrations were selected and adapted, see Sandow's various Charts, in "Strength, and How to Obtain It," etc.)

What to Demand from Systems—Sandow's System Tends to a Certain Strength—But is not Complete—Does not Help Our Best Games Much—Needs Tactful Supervision by an All-round Expert—Then it has its Use—Sandow has Attracted Neglected Classes—Has Given the Beginning of Self-respect—And of Some Self-control—System Feasible and Cheap—Appeals to the Oak-stump Type of Person—The PROS—Simplicity—Apparatus—A Fallacy—Improvement by Additions in Recent Years—Chief Originality is the Use of Spring-grip Dumb-bell all the While—Some Strength Results—Some Training in Drudgery—Some Concentration—Local Work—Trunk-muscles—Less Obesity—Leading up to Rowing, Bar-work, etc.—Interesting to Some—Sandow Himself—Shows Himself to be what He Urges Others to Become—CONS—Not Skilful Co-ordination—Little Gracefulness—No Flexibility—No Repose—Little Originality—Assumes that the Practiser is Weak-willed—Advertised as Complete—May Lead to Over-development—Not Necessarily to Endurance, Rapidity, Promptitude, Versatility, Poise, Economy, and Mental Qualities—Not Free Self-expression—Little Competition Against Others—The Concentration May Often be of the Wrong Kind—Neglects the Proper Functions of Many Muscles—The Perpetual Grip May be very Bad—Does not Prepare for all Life—Does not Attract all People—Neglects Relaxing and Full Extension—Exercises Must be Kept up—A Query—Summary by a Teacher—Summary by the Editor.

IN a previous chapter, on "What to demand from Systems of Exercise," we tried to sum up the requisites as follows : "The most all-round benefit (and the least harm) at the smallest expense of money, time, and energy, and with the greatest independence of external conditions, and a fair advertisement to show the interests and advantages and the limitations."

The title of Sandow's book—published by Gale & Polden—is "Strength, and How to Obtain It," and that title is a fairly accurate description of Sandow's general system. Sandow is strong, in the

commonly understood sense of the word, and so are most of those who have practised his exercises. But when we come to the end of the book, we find a chart headed, "*The Exercises for Physical Development*," and in this chart there is only one exercise (*cf. Fig. 1*) without a hand-grip. It might even be urged that a great part of "physical development" was altogether neglected. Throughout the course strain is involved. In fact, the title of the chart is not at all an adequate description. Physical development which does not include improvement in such games and athletics as Racquets, Cricket, and Golf has no right to the full claim.

Sandow is not an athlete in the Anglo-Saxon sense ; he is not an all-round athlete like Mr. C. B. Fry. We have never heard of his playing Football, Cricket, Golf, Lawn-tennis, or Racquets. We presume he would have played them if he

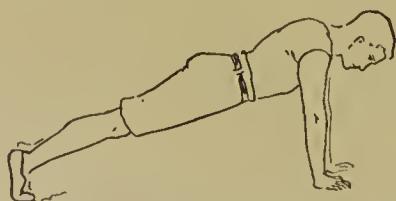


FIG. 1.—THE ONLY EXERCISE WITHOUT CLENCHED HANDS.

could have done so with any reasonable measure of success, since he is anxious to spread his teachings, and he would have spread them very effectually by persistent "centuries" in Cricket. But our experience has been that, for such games, the Sandow system (we do not know whether Sandow still practises it himself) is not good, but rather bad, without tactful supervision by an all-round expert who knows something of physical culture as a general art. To would-be all-round athletes of the average type we do not recommend the Sandow system, *unless they also do abundance of light and quick and flexible work*, and train their promptitude and poise and "eye." With that proviso—but have we leisure for it?—the system is very useful.

Lieutenant Flynn, for example, at one time did a number of Sandow exercises, without harm and with great benefit; but he *also* went in for supplementary work, including that excellent exercise, club-swinging and manipulation. *By itself* the Sandow system is not suited for would-be all-round athletes, and certainly is utterly inadequate as a preparation for our most typical Anglo-Saxon games and athletics, as well as for alert and rapid adaptation, for freedom, for repose.

Yet Sandow deserves the very highest praise partly for this very reason, that he

has touched an abandoned class, and gripped them, as it were. *He has, partly by apparatus, appealed to those who were neglected by games and athletics*, to those of whom large numbers had perhaps fallen into the terrible state of self-disrespect, a state

below even the smug self-righteousness of the physically weak and flat-footed. Coming before an atrophied crowd of thousands, uninterested in themselves physically, except in their diseases, he has given them a pride in their bodies, because he has told them how to get visible and tangible results, especially an increasing biceps and an increasing power to grip and to lift and to hold.

At the same time he has led them to some control of their mind and its direction by the practice of his exercises. It is practice in concentration on comparatively dull and monotonous work, not unlike the work that most of us submit to under our employers.

His system is one for use in most places and at most times. In this it differs from our typical games and athletics. It differs from them also in this: that the expense is chiefly an initial expense, in buying a book or taking a course, and in buying some apparatus also. Contrast with it Cricket, Football, Hockey, Lawn-tennis, La crosse, Golf, jumping, rowing, putting the weight, and so on, as attempted by duffers who are untaught and untended.

It is a disgrace of our Public School system in general, side by side with its great merit of compulsory games, that it does not take thought to "bring on" the duffers. Sandow's system has appealed to duffers, who failed at such games and athletics, and even at gymnastics.

He has taught these ordinary or *infra-ordinary* people to develop both sides of their body to some extent, and to develop many muscles hitherto atrophied.

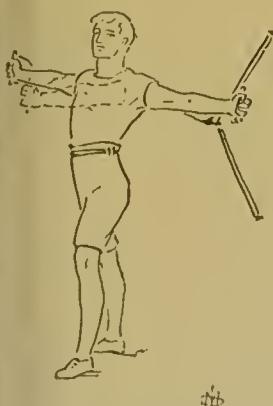


FIG. 2.—A USEFUL EXERCISE.

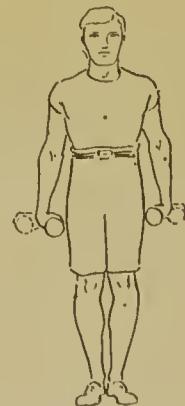


FIG. 3.—SIMPLE GRIP-EXERCISES FOR WRIST AND FOREARM.

It is especially for persons of a certain type of mind and build of body that the Sandow system has been interesting. Look at the sturdy stump of the oak-tree, with no long branches and no living leaves. Root it up from its one place, and it dies. Leave it, and it brings forth no fresh greenness, but only stands and resists the wind and the rain. It stands in the way of some, but it attacks none, and it is a thing to be found and to be found firm and solid when wanted. It is the kind of stuff ready to be hewn down and cast into the fire of battle. To such a class (it forms a large part of the substratum of Anglo-Saxondom) Sandow has been of help, somewhat as the Salvation Army has been a help to two other neglected classes.

Let us now consider, in our usual way, first the pros and then the cons. Afterwards we shall summarise a few of these pros and cons in a quotation from an experienced instructor, to whom we are indebted for some of the useful information here, and who himself finds the Sandow system good for certain pupils and for certain purposes—useful, e.g. to the boy who needs strength, not to the stiff boy, who rather needs to be limbered up and made less rigid and slow.

SOME OF THE PROS.

The exercises of the Sandow system are not complicated. Among them is not a single elaborate one. They are simple, definite, and clearly described and illustrated. And the ordinary Course is a short one, though the number of repetitions may spread it out for a long time,

which probably seems longer than it actually is when we devote it entirely to such easy movements.

So great is the difficulty of keeping up the interest in the same frequently repeated movements, that apparatus is almost, if not quite, a necessity. The merit of the apparatus (see Figs. 4 and 5) is to remind one to take exercise, and to keep one's attention fixed during the exercise. Once cease to grip the spring-grip dumbbell, for example, and your inattention is immediately obvious. But even a grip may become automatic, and need not imply conscious concentration. Still less need it imply concentration on the muscle actually to be developed—e.g. some muscle of the trunk or leg!

Sandow's apparatus is far more varied than it was when he first started his career. We see advertised his exerciser, his stretcher, his dumbbell, his combined exerciser (which is a dumbbell and exerciser and stretcher), his spring-grip dumbbell. Then there is his embrocation, with chart for massage; then there is his Obesity Course; then there are his general hints about training.

About his exercises there is little originality. Those which we show in some of the figures have belonged to many systems for years past. The chief original feature of the Sandow system is that the person must grip the dumbbell with his hand *all the while*. This seems a very small contribution to Physical Science, and a very fatal one in many cases. His system of massage is not original; his

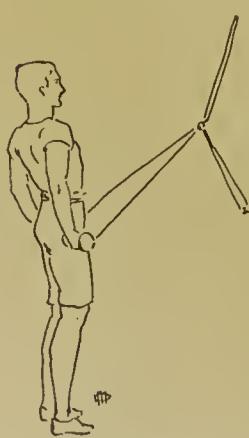


FIG. 4.—AN EXERCISE
WITH THE
COMBINED DEVELOPER.

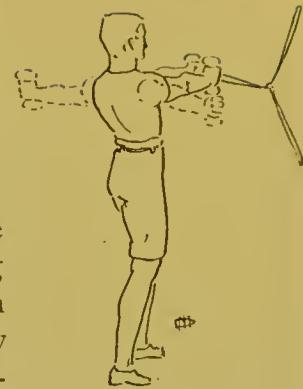


FIG. 5.—ANOTHER TYPICAL
EXERCISE FROM
SANDOW'S CHART.

embrocation does not seem to us to differ appreciably from others; his obesity exercises are not strikingly original; neither is his all-round knowledge so great as to justify his recommendation of cold baths for all, or wholesale approval of smoking in moderation. Indeed, we may say at once that his remarks about the cold bath and tobacco are ignorant and misleading; such verdicts *should always be given as personal experiences*. Directly a man begins to dictate to the world on such matters, we must at once condemn him; his data are insufficient.

As the result of the system and the apparatus, some strength of a certain kind is bound to come. It is the strength to grip, to lift, to carry, and to push; a certain amount of it is good, and may even be indispensable.

A certain amount of drudgery is also probably good for most of us, for it means concentration at will, apart from the pleasantness of the work. And it means what Elmer Gates has called "dirigation," the art of fixing the attention upon any part of the body, and, as Dr. Maudsley and Dr. Carpenter and others have pointed out, increasing the blood-supply in that part, and so helping the nourishment of that part. The principle is many thousands of years old, being essential to a Yoga system of the Hindus; but Sandow has emphasised it for modern times; and the power to fix the mind upon a muscle and its work is a

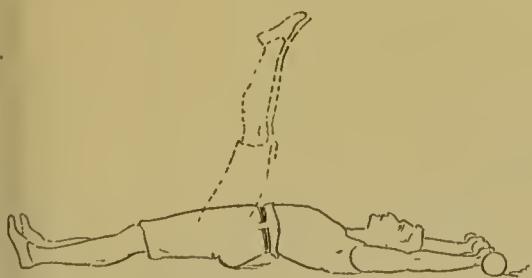


FIG. 6.—TYPICAL EXERCISE WITH DUMBBELLS. THE USEFUL LEG-EXERCISE BELONGS TO MANY SYSTEMS.

valuable one. "Throw your mind and will into your muscle and work." That is how we should put Sandow's finest text.

Hence local work and local strength become easy. The developer, for example, is good in adding power to the dorsal muscles.

The trunk-muscles also are attended to, as in Fig. 6, though we shall have a word to say about the method directly.

The removal of obesity is a benefit to a large number of men and women, and Sandow's exercises certainly tend to remove obesity.

Moreover, they may prepare fairly well for, and lead up to, such exercises as rowing; but the free swing of rowing is not a necessary result of Sandow's movements. They may prepare and lead up to rope-climbing, and, as Lieutenant Flynn also points out, to work on the bars, particularly by giving a good grip for swinging exercises. Mr. Flynn has cited an interesting case of a remarkably weak boy put under his care. This boy was almost helpless physically, but, after a course of exercises, including some Sandow exercises, he was able to climb a rope at his first attempt; that is a very creditable result.

Indeed, the system is remarkably interesting to some people, leading as it does to performances impossible before, and so giving, let us repeat, some self-respect and pride in the body. The pity of it is that the Sandow system, and the outcoming strength and big muscles, are regarded as the end rather than the beginning of self-respect. They become the centre of interest, and not a starting-point of new interest. The physical life, and unfortunately the mental life as well, radiate to them and not from them.

This is scarcely to be wondered at when we think how famous Sandow is all over

the civilised world, and how much his appearance, *qua* appearance, appeals to millions. Merely to have large muscles for show, and to go through a certain number of feats of strength does not set a very high ideal of physical culture before

represented his real ideal, for he cannot possibly be a swaggerer or ignoramus—at least we must give him full credit in being *a living exponent of what he urges others to become*. He is a glorious contrast to the man who advertises a hair-restorer, and who himself is completely bald, or to the man who edits a health paper, and is himself completely unhealthy, or to the man who tells people to take exercise, and then subsides in his own armchair, or to the man who tells people they eat too much, and then himself eats the same bulk as before. Sandow is not ashamed to come out into the light of day and be thoroughly inspected. His is a muscle-system, and he lets people look at his muscles. We believe that he is genuinely convinced of the truth of all that he preaches, and this is more than can be said for nine-tenths of the preachers to-day. Those who know him in private life speak highly of his modesty as well as his enthusiasm.

SOME OF THE CONS.

We will now take the objections to the Sandow system, in



FIG. 7.—EUGEN SANDOW.

From "Strength and How to Obtain It" (Gale & Polden).

the masses ; yet perhaps, like the ideal of Mohammedanism, it is about as high a one as the low mind is likely to reach and grasp and achieve at the start.

Whatever fault we may find with Sandow's ideal—and we feel sure that those advertisements of a huge figure looking over six feet high, have grossly mis-



FIG. 8.—TYPICAL GRIP EXERCISE, WHICH DOES NOT TEND TO INDEPENDENT CONTROL OF EACH SIDE.

the above order, setting an objection against each merit, and adding a few more objections besides.

While the system is simple, it has the disadvantage of bald simplicity ; there is no skilful co-ordination of movements. When a teacher wishes to interest a class of advanced pupils, he must give them a spirit of mastery ; he must make them feel a certain *amour propre* in getting over a difficult combination. No such combination belongs to Sandowism, and, while the movements are simple, they are not graceful. Gracefulness demands and involves, of necessity, a certain amount of repose of the parts which are not wanted for the particular work in hand. For example, look at the exercise by Macdonald Smith for the latissimus dorsi muscles. The right hand is relaxed, because the exercise is not for the right hand, but for the latissimus dorsi. Now Sandow's exercise, shown in the illustration, grips with the right hand. Why ? He does not explain. Certainly all grace is taken out of most movements by this deadening tension. Contrast, again, the Lawn-tennis service so often alluded to. Look at R. F. Doherty's left hand : how easily and beautifully it swings with the body. In the Sandow system there is

no such flexibility ; tight and tense are the only words one can apply to it.

Against the definiteness of the Sandow system is this, that it admits of little or no variety, and little or no originality. Now the number of permutations and combinations in the Macdonald Smith



FIG. 9.—TYPICAL EXERCISE WITH DUMBBELLS WHICH DOES NOT REQUIRE MUCH NERVE, CO-ORDINATION, OR ADAPTATION.

system, confined as it is to full movements, in which the Sandow system is somewhat weak, are almost infinite ; and the same applies to the Ling system also. Simple and definite things—such things suit primitive minds, or at least are supposed to. Ambition demands something in which original genius may show itself.

The original genius is not catered for by Sandow, and the man of self-control is not catered for. Sandow assumes that his pupils are weak-willed, and gives them an apparatus to be a bullying taskmaster. The apparatus, though varied (see Fig. 10), is not nearly complete for physical culture. Indeed, a complete equipment would cost many hundreds of pounds. The fault is that the advertisements rather profess that the apparatus *is* complete. And the apparatus tends chiefly to strain, to a waste of nervous force, and a certain ugliness during and after the movements, and an almost utter absence of freedom and liteness.

While the exercises bring some strength, which is good, when practised as a perfect system, complete *per se*, they must lead to over-development and slowness. Corbett, the great boxer, directly he found that any exercise was making him slow, gave it up at once, and either rested or went in for light work. In Sandow's system there is no light work, and in most cases there is no rest. We shall deal with this point in a moment. It is all strain, strain, strain. Some strength, of course, results, but there does not result of necessity much endurance, rapidity, promptitude, versatility, poise, economy,

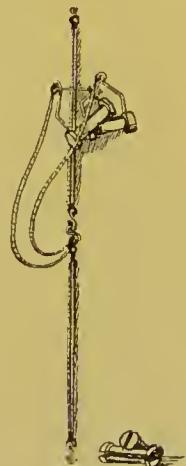


FIG. 10.—THE COMBINED DEVELOPER WITH SPRING-GRIP DUMBBELL.

gracefulness, or the corresponding mental qualities.

Neither is there much pleasure, such as comes from a liberal self-expression and originality, and such as comes from competition against others. The only competition against others which the Sandow system encourages is very far inferior to competition as seen in games between individuals and between groups.

As to the concentration, which becomes very difficult when there is little pleasure and little competition, it has its merit, but it involves a wrong principle. Concentration in life is only right when it is on proper objects. There should not be concentration until after we are sure that the choice is right. *Our text should be : Make sure that the thing is worth doing before you do it with all your might.* Now Sandow urges every individual to concentrate on his exercises, before he has proved that the exercises are right for this or that individual.

The exercises are right for many individuals. Especially is this the case with the local exercises for certain muscles. But it is not every local exercise that should be slow and strain work. Such work may suit the body's weight-holders and pushers and pullers and lifters ; but muscles differ as men differ one from another, and as men differ from women. There are among muscles racehorses as well as carthorses ; there are among muscles sprinters as well as long-distance runners ; there are among muscles snappers and jerkers, as well as holders and pushers and pullers and lifters.



FIG. II.—TYPICAL EXERCISE WITH DUMBBELLS. THE TRUNK-EXERCISE BELONGS TO MANY SYSTEMS.

Even in the case of the trunk-muscles, for which the slower movements seem more advisable, the Sandow system is far from complete. Let us take two of our favourite movements, which we hope are now familiar to our readers—the golf-swing, practised left-handed as well as right, and the Doherty lawn tennis service practised similarly. These admirable and graceful movements are not well prepared for by the Sandow system, although they include excellent trunk-movements.

As to the trunk and other movements to remedy obesity, we must make two criticisms—first, that at least half the obesity now prevalent is due to wrong food or excessive food ; second, that probably for at least half the exercises to remedy obesity, the tense grip of the hands is unnecessary. It is not limpness of the hands that is the cause of obesity, and obesity does not vanish because we have increased our grip. In fact this plan of Sandow's, of making people grip their hands when they want to exercise, let us say, their oblique abdominal muscles or *erector spinae* muscles, utterly defeats Sandow's principle of concentrating the attention and fixing it on the particular muscles which we wish to develop. If those muscles be the oblique abdominal, then it is utterly wrong to pay attention to the gripping hand.

The idea that we must grip the hands whatever the exercise, the idea that a hand-grip and a control of the attention are synonymous terms, reminds one of Charles Lamb's famous account of the discovery of cooking in the case of pigs. The whole house was burnt down, and, by its burning, cooked the pigs. The taste was delicious. The next few attempts to cook pigs involved the burning of a whole house. It was only after a long time that people found out how a pig could be cooked without a whole house being burnt down. Sandow has not yet

discovered that one muscle can be exercised, and should be exercised frequently, without the whole body or many parts of it being made tense. It is as if we had a class of children, each of whom had special work to do, and we compelled all the children to do not only their own work, but also the work of all the others. Instead of concentration we should here have dissipation.

One reason why the Sandow pupil is likely to concentrate is that the system prepares for certain feats and pursuits ; but, at the same time, it spoils for others, if no corrective work, especially quick and light and versatile work, be done as well.

In the same way, while it is attractive to some, it is not attractive to all.

The attraction of Sandow's name is good, but may be fatal if the advertisements promise too much. He is a living exponent of certain excellent features. But the masses of people are not critical. They see, and they say, How big and how obvious his muscles are ! They do not ask, What can one do with them ; what will one do with them ? One can, and will, lift weights with them, and achieve

many other performances which have their due and proper value, but one is not necessarily in a state of physical perfection.

In a word, his system is not sufficient by itself ; it is not all-round physical culture ; it does not tend to the all-round mind and the all-round body ; it does not tend to nerve and dash ; it does not teach us to do suddenly just the right thing

in an emergency ; it does not train us to keep cool in an emergency ; it does not train us in skill, which involves co-ordination and timing, as in a catch at cricket ; it does not educate us to gracefulness. Besides this, it sadly neglects some of the correct ways of breathing. It utterly ignores physical relaxing ; it almost utterly ignores the free and far extension of extremities.

Indeed, as we have said, there is only one exercise in his whole chart that has not a tense hand-grip. An excessive use of the dumbbell is bad enough for many of us, and the spring-grip dumbbell is worse ; yet he advises all pupils to use it, indiscriminately.

In moderation, and for many people, the system is a good one, but it needs correction by an all-round exponent of physical culture instead of a person who knows only Sandow's branch of it. Perhaps the system is better than nothing for many if not for most people ; but, when it alone is used, its direction is slowness and stiffness, and the fibrous type of muscle, which, let us repeat, stands out when it is not wanted, violates the law of Anglo-Saxon modesty and reserve. The system, when it is used alone, is comparatively worthless, if not harmful, for game-players and athletes generally, taking away part of their freedom and giving them no practice, for example, in timing the ball.

Besides, it is generally found that, once begun, the exercises must be kept up, or else there will be "fatness" or slackness. Muscles which have been developed beyond their normal size compel the person either to keep up the abnormal size, or else to let the over-developed part become in some way morbid, perhaps turning healthy tissue into that connective tissue which is popularly known as "fat."

A final point occurs with regard to the slow, fibrous, leathery kind of person.

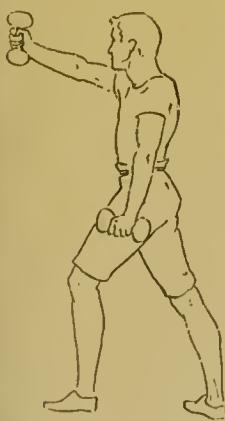


FIG. 12.

TYPICAL SANDOW GRIP
(see CHART).
NOTICE ABSENCE OF RE-
POSE FOR UNUSED ARMS
AND CONTRAST THE DO-
HERTY SERVICE IN THIS
RESPECT.

Can he be changed? Our answer will depend on our view of human possibilities. The oak-stump to which we have alluded remains an oak-stump until it has dissolved into its many elements and atoms. Can a human oak-stump be changed or change itself, and become more like a willow? Or should we try to make it still more like an oak-stump than it is? Now Sandow's system appeals to the oak-stump person, and makes him more of an oak-stump than before. Is not this the very person who needs to become less like an oak-stump, more like a willow?

Similarly the New Yorker hates a game of patience like cricket; he wants to rush; he plays rushing games if he plays at all. Is not cricket the very thing he needs?

In conclusion, we cannot do better than quote an expert's opinion on the subject of the pros and cons of the Sandow system. He has had a wide and varied experience of nearly all the systems with which we are acquainted. Our judgment has necessarily been more or less theory; his will have the advantage of practice. He can compare and contrast the Sandow system with many others as well as with games and athletics and gymnastics and—repose. Being a hard-worker with his brain as well, he has a word to say on that subject also. Here is his verdict:—

"Defects of Sandow system:—

No balance movements.

No movements requiring anything but the most elementary co-ordination.

No exercise requiring nerve, dash, or dexterity.

Pupils soon tire after the first novelty of the apparatus is over.

Advantages of Sandow system:—

The exercises are good as a means of body-building, and to produce separate muscles.

The grip is excellent for bar-work, especially swinging exercises, and the developer for pulling the dorsal muscles."

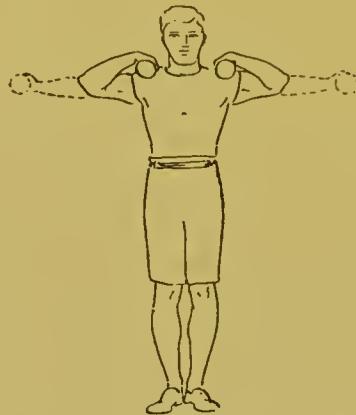


FIG. 13.
THIS DOES NOT TEND TO INDEPENDENT CONTROL OF
THE TWO SIDES.

He mentions other advantages as well as defects, which the Editor had noticed above.

It will be seen, then, that this famous system has much to claim with perfect fairness, and especially that, like the Salvation Army, it has caught hold of those whose interest nothing had hitherto reached. It has been to them a first step towards self-respect and self-mastery. But it claims disastrously too much. That is its weakness, as it is the weakness of nearly every system that we have ever heard of or seen. It is the one fault from which we hope that the **PHYSICAL EDUCATOR** is free—the fault of claiming more than the effects warrant.

For the subject of physical education is still in its infancy. When we have searched everywhere, and tried as much as possible in the time; when we have done our best to look at the subject from every point of view—especially the mental and nervous; and when we have put down our genuine experiences and opinions up to date as clearly as we can; when we have—at least intentionally—omitted nothing of importance, we still must say

this word: our object is not to put a perfect system before the whole world; our object is to tell people the best that we have been able to find, in order that they may practise, as we ourselves do, *in the hope of finding out something better than this is.* Any such free initiative and invention seems utterly crushed by any system which claims that perfection, completeness, and finality which, unfortunately, the Sandow system seems to claim. It has done much. Perhaps if it had been less dogmatic it would have done far less; but, for our part, we prefer to assume intelligence on the part of most of our readers. We want to leave something to their choice and a great deal to their originality and discrimination.

It is not much originality that he can claim for his movements, for he has done little more than gather exercises from the Continental and British storehouses, from the works of Ling and his followers, from Heppel, and from others, and then to add the use of dumbbells, grip-dumbbells, and exercisers. We cannot genuinely say that these additions are on the whole an improvement from the point of view of scientific physical culture, for that

word "development" includes a multitude of terrible errors. To the weight-lifter it is synonymous with strength and size, and does not connote activity, versatility, promptitude, and health. Neither can much interest and variety be claimed for his movements. They require small co-ordination and nerve. Nor is it all-roundness that he can claim. For repose, for grace, for poise, for quickness, for smart adaptation to unexpected demands, for "eye," for fine sense, his is not the system. What, then, has it done?

Let us go back to our schooldays, to the first words of Virgil's "*Æneid.*" *Æneas* was not a strikingly original man, nor was he a singularly exciting man; but, according to the legend, he helped to build a city which was the grandmother of a larger and finer Rome. Sandow has not founded physical culture himself, but he has lent to it interest for the masses. He has lent to it cheap apparatus and an undeniably imposing figure. Implements and a personality—these are his main contributions, these are what we praise. *Arma virumque cano.*

CHAPTER XXV.

EXPERIMENTAL DIETS.

Our Meaning of "Experimental"—Our Object in this Chapter—A Typical Training Diet—The Fallacy of Altering Quantity rather than Proportions—The Disadvantage of a Meat Diet—A Vegetarian Crew at Cambridge—Two of the Editor's Favourite Recipes—The Variety of Simple Foods—Their Effect on Different Individuals—Dietary of Some Notable Athletes—Some Examples from Abroad—Hindu and Japanese Runners—Flesh Eaters of Central Africa—The Finns and the Lapps, a Curious Contrast—A Lesson from Scotland and Ireland—Diets of the Past—Value of Bread and Cheese—The Editor's Own Experience—Some Warnings—The Primary Importance of Proteid—A Typical Complaint—Natural and Unnatural Foods—The Only Referee is Personal Experiment—Therefore Try an Experimental Diet.

NOTE.

IN the following article Englishmen have been preferred as examples. It will be noticed that endurance rather than rapidity and dash is the strong point of many fleshless feeders. It must not be forgotten, as Mr. H. Light points out, how very few cyclists, comparatively, are "vegetarians," and how large their proportion of good performances is. It will be seen that there are many different classes of fleshless dietaries. If we could collect the feats of endurance and strength of the fleshless feeders among other nations, in India, Japan, Greece, Central Europe, the Andes, and so on, we should be able to fill a volume. The cheapness of the *régimes* is a revelation to so-called Political Economists, who do not seem much interested in the topic. In a later article we shall add other experimental diets, with fuller reasons, and with approximate prices. Want of space has crowded them out of this chapter. We may add that we shall be glad to hear of successes OR OF FAILURES, should any of our readers have made the experiment of simpler food, with exact details as to dietaries,

ALREADY we have dealt with the pros and cons of ordinary and training diets. We use the word "experimental" here not to imply that the following diets are unscientific or unadvisable, or that

they are experimental any longer to those who, like John Barclay (Fig. 1), use them with decidedly good effects. They are well tested by their successful exponents. But for the great majority of people they are still experimental. And we have chosen, by preference, those diets which show physical success. Even of these we have selected merely a fraction. To the large public of orthodox eaters these diets will for ever remain experimental and doubtful till after fair trial and contrast with the ordinary and training diets.

In this chapter we shall not treat of drinks and stimulants, nor of how to eat and when to eat; these topics are considered in other chapters. Our plan here will be to quote samples of diets, to explain their principles, and especially to explain whence the eaters get their proteid, their body-building element, without which, in proper quantities, the scientists say that they are bound to die. For probably it is not in any other respect that these diets are inferior to ordinary and training diets, except in proteid. As Dr. Hutchison points out, *it is a question of proteid*. Can we get enough proteid of the right sort outside the flesh foods?

The rest is very easy. In the world of plant and of animal-foods (eggs and milk and milk-products) there is plenty of water, bulk, fibre or cellulose, carbohydrates, fat, and "salts." A fried potato, a piece of wholemeal bread and butter, will have all these elements, and some proteid also. But most orthodox and training diets get their proteid mainly from meat.

He may take fruit. He should eschew pastry."

This is quite typical of orthodox trainers all the Anglo-Saxon world over. Apparently there is the same diet summer and winter—the same diet, more or less, for sedentary and for physical life, except perhaps that during the summer and the sedentary life the quantity is lessened. Obviously that is an unscientific

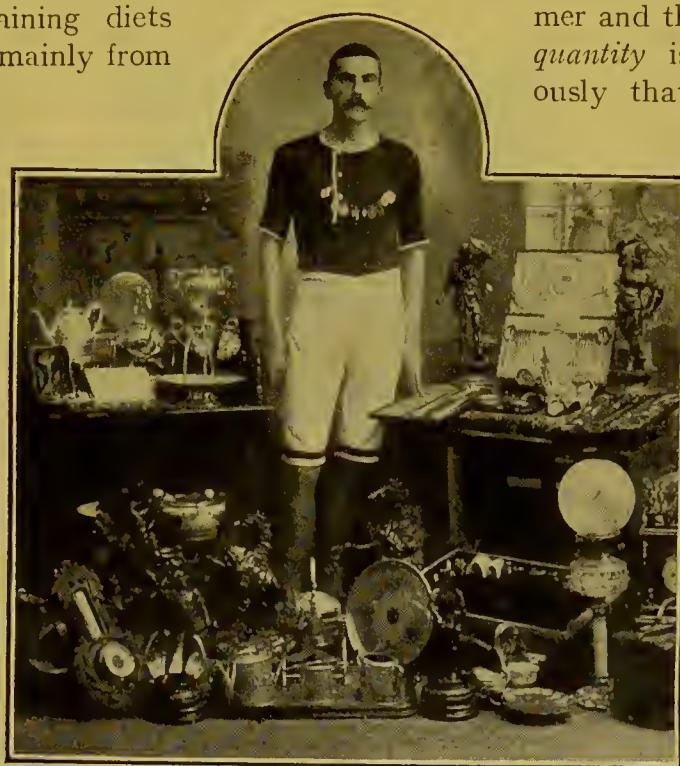


FIG. I.—JOHN BARCLAY AND HIS POTS.

(HALF-MILE RUNNING CHAMPION OF SCOTLAND IN 1896, AND MANY OTHER TRIUMPHS.)

(Photo: Macartney, Troon.)

As an example, let us consider what a practical gymnast has to say with regard to diet, in order that we may remind the reader, if he needs reminding, of the ordinary and training diets cited in a previous chapter.

"The athlete in training must have plenty of meat, varied occasionally by fish. In addition, he should have a moderate amount of vegetables and bread (or, better, toast), and a little butter. He should not indulge largely in potatoes.

way, merely to lessen the quantity. The only scientific way is to alter the *proportions*, giving in the summer less heating material, and so on.

Then we ask again, In thirty years' time what will have become of the "athletes" who now think themselves in good training while they get regular body-work? Many of them die in the prime of life, as Jackson the boxer did, and as many so-called strong men have done, perhaps of consumption, in both senses of the word.

We grant that the meat-diet has many advantages, but meat does not become energy till after it has passed through the body ; it is expensive, and it is, to many, clogging, over-heating, and over-stimulating.

In this chapter we shall not consider remedial diets, such as the grape-cure, the orange-cure, the dry-bread-cure, though the diet of nuts and fruit and bread may be considered both as remedial and as "experimental" as a training-diet. When once we come to remedial or temporary diets, we are led into a maze of contradictions, being tossed about like a shuttlecock between the Salisbury plan of eating no starchy foods and only small quantities of flesh-foods and much water, and the Haig plan of piling on the starchy foods and large quantities of materials, but having no flesh-foods at all, and paying equally little attention to taste. It is particularly the simple or fleshless foods, however, that we shall cite here, after answering the objection that they must be dull and monotonous. To be egotistical, we cite two of our favourite recipes out of more than three hundred which we have devised in less than a year. They are quoted from "Some of My Recipes : with Prices and Reasons," published by Routledge and Sons. Their advantage in our case is that they enable us to keep constantly "in condition" at small cost, without regular practice of

games, and therefore without much expenditure of time—which item, to a man who has to earn his living by his brain-work, is of considerable importance. But we do not guarantee similar results for others. We know, however, that quite recently a town-crew at Cambridge came to the head of the river when it adopted such a *régime*. These are a few examples out of many :—

The first recipe costs about fourpence, and contains well over 1 oz. of proteid (*i.e.* ample proteid for a meal for one). The Editor finds he can play several hard matches in succession, or work hard, directly after such a simple meal, which is his favourite at the time of writing :

Four and a half to 5 teaspoonfuls plasmon powder ; $\frac{1}{2}$ pint milk ; 1 dozen raisins (cut up and stoned, if preferred thus), or some prunes (*ditto*) ; a little essence of lemon or vanilla.

"Mix the plasmon carefully with the milk and boil for three minutes. Wet a mould with cold water and pour the material in. Then add the essence and the raisins or prunes, mix all well together with a spoon, and set in a cool place."

The second recipe seems to demand a considerably longer interval for digestion before severe exercise or work, though it gives equally good lasting power. It has to be eaten much more slowly, but it costs less.

Four oz. lentils (soaked for six hours,

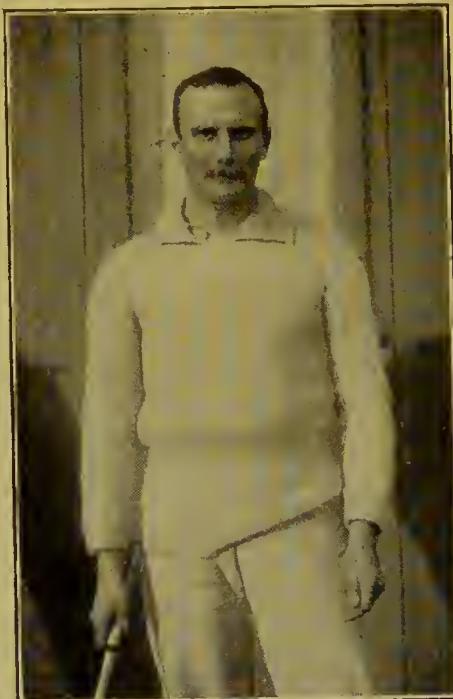


FIG. 2.—EUSTACE MILES.

(AMATEUR CHAMPION AT TENNIS, 1899 TO 1903,
AND AT RACQUETS, 1902.)

(Photo : F. H. Hewitt, Esq.)

then well cooked) ; 4 oz. haricot beans, or preferably butter beans (soaked for twelve hours, then well cooked) ; 2 oz. ordinary cheese ; 1 oz. butter or good cocoanut butter ; salt and pepper to taste ; a few crumbs of bread or shredded wheat.

" Mix the lentils and beans well together, adding pepper and salt if desired. Take half the quantity, and with it line a small fireproof dish. Then cut the cheese in thin slices, and place these on the top of the lentils and beans. Cover the cheese over with the remainder of the lentils and beans. Put a few crumbs on the top. On the top of that again put the butter in little pieces. Then bake for thirty minutes in a moderately hot oven."

The variety of the simple foods is enormous. With regard to the effect—which, after all, is the most vital matter—we have explained the contrast between the ordinary diet and our simpler or fleshless diet for the last seven years or more, in "Muscle, Brain, and Diet," and we have received hundreds of letters testifying to similar results on muscle, nerve, emotion, intellectual power, economy, etc. We have also received letters that tell of failures, in the proportion of about one to every nine or ten successes. The keynote of that book is that no one may guarantee, no one may condemn, the diet, till he has tried it fairly for himself.

Lieutenant Flynn, who has done so much of the solid and practical work in

this PHYSICAL EDUCATOR, especially in connection with the Courses, has had an interesting experience. Living on foods very much like the Editor's (though Mrs. Flynn has devised many new and tasty dishes of her own), he is able to do physical work all day long—club-swinging and manipulation, boxing, fencing, gymnastics, free exercises, cycling, walking, swimming ; he feels no stiffness ; his brain-work—we can testify to this—has been constantly improving, and his state of mind is becoming much more comfortable. But in the early stages it was not so. For six weeks he was greatly benefited by the diet ; then he began to feel slack, and went back to a mixed diet for a time, taking only about a third of the amount of meat which he used to think necessary ; then, after trying some of our dishes, he returned to the fleshless diet, being now able to avoid the mistake he had made at first—namely, that

his early dishes had not contained enough bulk and material for the inside to "grip" as it were. Now he finds the best results from milk with plasmon in it, *slowly sipped*, and from tasty dishes made with beans, as well as from savoury sandwiches of Hovis bread.

In the previous chapter we alluded to the diet of Karl Mann, who, with no appreciable fatigue, walked 125 miles in 26 hours 52 minutes, almost without



FIG. 3.

F. NEWELL (VEGETARIAN C.C.),

WHO DID 198½ MILES, UNPACED,
IN 12 HOURS ON THE ROAD.

previous training, in 1903. We also mentioned Olley, whose diet is somewhat less strict than that of Karl Mann. The foods used by not a few of the athletes who belong to the "Vegetarian Cycling Club" include eggs, milk, and cheese.

George Olley is 22 years old, 5 feet $10\frac{1}{2}$ inches high, and weighs, when stripped and in condition, 154 lb. He has recently been trying the stricter diet of Dr. Haig, taking toast and potatoes for breakfast, and giving up tea, etc. His best performance was in May, 1903, when he covered 25 miles in 38 minutes $59\frac{1}{2}$ seconds. He holds, at the time of writing, amateur records from 7 to 13 hours inclusive; also all motor-paced amateur records up to one hour. At the time of his best performances, and even before he consulted Dr. Haig, he preferred brown and white bread and butter, well-

cooked grains of various kinds, vegetables, fresh or stewed fruit, milk, cheese, and eggs. When training, he took plenty of sleep, and abstained from alcohol, tea, and coffee, but used sometimes to take tea and egg near the end of a hard race.

F. Newell, during 1903, lived on some special cereal foods, and bread, nut-butter, nuts, vegetables, cheese, jam, and fruit-cake, and occasionally some well-cooked pulses. He has tea sometimes twice a day. In his food is no salt, and he drops tea itself before a race, using barley-water with milk, and also an extra amount of cheese, nuts, and about two teaspoonfuls of plasmon at every meal. It must be remembered that most of these cyclists have their brain-work for most of the day, whereby to earn their living; they are not daily on the wheel.

John Barclay (Fig. 1) is another good example. His feats may be conjectured from his cups. J. Parsley is yet another; and, as an example of endurance in a hot climate, H. E. Bryning.

For team-work we may quote the records of W. S. Ragan and A. H. Paul.

It must never be forgotten that comparatively few have tried this diet, and still fewer have tried it scientifically and fairly, taking abundance of proteid instead of meat-proteid, and not too much

butter or starch. In proportion to the numbers who have experimented sensibly and the numbers who use and are accustomed to use the ordinary and training diets, these successes, especially in long distances, are phenomenal. But it is especially in long distances—in endurance, that is to say—together with reasonable speed, that the diet seems to be most suitable; and, to our mind, the most striking part of it is that most of the performances are done without regular previous training,



FIG. 4.—J. PARSLEY.

A CELEBRATED RECORD-BREAKER AND WINNER OF HILL-CLIMBING CONTESTS.

(Photo: W. S. Proc, by permission of Mr. Parsley.)

perhaps after many days of sedentary work.

As types of endurance abroad, we may mention the Hindu and Japanese runners who pull their rickshaws at a good round pace hour after hour, thinking little of covering sixty miles or more in the day. Their "inevitable" is well-cooked rice eaten very slowly, but in large quantities; lentils and some sort of fat also find a place in the *régime* of the Hindus.

Many other examples have been cited from different parts of the world, in the above-mentioned book. As examples of endurance, together with strength, we have the weight-carriers of Constantinople, Japan, the Andes, and other countries, including Central Africa. With regard to the latter, Mr. F. Thomasset, who has lived there for many years, has kindly sent photographs of the natives. It will be conjectured that their diet is not scientific, but too fattening; but their feats of endurance and strength are quite noticeable. Their diet is from necessity rather than from choice; they live on boiled rice and roasted maize, and sometimes they use cassara, sorghi (native beans like coarse runners), and sundry earth-nuts and other vegetables. The meat which they greatly desire they seldom get. When, however, a hippopotamus or any other game is slain, they will not leave it until it is finished. It has been said that a man could devour as much as thirty pounds of flesh at a single sitting, which of course may extend over several days. They mostly drink water, again of necessity; but they do make a sort of thick beer, almost like porridge, from grain; this they call "pombi." It ferments, and after some days becomes intoxicating.

How about the very cold climates, one naturally asks? Well, here we have an interesting contrast—the Finns and the



FIG. 5.—H. E. BRYNING.

AN EX-CHAMPION CYCLIST OF INDIA.

(Photo: H. Ward, West Croydon, by permission of
Mr. Bryning.)

Lapps. The food of the Finns is mostly cereal; the food of the Lapps is mostly animal flesh-food, especially fat. We believe that the Finns compare favourably with the Lapps for endurance and strength, as well as for good-nature and mental qualities.

For temperate climates we need not go so far afield. We have the Scotch and the Irish near at home—so near, in fact, that those who travel well into the country can see them, and will hardly like to call their diet "experimental" any longer—porridge for the Scotch (but it used to be well-cooked porridge), potatoes for the Irish (but well-cooked potatoes), and butter-milk for both. The results are strength of body, power of brain for philosophy, and commonsense, lasting power for the Scotch, vivacity for the Irish. These are among the results,

though we fear that conscientiously-cooked oatmeal is going out as the national dish of the North.

In ancient times we have the Greek athletes, and, indeed, the Greek citizens, who, in their best days, regarded meat or fish as an occasional extra—a *hors d'œuvre*, or flavourer. Except on festival days, the mainstay of the strong and active, yet clever and artistic Athenian

In the same week that we write this we have a letter from a former football "blue" in the Argentine. He has benefited by the change of diet; cheese seems now to be his mainstay. Both physically and mentally the amount of work he gets through is amazing, and he finds that the people round him have had a similar experience.

Yet still one gets the same answer:



FIG. 6.—WEIGHT-CARRIERS IN CENTRAL INDIA.

(Photo by permission of F. Thomasset, Esq.)

citizens was not flesh, but a cereal food, bread or cake, varied with olives, figs, and so on. Not unlike this was the diet of the Romans when they were at their best.

So success on the fleshless foods is not confined to any one food, any one climate, any one period, any one excellence, physical or mental. Certainly it is not confined to any one food; it is not confined to plant-foods; still less is it closely connected with vegetables. It includes two animal-foods—eggs, and milk, and cheese, and its other products.

"The fleshless diet will not suit me." Now years ago the Editor thought that the no-breakfast plan would not suit him, and for the first few days of experiment it did not. In a later chapter will be traced the stages through which he has passed up to the present time, when, however severe his work or exercise, he does it better and with less fatigue if he eats absolutely no solid food till 1.30 or even later. And to play a hard single at Racquets for an hour, to do some running and walking, and then to play a hard single at Tennis for an hour on an empty stomach, is a

fair test. What if we had condemned this plan merely because it sounded unlikely! That would have been unscientific. Until we tried the plan, it was experimental; now we have tried it, it is scientific—for *us*.

But there is a terrible obstacle in the way of food-reform; food-reform is associated with misleading words. Let us consider three of them. First, there is “vege-

Our crying need, then, is the best word to describe “simpler foods,” as we have called them for want of a better name. There are many grades of strictness. Some eschew condiments and stimulants and narcotics. But in all of them there should be the principle of taking no flesh (or less flesh), and getting nourishment, and especially proteid, from some other source.

The first warning to experimenters will



FIG. 7.—MOST NATIVES OF CENTRAL AFRICA EAT MEAT WHEN THEY CAN GET IT.

(By permission of F. Thomasset, Esq.)

tarian,” which suggests vegetables; then there is “fruitarian,” which suggests fruits; neither of these words suggests those animal-foods (eggs, milk, and milk-products) which are animal, but yet fleshless. The third word, “fleshless,” does not suggest a nourishing substitute for flesh. If one eats foods at random, merely because they are not flesh, one is likely to break down altogether. It is absolutely vital, when one gives up flesh-foods, to get the right kind of (body-building) proteid from some other source instead.

be, “Get your proteid; look for that first, rather than for bulk.” It does not in the least follow, of course, that because a chemical analysis (dry peas, beans, and lentils) gives pulses over 20 per cent. of proteid, and beef only 20, therefore, inside you, the pulses will act and perform according to programme, however carelessly you prepare and cook and eat them. It is in the proteid that the difficulty lies, the proteid together with its accompanying “salts.” That is why milk-proteid is so valuable. It has the

accompanying " salts " with it, at least, in that form of milk-proteid on which we ourselves habitually rely, because it has never played us false.

The second warning is as to the early effects of a change. We constantly get letters which tell of a temporary unpleasantry. Here is a typical one :—

" DEAR SIR,—I began your diet some days ago. I have been very careful of quantities. I eat slowly, and do not drink at or near my meals. I take a certain amount of exercise daily. Yet the diet depresses me, and I feel slack."

It becomes necessary to repeat to these people one reason why they may feel slack. Imagine your body to be clogged with poisons, like a stagnant pool. Then imagine yourself to be running a stream of water through that stagnant pool. The effects on the stream of water when it has left the pool will be very unpleasant, but if the stream of water constantly passing through is pure, then, by degrees, the stagnant pool will become pure also. That stream of water is your blood ; that stagnant pool is a part of your body, whatever part the poisons may be stagnant in. Obviously it is not pleasant to have the dirty water circulating through your system, especially through your brain ; but how else are you to get rid of it from the stagnant pool ? Keep your diet pure. Add to it perhaps something which will break up the poisons. Do not add to it that which will drive the poisons back into their stagnant pool ; and be patient. Do not demand an immediate cure, when for years and years you have been adding poison to poison grain by grain.

After such advice the person usually has patience, and a certain amount of what we may call " experimental faith," and, in periods varying from three days to six months, becomes " fit " as never before. That is the theory, and it works well in

practice. But during the treatment it is not easy for a man to convince himself that he is being fed, not starved ; cured, not killed.

The third fallacy is that the fleshless foods are " unnatural " to man, because his teeth and organs and skin show him to be a carnivorous animal, or an omnivorous animal. As to the omnivorous, probably most animals can become omnivorous—certainly sheep and cows can ; but the naturally omnivorous animals are the boar and pig and dog. The illustration in a previous chapter showed that a man's teeth are not in the least like the teeth of a dog, which has an " eye " tooth far longer than the other front teeth, and separated from them by a distinct gap on both sides. Nor are his organs and his skin in the least like the organs and skin of an omnivorous or carnivorous animal. His digestive tract is longer ; he sweats. Indeed, consider him anatomically and physiologically, make his head a little less upright, and his hand and thumb a little less " specialistic," a little less adapted for manual-work, and you have an ape, especially an anthropoid ape. About this all anatomists and physiologists are agreed. In his teeth and in his organs man is an ape, his brain being somewhat more elaborate than the brain of an ape, and the angle of his face being somewhat different too, though less different in the case of an uncivilised man. As to his skin, he is a sweating animal ; a carnivorous animal is not. On the other hand, man is not a grass-eating (frugivorous) animal. His digestive tract is not nearly long enough.

But there is a fourth fallacy, which is that we can prove the case either way from the analogy of animals. Man may be almost exactly like an ape in build, but that does not prove that he should live entirely on fruits and grains and nuts.

What we need is the analogy of some animal that can keep healthy, and preserve those instincts which men should strive to regain, during a sedentary life in a city, in a crowded and dirty and worrying city, too. We have no records of such animals in large numbers.

Therefore we fall back upon the only criterion left, which is, personal experiment of a fair kind, especially with enough proteid and "salts" to take the place of

those who do not. The argument on the humanitarian and æsthetic sides is as strong as that on the economical and national-economical side in favour of the fleshless foods. But the man who is well only while he lives on these foods, and who is ill directly he deviates and takes flesh-foods, is not altogether free, even though through the gate of the fleshless diet he may attain freedom eventually. He has little right to set himself up on



FIG. 8.—W. S. RAGAN AND A. H. PAUL.
CELEBRATED FOR BOTH TANDEM AND SINGLE RIDING.
(By permission of Mr. A. H. Paul.)

flesh-foods, and enough patience to tide one over the first period of depression which may result. After that, all we have to do is to register the results of the change in each branch of our life, to make our own decision accordingly, and to tell others without ranting or exaggerating or preaching.

There is yet a fifth fallacy; this is that those who live on the fleshless foods are necessarily better people morally than

a moral platform above those who can be fairly healthy on a mixed diet. The man who can keep his temper and his good-nature and his sweet charity only when he eschews flesh-foods must not despise those whom he calls the weaker brethren, who, however, can often keep their temper and their good-nature and their charity, although they take flesh-foods in abundance. At the highest state of development we must recognise those who to-morrow

could give up all forms of stimulants and narcotics without a pang of regret or a tinge of discomfort, and who yet could take these things without loss of physical and mental poise ; these seem the highest of all. Before them mere food-reformers like ourselves must bow in humility.

At the same time we do wish to urge the scientific view of the matter—namely, the experimental view. Try some kind of fleshless diet fairly, by degrees if you like, as for one meal a day or for one day a week, or for one whole week. Try it persistently and patiently. Then judge it by its results. But be a fair Anglo-Saxon ; “ play the game ” ; do not condemn it untried ; try it fairly ; let your inside and its sensations cross-examine the diet as much as you like, the more the better ; but give it an honest chance.

In conclusion we must strike the keynote of individuality. It is a matter for individual personal experiment, and the individual's power of getting rid of uric acid, xanthins, purins, and waste-products differs to an almost incredible extent. We allude once more to the researches of Dr. Walter Hall. The first patient is put on a certain diet and then thoroughly examined, and told that he has a great capacity for getting rid of such excessive waste-products as are to be found in flesh-foods. A second person is treated in the same way, and told that he had better not take red meat ; he had better not go beyond chicken and fish. A third may find even these “ taboo ” for him, and must not venture towards the land of flesh-foods further than the egg-limit ; he may, however, take cheese and milk, if he takes them rightly. Yet a fourth is confined to a stricter diet still—no meat, no birds, no fish, no eggs, no pulses, perhaps even no mushrooms, asparagus, or oatmeal.

A fifth may find that something else

is on the condemned list ; we need not trouble to ask what. The thing may be unadvisable for some other reason besides the xanthins or purins present in it. For our part, we find ourselves better without sugar, and, during a sedentary life, white flour, and several other kinds of food. It is, after all, a matter of how many mistakes, according to theory, an individual can make in actual practice without appreciable bad results ; and doctors are beginning to see this more and more every year and every month. So that when we began our experiments, suddenly giving up all flesh-foods, more than seven years ago, we were walking in an unknown country by ourselves. Though there were many vegetarians living and perhaps thriving at that time, we did not know them, we did not hear of them. Now things are changed. Everywhere we find men and women and children trying our diet, and, in most cases, we find them thriving on it better than they did on the mixed diet. But, let us repeat, our diet, adapted to suit your needs and peculiarities, is still an experimental diet for you, and not a scientific diet until you have found that it suits you all-round for your mental and moral, as well as your physical and æsthetic and economical life. It is weakest on the “ social ” and domestic side. But we prophesy that in another ten years' time things will be reversed, and rich people who now think it “ the thing ” to give a banquet that costs ten shillings a head, will think it “ the thing ” to give a banquet with equally good tastes and at least equally good effects which costs not more than a fifth of that price, and which increases the demand for those country-products which Great Britain could supply so easily, and so profitably with respect to the self-sufficiency and health and physique of her population.



FIG. I.—PHYSICAL EXERCISES FOR THE WHOLE SCHOOL IN SQUADS.

CHAPTER XXVI.

SHORT GAMES FOR THE YOUNG.

Illustrated chiefly from photographs of the Eltringham Street (Wandsworth) Board School, by C. J. Mann, Ealing.

Disadvantages of Ordinary Play To-day—Unmistakable Advantages—Dr. Thomas P. Savill on Play—Need to Extend Play to Our Millions—Here One School, Mr. Corsie's Board School at Wandsworth, is Considered—The Teaching and Organising of Play has been Voluntary—Work, Games, Swimming, Drill not Neglected—Mr. Corsie's Own Experiences—The Futures of His Boys—Good Workmen—A Matter of Organisation—How Play Teaches through the Senses—Children too Often Taught as if They were Little Men—All Mr. Corsie's Children Play all the Games, in Spells—No Loafing—They Learn to Take their Pleasures Sanely—Little Apparatus Needed—Genuine Enjoyment—Another School as a Contrast—Education in Recreation Outside England—Hints to Organisers—Medical Supervision—Free Self-activity and Choice as Well—Vast Variety of Games—Froebel Plays—Open-air Gymnasia—Comparison of Simple Games and Simple Foods—Appeals to Families, Institutions, Government—Need of Statistics as to How We Take Our Pleasures—“Scientific” Authorities Ignore Play—Preyer—City Life—Wanted: Professional Teachers, and Especially Trained Teachers of Games.

WE have already pointed out the disadvantages of play as it exists at present. Expensive in money and time, ill-provided with space and opportunities in general, not taught well, not practised well, appealing to duffers scarcely at all, far from complete as physical education, it has been fairly condemned by many serious gymnasts and theorists.

But we have seen that play has also many advantages, being an interesting outlet for energy in a life abounding with stimulants, being a recreation and change, inciting people to a certain amount of exercise (and perhaps leading to a wash afterwards), giving a certain amount of air and light, encouraging travel and having a social value, giving lessons in

co-operation, and developing the character with respect to skill, fairness, pluck, and cheerfulness.

Let us endorse one or two of its merits by a quotation from Dr. Thomas P. Savill, Vice-President of the British College of Physical Education. He says :

" So long as our girls and boys learn the principles of fair play and their duty to their neighbour in the playground, while they receive an adequate and fitting (I had almost said supplementary) education in general and scientific knowledge in the classroom, there is for me at least but little fear of England losing her place among the nations of the world. Whatever may be said in favour of drill and systematic exercise—and I would be one of the last to deny it—the mental, social, and moral training offered by games is beyond dispute. . . .

" One more point I should like to allude to. A great deal has lately been said—and I am of opinion that there is a large element of truth in it—about the dead level of uniformity with which all children are treated and educated. But how can it be otherwise when the teacher has so little opportunity of discovering the child's true character, his failings, his weaknesses, and his virtues ? Now we have in games beyond doubt the very best of all means for giving the teacher an insight into the character of each of his pupils. Five minutes in the playground will sometimes give an observant

master more information about the scholar's real disposition than months in the classroom. It is in the excitement of play that the child's true character comes out."

But play needs to be extended to our millions. It needs to be adapted as regards cost, space, the capabilities of individual players, and other conditions. For an example, we have suggested Badminton in a small room as a healthy exercise, especially if it is often played left-handed instead of right-handed. There is a cricket-pitch, where people can practise by electric light, at the St. Bride Institute, Bride Lane, E.C.

In this chapter we wish to deal specially with one school, though anyone who observes carefully will find other teachers and philanthropists working in the same direction all over England. We have taken nearly all the illustrations from the Eltringham Street Board School, where games have been introduced and arranged by Mr. W. Corsie and his able assistants, during upwards of twenty years. The work has been voluntary, in addition to the school work and the school course of exercises, neither of which suffers in the least from the recreation. The



FIG. 2.—ORGANISED FOOTBALL PRACTICE WITH A SMALL BALL.



FIG. 3.—ORGANISED FOOTBALL PRACTICE.

swimming, cricket, football, and athletics outside, in the baths and playing-fields respectively, benefit largely by the games in the small court, as the school records show.

Mr. Corsie himself had no drill at school, but only a few exercises. Then he had a little army-drill. He felt the need of drill and recreation and open air, and determined that he would give children as much of these as he could. He enlisted his assistant-teachers on his side, for he felt that this branch of education was *essential*. He knew that boys, especially in cities, should be taught when quite young to take their recreation sanely and pleasantly, and, as far as possibly, physically.

And we should say that he has succeeded. The 500 boys at his school look clean, healthy, and happy. They are not prigs; they are not hooligans. The examiners of the school report favourably with respect to the pupils' vigour, discipline and good order, drill, drawing, and intellectual work. What will appeal most to the outside public (which asks for mental results) is that there is no difficulty in placing the boys. Their physique

and their intelligence get situations for them in the factories, the Civil Service, and elsewhere.

It is a matter of organisation. At present—to put it technically—the organisation of recreation has been attempted, in the face of opposition, by isolated units of energy; but almost wherever it has been attempted it has succeeded. We have already quoted the case of the University Settlement at Bermondsey.

Let those in authority (this includes parents and teachers) who read these pages, clearly understand what well-organised recreation means in the all-round education of children in cities or anywhere.

Instead of abstractions of number, principle, rule, and so on; instead of mere symbols of things (letters standing for words, words for ideas); instead of the exercise of small muscles (as in the use of the pen to copy little letters); instead of sedentariness (probably in the wrong positions); instead of long and sustained efforts; instead of daily exercises involving strain; we have here the training of the senses by sensible realities. For “one’s ideas are formed from the



FIG. 4.—CAT AND MOUSE.



FIG. 5.—CATCH THE RIDER.



FIG. 6.—EGG-CAP.

sensations produced by muscular experiences." Here the child gets those interesting muscular experiences on which its future ideas are to be based. There is graduated nerve-training by movements and play ; there is enjoyment and attraction ; there is exercise for the large muscles of the body ; there is brisk activity in short spells with many changes—that is what children need. There is no strain. Add manual training by modelling, etc., and you have a fairly solid education for city-children.

All the children play all the games, instead of three-quarters of them admiring a few adepts. And all the players were occupied all the time, as in the game of "tip-and-run." There was no sitting about for three hours while the players of one's own side made a "century" or two.

Needless to say, there was enthusiasm for the real games whenever they could be played ; but there was no longer that dependence on these real games which a Public School boy suffers. He probably



FIG. 7.—PLAYGROUND CRICKET: TIP-AND-RUN, WITH SPECIAL STUMPS.

We have given instances of such education already. Now we must confine ourselves to Mr. Corsie's education by the orthodox methods and by play in addition. It was Mr. A. P. Graves, Inspector of Schools, who first called our attention to this school and its play, and arranged that we should twice see the games in progress.

The features which one particularly notices are as follow :—

Absolutely all the children play, and play with advantage, because the games are *organised*. They are played in moderation ; they are adapted to the children's needs ; they are arranged in short spells.

has not learnt to play modified games at school. Remove him from the paraphernalia of the Public School to the city, and he probably gives up nine-tenths of his exercise altogether. How he gets recreation he best knows.

Mr. Corsie's boys certainly were encouraged to take their pleasures sensibly, not sadly nor sensually nor expensively.

Scarcely any apparatus was needed beyond a few soft balls, a few sticks, and other pieces of wood, bags, cubes, and a little chalk. Chalk-marks served as apparatus. The playground was small, with an asphalt or paved surface. The time

was short, ten to fifteen minutes sufficing for most of the games.

The children enjoyed themselves thoroughly, especially in the game of "tip-and-run" with standing wickets. They were allowed to shout, but not to yell.

As we have pointed out, together with the self-control which games demand, and the sense of responsibility (especially of the captains), there was a freer self-expression than boys get in their work.

The playground here was a preparation for recreation in after-life as well as a preparation for after-life itself, and character-building.

Contrast with this object-lesson of what actually is done in a city, the unorganised playground of another Board School. For the brief minutes when the children are let loose it becomes a bear-garden. A few enjoy themselves, but many mope in the corners, and some go home and are made to slave dully for their parents.

Recreation is part of the regular curriculum elsewhere. Froebel was one of the originators, though his games are not likely to appeal to average Anglo-Saxons. In Switzerland games belong to the regular (Government) school course. So they do

in parts of America, as at Andover, in Massachusetts.

The best idea of the play at Eltringham Street will be obtained from the illustrations, especially if we add to them the excellent cricket-drill which Mr. Corsie has devised, and the swimming-drill which is now practised in vast numbers of schools in different parts of the world. We shall deal with that in another chapter. Nor must we forget the general organisation, for that is the keynote of this chapter. Correct rules must be insisted on at the start. The effect of such rules upon girls is extraordinary. Girls, unless properly trained, are not world-famous for fair play, especially towards one another. The meanness is not in the nature of the girl, but in the nature of her training. At Vassar, in America, and at a certain school in Scotland where the rules of play are strictly adhered to, we know that the girls develop as strong a sense of honour as any boys. Organisation is also needed to protect the weak and timid. Players must be classified not by their standard of brain-work, nor by their size alone, but also by their heart and lung capacity.



FIG. 8.—ROUNDERS.



FIG. 9.—WIDDY WIDDY WEE.*

Then, again, we must not forget that at this school, beside the intellectual work and the regular course of drill, and the cricket, and swimming-drill, and the musical drill with wands and dumb-bells and clubs, there is a certain interval during which each child is allowed to do exactly as he likes. It is astonishing to notice the variety of choices—tops, hoops, wrestling, and so on. This is the free recreation time, during which character can be most easily studied.

Then, once more, to the list of games illustrated in these photographs we might easily add dozens.

There is truly a vast choice in games as in foods, and the difficulty for the open-minded authority will be to choose the most appropriate. Would the following fact give any clue? Some time ago, in America, large numbers of children (978 boys and 1,072 girls) were asked which games they preferred. This was the order of preference:—Ball-games, motion-games, occupation-games, parlour-games, love-games, guessing-games, animal games.

How far are games memories of the serious pursuits of previous generations? It is easy to see that chase-games might

* Mr. T. Chesterton's book must be referred to for the rules of the games mentioned here, and for many other games suitable for large numbers of children in small spaces. Among them are King Cæsar, Making-the-chain, Prisoners' Basc, Tom Tiddler's Ground, Bean-bags (bag-tossing, etc.), Centre Cricket, Duck, Feeder and Striker, Hop-scotch, Skipping, Strike and Lay Down, Cobbler's Dance, and many ball-games—*e.g.* Across the Line, Ball Team Race, Catch, Centre-ball, Corner-ball, Fives, Hand-ball (a kind of Football played with the hands), Hand-tennis, Horscs and Riders. In addition to this book of playground games, published by the Educational Supply Association, we might mention Mr. Alexander's book called "New Games and Sports," published by George

Philip & Son. He includes Basket-ball (a game most popular among girls and women in America), Serpentine Race, Dumbbell Race (in which people pick up dumbbells and put them in a basket), Under and Over Race, Tugs of War, Flag-race for teams, Balloon Race, Balloon Goal, and Stilt-tournament. Mr. E. Sully, Secrctary of the National Physical Recreation Society, has invented a vigorous game called Bash-ball. Mrs. Aldrich, in a book published by Gale & Polden, alludes to other games, such as the Water-wheel, the Fisher, the Farmer (sowing grain, reaping, carrying to the barn, thrashing, and shifting). What is called the Thomas School of Psycho-physical Culture, in New York, has a whole set of exrcises imitating various pursuits.

have been such ; but what was the ball ? Why is the ball so popular among Anglo-Saxons ? It does not seem to correspond to anything in serious life. Probably it would sound frivolous to suggest that it is a relic of courtship—first catching, then hitting or throwing away !

It is tempting to enlarge on the vast variety from which we can select, and to suggest new pursuits. Mr. Graves had an excellent idea, that rinking with *two* skates should be encouraged. This would tend to pleasure, poise, and gracefulness. Others might prefer the Froebel plays.

play, for example, in which the arms and legs swing like a pendulum, would show all these merits. But we must draw ourselves up sharp, and confine ourselves to what is absolutely necessary.

It is absolutely necessary that there should be many more outdoor gymnasias to overcome nervousness, restlessness, and prudery. The body should be exposed to the air and light. Here is an illustration of such an open-air gymnasium near Berlin.

In the ordinary gymnasium or playground, however, there is no difficulty ;



FIG. 10.—DISCUS-THROWING AT AN OPEN-AIR GYMNASIUM NEAR BERLIN.

(Photo: F. Kuhn, by permission of Karl Mann.)

Among their merits are rhythm, the use of many muscles, the encouragement of good morals (especially the social morals), and the culture of the dramatic instinct and the imagination. The pendulum-

there are no prejudices of prudes to be overcome. The boys and girls are "properly" clothed. They should play together, up to a certain age—this is for the decided good of both of them. There

are plenty of games (as the French Commission proved not long ago) equally suited for both sexes. Lawn-tennis and hockey are among them.

There is the question of how far any games or exercises are useful for the under-fed individual. Certainly the breathing of fresh air, the practice of better positions,



FIG. II.—FOX AND GEESE.

We cannot help comparing the variety of games with the variety of foods; and we believe that the tendency will be alike towards simpler games and simpler foods.

We believe that parents and teachers, as well as mistresses and cooks, will ask themselves what they can do in the way of catering for a few pence a head, so as to give equal enjoyment and greater health. Such games as can be seen at Mr. Corsie's school at Wandsworth or at Sister Grace's Hall in Bermondsey seem to be working in the same direction as those foods which personally we prefer.

Many problems still remain, and many difficulties. There should be examinations by doctors, especially before violent exercise is allowed. Such an examination is made of the women before they go in for violent athletic sports at Vassar in America. There are certain times at which girls and women should not play.

the use of large trunk-muscles, and the enjoyment, can hardly fail to benefit every one.

While a great deal depends on our authorities, a great deal depends (as in food-reform) upon families. Why do not families have play within themselves? That is our first appeal—to the home. Our next appeal is to already existing institutions. Why are not games made an integral part of them? Why is religion severed from recreation? Why is business severed from recreation? Why do not people study the Settlement at Bermondsey?

For the first state is, as we have said, the public house, undesirable songs, rough horse-play. The second state is equal enjoyment extended to all, good songs, fair play, courtesy, cleanliness, social life, and an effect on all the surrounding people, together with a certain amount of combined work and play and money-earning (in the way of carpentering,

etc.) for those who are unsuited for vigorous exercise.

Our first appeal being to families, our second to already existing institutions, our third is to Government. It must see that recreation is provided and organised *for all*. No longer may it regard recreation as an extra. Mr. Joseph Chamberlain, many years ago, insisted on this fact. Since then he seems to have forgotten one of his very finest utterances, that sane recreation was essential to the

music-halls, etc.? How else could these people get their pleasures and spend their earnings? What provisions have English and other peoples made—especially other peoples? The study of Boston in America would open the eyes of some of our authorities. What are the physical results of the pleasures that people take now, and of the pleasures that they might take at less expense? How can exercise best be organised (*e.g.* by the city-club built upwards, as already suggested)?



FIG. 12.—LEAP FROG.

nation. Will not some cogent orator devote himself to this national need?

For organised play is food for the mind, work for the mind, rest for the mind, cleanliness for the mind, especially for the social, moral, intellectual, and aesthetic mind, as well as the hygienic. It is therefore food for the body also, since the mind regulates and forms and *is* the body—"house at once and architect."

What we want, in order to be convincing, is a set of statistics. How do people at present spend their earnings or borrowings? How do they get their so-called pleasures? What proportion of them seeks these pleasures in public-houses,

Still Government neglects recreations, Members of Parliament being apparently content with their own special recreations—mostly expensive. They admit the importance of play in their own practice and theory, but they are "too busy" to see to it. That "too busy" covers a multitude of idlenesses and futilities.

And, again, our scientific and educational authorities are just as bad. A scientist gets up at a vast congress and says that we must improve our methods and encourage original research and inventions. He does not say how; for a scientist usually argues in abstract terms. It seems that these people are so old that

they have forgotten what their play did for them, if ever they had it. They have omitted that means which lies so ready to hand, if we really do wish to improve our methods and to encourage originality and invention. It was long ago that Preyer remarked, with regard to children's play :—

" How much there is of combination, of putting together ; how much of analysing or taking to pieces of tangible things ; how

are *children*. In spite of lessons from animals and from sane children when left to themselves, in spite of their instincts for recreation, if only as a preparation for life, the elders go on in the same old repressive grooves. Then we wonder that other nations outstrip us in commerce, and, without realising that only a tenth part of the nation plays, we say " Too much play." This loose thinking is most characteristic of theorists,



FIG. 13.—CHIMNEY-POTS.

much of constructions and destructions ; how much of investigations and persistent penetration, accompanied with great muscular effort ! Play makes the child happy ; work makes happy the learned man ; and by such a parallel there is no depreciation of the value of the activity of the investigator and thinker, the discoverer and inventor. We simply put a higher estimate on the activity of the playing child, who, in his primitive fashion, likewise discovers and invents."

Instead of this natural way of teaching children through the senses, with variety and interest and self-control, elders still try to teach them as if they were little men—little men, yet isolated from little women ! They are not little men ; they

and especially, we regret to say, of a certain class of clergymen.

Now city-life makes the call for organised play more urgent than ever. We need the organisation, and there are several good books suggesting the right lines. We need spaces or buildings. And then we need *trained teachers*. Where is there, in England, any institution where teachers can be trained with regard to play ? Gymnastics they can learn ; technical education they can learn ; but play, without which no animal and no human being is normal—play, which has a myriad forms—that is left untaught, unpractised. So we suffer.

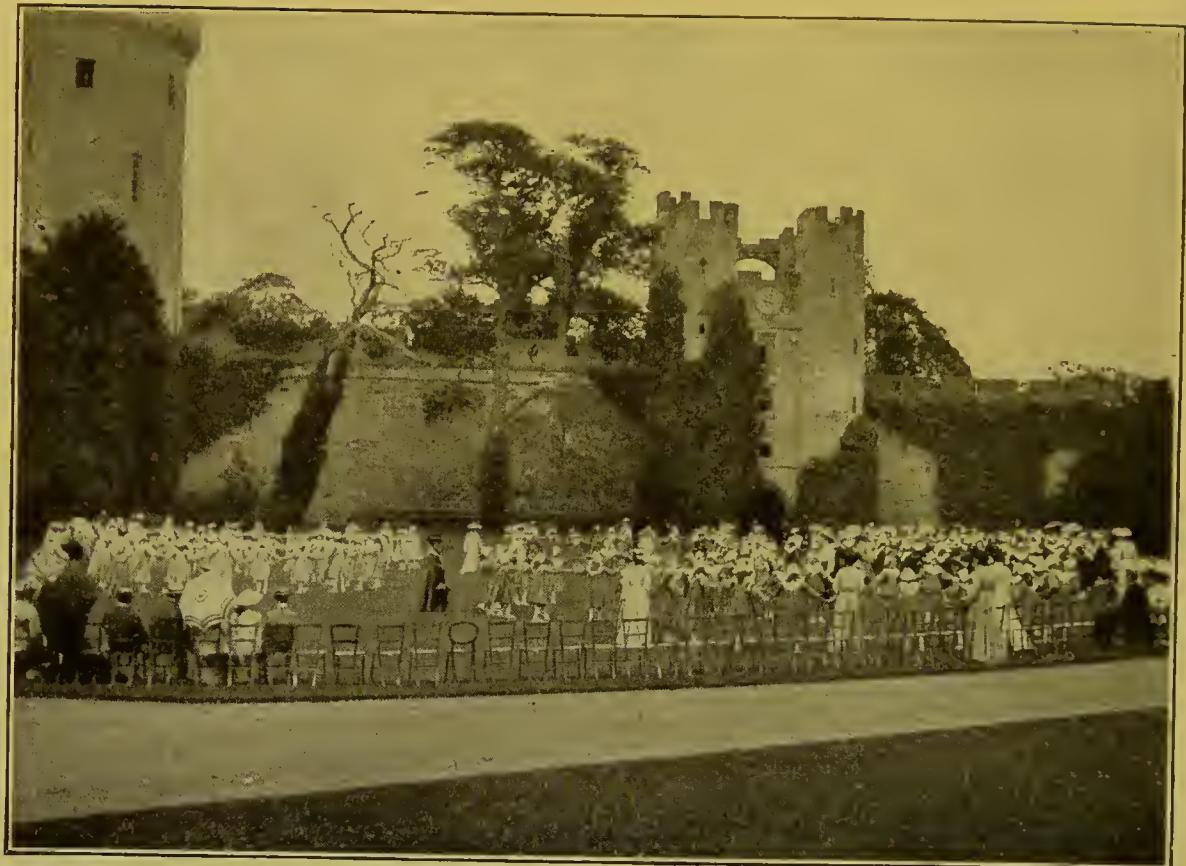


FIG. 14.—ORGANISED GAMES WITHOUT APPARATUS BY POOR BERMONDSEY CHILDREN
AT WARWICK CASTLE.

(By permission of the Secretary of the Guild of Child-Play, University Settlement.)

A word again here about professional teachers. A swindling financier may be "respectable." But an honourable player may be made to go out of the pavilion by a sort of back-door. He plays fairly; he teaches energetically; he improves the physique of the nation; he sets a good lesson to neurotic and hysterical and dishonest degenerates. But he has not yet been estimated at his proper worth. He or the gymnastic instructor is (perhaps wrongly, yet honestly and enthusiastically) developing an important part of himself and perhaps a part of others. Apparently he is inspiring some and hurting few or none. But smugs and prigs and ascetics turn up their noses at him and say, "Frivolity—a mere extra

in life." We insist that Government shall see how recreation is not a mere extra, but is an integral part of life, that it is a more vital part of us than the mere sedentary brain-work which is, as it were, on the surface of us—coming into our minds in an abstract way, and not appealing strongly to the senses.

Shakespeare, of whom we are prouder than of any other Englishman, was educated through the fields of his native home; he got his sense-impressions thus. On these sense-impressions he reared up a fabric of miraculous descriptions. On our sense-impressions most if not the whole of our intellectual knowledge is based. The moral is that we should send our children, all of them, out into the

country, and give them that sense-culture which will enable them to appreciate Shakespeare and life—and even theory. If that sounds chimerical, let us at least give them all the sense-culture we can by games and athletics, as well as through drill and gymnastics.

When shall we wake up to our privileges as human beings? We have a right to personal safety, to personal possessions, to sufficient food, to fresh air; why not equally to recreation and therefore to facilities for it?

Moreover, we are a people of strong passions, and we deny them free utterance in serious life. Let us insist on their having free utterance in recreational life. Probably more of the Anglo-Saxon mind and heart is put into play than into any other branch of Anglo-Saxon life. If the intellectual work be in the wrong direction, some harm is done, but if the recreation be in the wrong direction, it is as if we turned our most precious energies into a river which is carried with sewage to the sea and is not likely ever to be of use again.

In this age of information, we know far more about the ideal aims and ways of true education than was ever possible before. America and Germany flood us not only with foods and manufactures, but also with fine literature. The highest authorities do not always agree; but on more than one point they converge.

The first dictum is that the young must be trained to behave as honourable and responsible and self-respecting members of groups; all members have not the same office, except to help themselves and one another. The second dictum is that the training must be interesting and living, not dull and dead. And interest means movement and "sensing" and sensation.

That grand science of mind and body,

psycho-physiology, a science not content with cataloguing mind-processes or body-processes, but dealing with the effects of one on the other, tells us clearly that harmless pleasure spells not only interest but also health. The general effects on heart, blood, nerve, tissue, digestion, excretion, and hence on the mind again, are established beyond dispute.

Appropriate religion, appropriate food, appropriate "education"—we need not neglect these. But play, the best of the play that represents the serious pursuits of past generations; play, that storehouse of inheritances imitating and preparing sweetly for future business—play there must be, for the young at any rate. And, to provide it for all the young, we must organise it.

We have half-official ministers of religion, we have quite official ministers of "education," finance, what not? But where is the Minister of Recreation?

Lest ignorant "serious" people should blaspheme the spirit of play by identifying it with frivolity, as others have blasphemed the spirit of religion by identifying it with gloom, we will, at the risk of repetition, sum up what we have described at some length in a little book called "Let's Play the Game," published by Guilbert Pitman.

Play is the best and easiest training-ground or soil for the spirit of fairness and honour, of pluck and manliness, of cheerfulness and good temper, of skill, and therefore of practice combined with originality. Orthodox "education" is not; ordinary business is not.

Authorities that neglect the play of our millions of poor children are undoubtedly causing these little ones to stumble; for how else shall the little ones learn to be sportsmanlike and to play the game when they reach years of indiscretion?



FIG. I.—REFORMATORY SCHOOL BOYS AT REDHILL LEARNING TO SWIM.

(By kind permission of Mr. J. G. Legge.)

CHAPTER XXVII.

IN AND ON WATER.

Preparation for Recreation Worth While—England the Land of Water—Swimming and Rowing are Enjoyed: Why is not Washing Enjoyed More?—People Take it Sadly—Bath-cabinets—How to Make Your Own—The Important Part of the Treatment—Partial Baths—Alternate Baths—Let Yourself Go—Enemata as a Temporary Remedy—Packs, Whole and Partial—A Few Rules about Washing—Rubbing—Cold Water and Its Uses—Special Applications—Swimming and Its Advantages—Should be a Part of National Education—Breast-stroke First—Swimming-drill on Land—Its Merits—Graduation—Further Lessons—Water-sports—Neither Swimming nor Rowing are Complete as Exercises—Supplementary Exercises Needed—Effects on School-girls very Striking—Rowing—Some Advantages—Preparatory Practice at Home—Exercises—Disadvantages—After Rowing—Training—Our Kinship with Water.

IT is part of the scheme of the PHYSICAL EDUCATOR to have in each series of chapters one of a recreational kind, even if it is also educational. Occasionally we cannot help killing two birds with one stone,

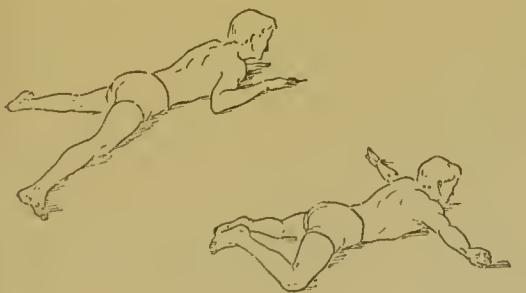
filling two deficiencies with one practice. Indeed, in all recreations there is this double use. The learning of a recreation is educational, the use of it is recreational. The ordinary boy who wants to improve

his cricket will practise in various ways—that is educational; he will improve his game thereby, and will also find the game itself more and more recreational almost in proportion to the educational practice. In this chapter we shall deal with baths and other water-treatments, with swimming, and with rowing. Here the same method will apply. First we must learn, and enjoy the learning as much as we can, or dislike it as little as we can. Then we must enjoy the play itself. The better we have learnt, the better we shall enjoy. At least, that is our personal experience.

In England, the blessed land of coast, river, canal, lake, pond, and swimming-tank, teaching and recreation in and on water are most important, especially for city people in summer time. Water is our national inheritance, and it should be used by the nation. Therefore the whole nation should be taught about water and its uses as an integral part of its education.

There are many books which teach of these subjects, and from them we have drawn freely. We should mention especially the volume in the Isthmian Library on "Rowing," and Baruch's work on "Hydrotherapy." We refer readers to these books for details; they are well worth a most careful study.

Swimming is a recreation, and how the



FIGS. 2 AND 3.

AN AMERICAN BOY PRACTISING IN THE SAND.
(Copied from an American paper.)

street-boys enjoy it, even if the preparation for it may be drudgery! This preparation we shall outline. We shall deal in the same way with rowing, though we doubt if for many it is so much of a recreation—an anxious school or college or university crew may perhaps enjoy some mysterious by-way of pleasure where pleasure touches pain. But are baths and other water-treatments recreation at all? We have Turkish-baths, ordinary washings, packs, douches, and sprays. We shall try to make the reader see them now as pleasures, not as troubles. Why are baths so seldom enjoyed? It is hard to say. They are among those pleasures which we take sadly. We gain nothing by taking them sadly. They should be a rest and recreation in the literal sense of the word. What we say in reference to a few select treatments will apply to the many others which space forces us to omit.

BATHS, ETC.

The regular Turkish bath need not be dealt with here, because, in it, all is regulated for the person who pays his fee. The bath-cabinet generally includes sufficient instruction with it. A very cheap home-bath can be had, the prices ranging from twenty-five shillings to a good many pounds. Thirty shillings will provide a satisfactory apparatus for most people. The object is not to sweat to death, but to start the excretion, to relieve the lungs and kidneys, and to lead on to an invigorating cold application, and afterwards to the rest and relaxation which may be more refreshing even than sleep. We ourselves use a very cheap kind, and we wish for nothing better. It is most satisfactory in a room with the window open (but with no draught) and with the feet in hot water. A warm bath should be ready, in which one can have

a good soap and rub after the sweat. Then comes the cold tap or the cold plunge. As with the inclined plank, so with the bath-cabinet, we suggest that the energetic reader should make it for himself. With a wood or metal frame and a waterproof covering, with a cheap lamp (or a pipe fixed to the gas), with a chair having a piece of wood to support the small of the back, we believe that the cost of the materials would be not much over ten shillings. A still simpler device is an ordinary flat bath, a chair in it, and a blanket over one's self as one sits in it. In the bath should be hot bricks to keep up the temperature. The head should be free.

But the really important part of the bath, let us repeat, is the soaping and rubbing afterwards, and the cool and cold water to invigorate and harden; then the rubbing to restore circulation, and the rest, with or without a novel or perhaps a game of cards.

This is a bath for nearly the whole body, the head alone being free. There are hundreds of partial baths, one of which is a steaming for the face, so much exposed to the smuts and dust of city-life. Another partial bath is for the feet,



FIG. 4.—WHOLE SHEET PACK.

which are put into very hot water. This washes them and equalises the circulation of the body, and has certain effects which no one seems to have accounted for quite satisfactorily. For sleepless and nervous people a good bath is the alter-

nate hot and cold foot-bath. Fill one pan or basin with very hot water, another with cold water. Keep the feet first in the hot one for two minutes, then in the cold one for one minute. Repeat this three times. Then rub the feet briskly and wrap them up.

But, once again, why do people so seldom enjoy the bath? Why do they take it so seriously? They seem to imagine that if they smile over their bath they are destroying the effect of it. We can understand the cold plunge being undelightful at the moment to certain people; but, in the warm and tepid treatments, why be so tense? Why not let yourself go as you should let yourself go when naked in the air? Why not regard the bath less as work, more as holiday and rest? At present you close your pores to it. If the water is pure, as it should be, it works only half its sweet will upon you if you shut it out. Welcome your water-treatments as friends which enter, not through your eyes and ears, but through the myriad gates of your whole skin.

We should like to deal with the subtle effects of a bath taken in that sensible and pleasant way, but we have no time to do this. It must suffice to mention that the bath is most useful in dirty and sedentary city-life as a substitute for stimulants and narcotics. Water, when properly chosen and properly used, is a cleanser and invigorator, a soother, relieving the heart and equalising the circulation, and a hardener. It is cheap, and available for most, if not all. Here are a few more examples.

The enema may be used to cleanse the inside by soft and pure water, perhaps with pure soap or salt in it. It should be either hot or tepid, except for the cold kind, which is recommended sometimes before bedtime. The amount of water

should be gradually increased in quantity. Several hints are necessary before the plan be tried, since many quacks have misled the public. This particular form of internal cleansing is unnecessary to a normal animal. It is not good even for an abnormal human animal unless it

women, and there should be added as little as possible of those clogging materials which have made the enema necessary for many. Perhaps they have swilled milk, eaten hard-boiled eggs, taken a great deal of meat and white bread rather than wholemeal bread, have added strong



FIG. 5.—REFORMATORY INDUSTRIAL BOYS AT CALDER FARM LEARNING DIVING.

(By kind permission of Mr. J. G. Legge.)

restores health, and becomes unnecessary after a short time. As a temporary remedy, it may have its value.

The person should be in the right position, lying relaxed upon the right side. When the water has entered, it should be held for a while.

Meanwhile, say during the week of use, the proper muscles, especially those of the abdomen, should be well developed, as by the Courses for men and

tea and strong spirits and astringent foods or drinks in general rather than coffee and beer, which, though irritating and in many ways undesirable, may still be aperient.

The enema alone, without attention to position, muscular development, diet, drinks, etc., is not a treatment that we should advise indiscriminately.

The pack, on the other hand, can be more safely recommended. At the Natur-

heilanstatt and the hydro there is scarcely a case where it is not employed with advantage. Its function is to cleanse,

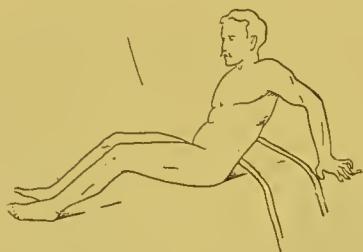


FIG. 6.—A WAIST PACK.

perhaps sleeplessness. It does not suit all cases equally well.

Just before you go to bed, take a linen bandage, a yard wide, and fold it in two, so that it is half a yard wide. Put it in cold or cool or even tepid water, and soak it thoroughly. Take a piece of blanket slightly wider, and of one or two thicknesses, and lay that on the bed. Strip naked. Ring out the wet linen and set it on the blanket upon the bed. Then lie down on the linen so that it comes across the small of your back, and bring it round in front of you till it swathes your waist. Fasten it at the top and the bottom with safety-pins. Do not have it too tight. On the other hand, it must not be loose enough to let in cold air.

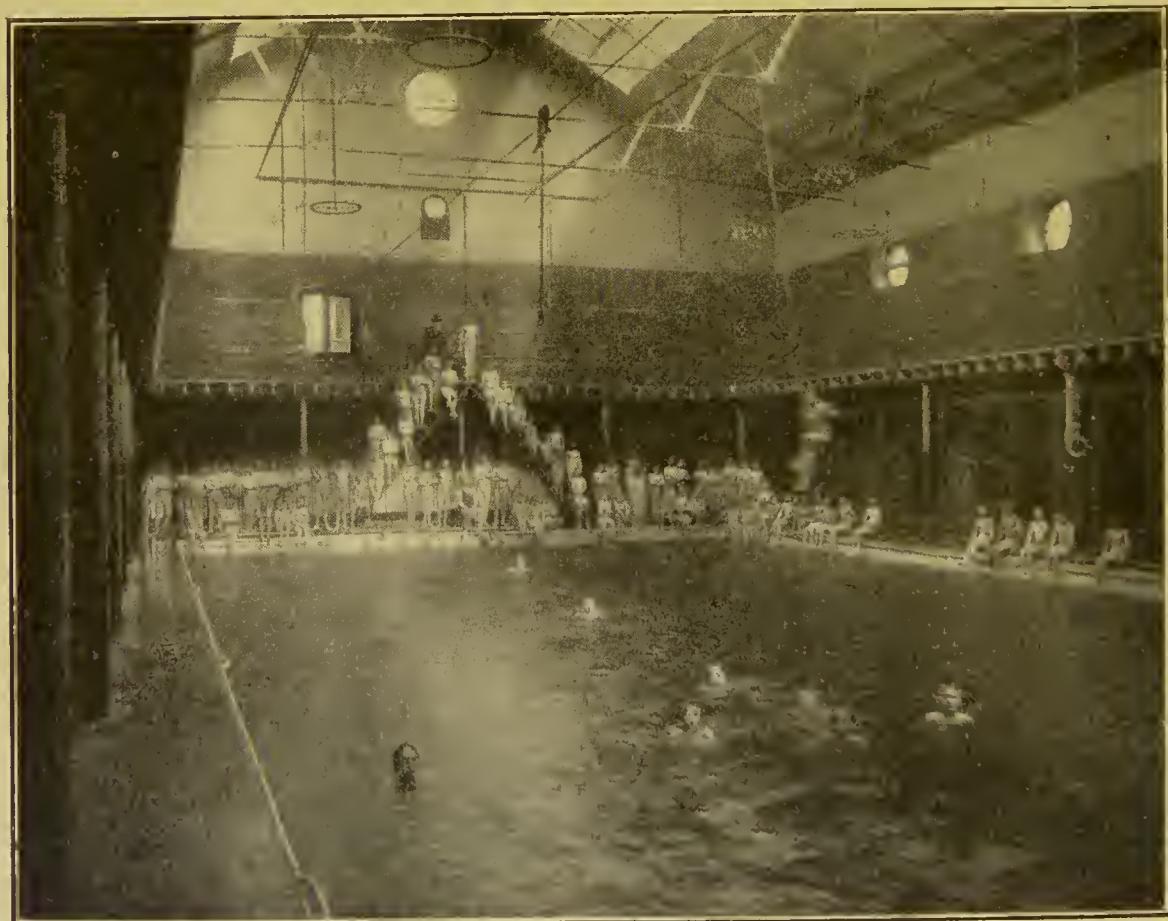


FIG. 7.—A RACE BETWEEN REFORMATORY INDUSTRIAL BOYS AT KIBBLE.

(By kind permission of Mr. J. G. Legge.)

Over it wrap and fasten similarly the blanket. Then put on your night-clothes. If you like, sip a glass of hot or cold water, and wrap yourself well, and go to sleep.

A similar pack may be applied to the chest and neck in case of cold and cough, or to the legs in case of sleeplessness or fatigue.

There is no need to keep the pack on all night. If it becomes inconvenient, one can get up and throw it off, and immediately cleanse the surface with a wet sponge, and then rub it vigorously to make it warm. Then wrap up and go to sleep again in bed.

Though it may seem necessary to inform the public about the pack, it would seem superfluous to tell about washing. The English have a reputation for washing to excess. But most of us wash badly. Our cold plunge may be useful for certain reasons, but it is not a cleanser. Most people need warm water to cleanse them. Let them wash themselves all over with warm water, perhaps part by part. We may take the feet as an example. Wet them well with warm water, then apply pure soap. Personally, we would rather not use the transparent kind. Rub well; then wash off the soap with warm water. Then apply cool or cold water to close the pores and invigorate. Then rub to restore the circulation. Perhaps, if it suits you, dip your feet into cold water again before you put on your socks or stockings. That seems to be a general method which will apply to the whole body and to every part of it; cleanse with warm water and with rubbing; invigorate with cool or cold water and with massage, afterwards with exercise.

The rubbing, whether it be dry or wet, will cleanse, invigorate, and harden. The glove which we prefer is a special kind, one side being made of the reverse

of plush, the other being made of a fibrous material. Soft rubbing, which can be practised with this glove, also soothes.

Besides the rule not to take a bath, and especially a cold bath, too soon after a meal, three other rules will be found useful.

1. Do not use cold water till you are already warm or hot, but, when you are warm or hot, do not stand about with open pores. 2. Do not use cold water till you are already warm and clean, for it tends to close the pores of the skin. 3. Do not use warm or hot water without cool to cold water afterwards. Then, after the cool or cold water, take some exercise. (An exception is the very hot bath, which we had in America and Germany. As the Italians and Indians, being, as it were, saturated with warmth, can stand the English cold at first without discomfort, so it is after the very hot bath; but, with ordinary baths, it is better to close the pores of the skin with cool or cold water.)

Except in the case of this very hot bath, it is good to breathe deeply before, to rub yourself during, and to rub yourself and to take exercise afterwards.

There are several useful kinds of cool and cold baths after you have become warm by baths or exercise. You can easily make your apparatus by fastening a tube to the tap, or else by using a can or two.

Wash your face and the back of your neck with cold water. Pour cold water on your wrists. Pour cold water down the base of your spine. All these three baths will probably be found refreshing.

The alternate hot and cold baths we have already cited as useful for the feet. They are equally useful for the hands, and for the body itself if you sit in a hip or sitz bath and carry out the same instructions as for the foot-bath. But

do not try this bath—or any full bath—soon after a meal.

Massage we cannot deal with here. It is a vast subject which demands a chapter to itself.

SWIMMING.

There should be no need to enlarge on the advantages of swimming. As an exercise in which nearly every one can acquire a certain amount of skill, and therefore an increased self-respect, swimming should be as much a part of national education as breathing—especially for Anglo-Saxons, owing to their opportunities. Like games and recreations, swimming and the teaching of it should be put within the reach of all.

For the preservation of one's own life and the lives of others, for the development of nerve and pluck, for a pride in the body and self-respect, for something to think of in idle moments, as an outlet for superfluous energy, as a training for the senses, swimming is invaluable. The Editor's favourite dream is of swimming.

Then there is the water and the air, and perhaps the colour of the surrounding scenery. Sea-water may have a special effect, thanks to its salt. Besides the washing, there is the extra cleanliness for the body, because waste-products are sent out through the mouth and perhaps through the skin. The circulation is improved, especially if there is a good rub-down afterwards. The breathing is improved also. One gets rid of undesirable matter; one breathes rhythmically, one's power of endurance is increased, especially by diving; and one takes in more oxygen.

The organs are in a good position, and get good movements. The muscles which hold them are strengthened by the extensions and contractions. The carriage is improved also. A hollow back,

chin in, and free movements of legs from the hips—all these are encouraged, as we shall see easily by studying the movements which are needed for the breast-stroke alone.

This breast-stroke, first for the arms, then for the legs, then for both together,

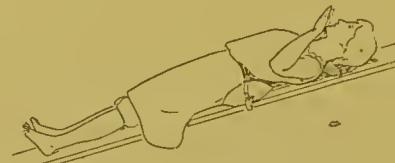


FIG. 8.
HANDS BELOW CHIN, THUMBS TOGETHER, HEAD BACK.

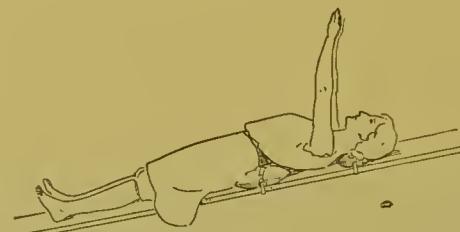


FIG. 9.
HANDS OUT, THUMBS TOGETHER, PALMS DOWN. LOWER THUMBS, BRING BACKS OF HANDS TOGETHER, TURN PALMS OUTWARDS, AND SWEEP OUT AND BACKWARDS WITH FINGERS CLOSE TOGETHER,

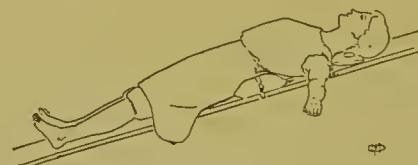


FIG. 10.
TILL YOU REACH THIS POSITION, THEN REPEAT.

A SWIMMING EXERCISE (ARMS ONLY) ON THE INCLINED PLANK.

can be practised as one stands or lies on the floor, or as one lies upon one's back on the inclined plank, which gives least strain and does not send excess of blood to the head; it enables the shoulders to go further back than the floor does. We have described the movements of the breast-stroke elsewhere. The illustrations will show how they go. If first the arms be trained to perform their "One, two, three," then the legs to

perform their "One, two, three," the arms and the legs can be easily combined in the full breast-stroke.

There is nothing to be said against the learning of this swimming-drill on land. It is fine exercise for the limbs and the breathing-apparatus. It gives us more co-ordination. It gives us confidence to go into the water. It keeps us in training when we have not the opportunities for swimming. It enables us to teach others. It is not swimming, but it is a partial

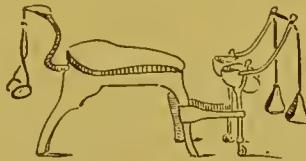


FIG. 11.—AN AMERICAN APPARATUS TO TEACH SWIMMING.

preparation for it, and a partial substitute for it.

Graduated practice and preparation are what we have insisted on in the chapter on nerves. So here. Let the learner first master the mechanisms and the principles. Then let him start on a shelving shore, just in his depth, and swim towards the land. Perhaps he had better begin in sea-water, which will help him to float more easily.

A writer in an American magazine has spoken very strongly of the advantage of this drill. He finds that it does give people confidence, and enables them to swim after a far shorter apprenticeship in the water. Anyhow, people should get their swimming mechanism correct before they swim much, lest they adopt

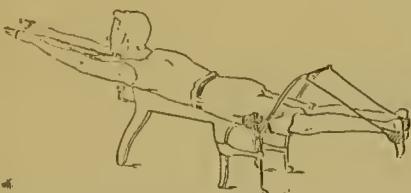


FIG. 12.—PRACTISING ON THE ABOVE EXERCISER (THE TOES SHOULD BE EXTENDED FURTHER BACK).

a wrong style, and by practice in the water only confirm the bad habit.

When they begin to try in the water, they may get someone to hold them up, or they may get some device with cork, and for the leg-movements they may hold on to a rope.

Having mastered the breast-stroke, let them next learn floating, at first

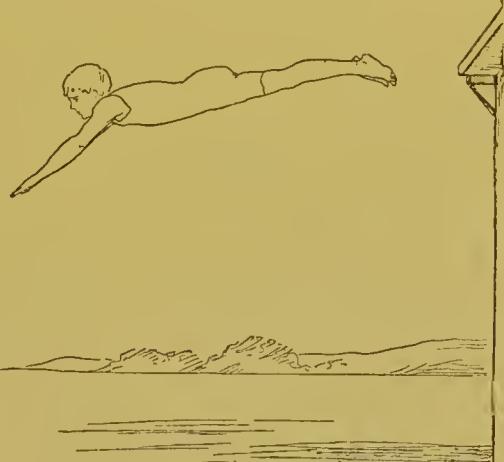


FIG. 13.—A DIVE.

with a slight movement; then the side-stroke and other strokes; then, by degrees, diving; and, last of all, tricks.

For recreation this may be sufficient, or water-polo and other water-sports may be added.

Swimming should be an inseparable companion to rowing. Many deaths have occurred through accidents when the people should have not been allowed on the water at all. We can recall many such cases at Cambridge.

But both ordinary swimming and rowing must not be over-estimated. They need

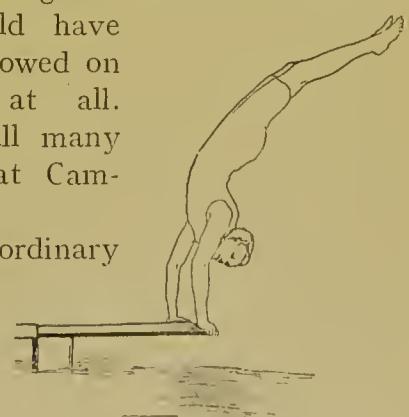


FIG. 14.—A DIVE BACKWARDS.

extra physical education, especially in rapid adaptation and what is known as "eye." Boxing and Fives, and games like Cricket, Lawn Tennis, and Hockey should be added. There is a marked tendency for the rowing and swimming expert to lose his skill at ball-games. This is a great pity, and there is no reason why it should be the case, so long as there are other Anglo-Saxon sports for developing independent control and promptitude.

Before we pass on to the subject of rowing, let us pause for a moment to consider the effects of swimming when it has been learnt in early life by the young, and especially by boys and girls together. We quote in full a recent article from a daily paper :—

SWIMMING FOR GIRLS.

"One of the most interesting places of education in the 'Heart of the Empire,' from the physical culture point of view, is the Swan

Street School, which keeps modestly back from the traffic that flows to and fro in the Minories. What is called a "mixed seminary," inasmuch as boys and girls are trained together, from the first it has devoted the utmost attention to the maintenance of healthy vigour in the bodies and minds of those in its charge. As regards muscle, the means principally adopted to attain perfection has been swimming; and one of the most delightful events of the London school year is that in which its girls and boys, as in the class room, so in the water, strive against each other for distinction. The competitions are usually held at the Aldgate Baths, and in them nothing could be more remarkable than the keenness of rivalry existing between the sexes, unless it be, perhaps, the spirit in which the girls have learned on occasion to take defeat.

"It must, however, be admitted that defeat is not often their portion. Strange as it may seem, these embryo Amazons excel as a rule at the sport, and the reason for this must be apparent in their better physique. Yesterday the head-

master was interviewed on the subject, and referred with pride to the all-round success of his feminine pupils. In order that the difference in vigour between them and the boys might be made manifest, he sent for the pick of the swimmers. With one exception the 'daughters of Eve,' although practically the same age, stood higher than the other scholars by half a head. Besides this, they seemed altogether better formed, and carried themselves more upright.

"Regarding the manner in which the results alluded to had been secured in the school, the girls themselves and their teachers proved most interesting. In respect to the former, it was noticeable that, though only 'rising fourteen,' they had none of that peculiarly feminine shyness usually seen in those of their class. On the contrary, we found them quite alert and business-like, though not in the least tending to forwardness. Perhaps even less than with the boys was there any sign of affected ascendancy above their comrades because of undoubted skill. In movement they were not 'mannish,' and altogether the impression they conveyed was gratifying in the extreme.

"'Swimming,' they declared, 'is not by any means compulsory at Swan Street, but every week those who wish to, boys and girls, go down to the baths in school hours, accompanied by a mistress or master as the case may be. The local Education authorities have special arrangements with the bathing people, and for each sex there is a swimming instructor.'

Beyond this we have a club. To join it only a shilling is charged, and the ticket given on receipt of that sum admits to the great plunge tank whenever the holder desires to go.

"There is for us no special training. It is all a matter of regular practice. The various strokes are acquired as time goes on, and, with the enthusiasm existing throughout the school, these are tried until they can be performed with perfect ease. The number of those who take to the water in this way is continually increasing, and the teachers use their discretion as regards the weaker ones in deciding how long they shall remain in the baths, or the amount of exercise they shall take. Great care is observed in preventing anything like over-exertion, and where parents indicate special caution as necessary the strictest attention is paid."

"In the last sentence may be said to lie the whole secret of the success which has attended the school in both work and play. Masters and mistresses alike maintain that after exercise the mental effect on the pupils is wonderful. There

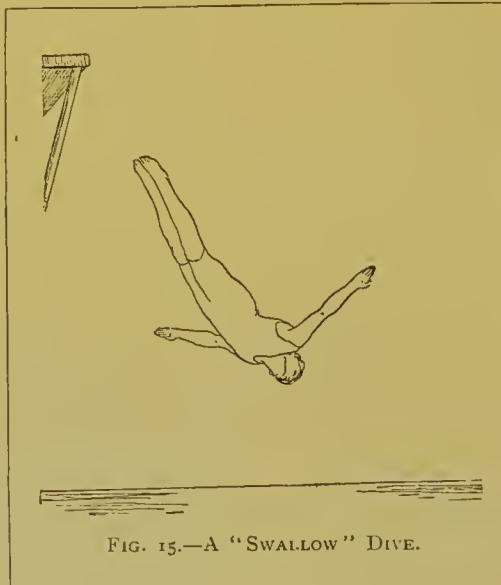


FIG. 15.—A "SWALLOW" DIVE.

is a distinct increase in the power to learn, and the retentive faculties seem to be rendered more acute. Swimming, however, does not form the only means of relaxation. There is light dumb-bell drill and marching to music. On wet days, instead of going into the playground, the children are assembled in a large hall leading to the class rooms, and there put through various exercises. While the formations are made with military correctness, it is apparent that the respect of the one sex for the other is 'without flaw.' As the headmaster remarked: 'It is all the result of combined training. We find scarcely a single instance of the boys being rough or rude to the girls. Their mingling takes the "corners" off, and both are vastly improved.'

ROWING.

Here, again, we need not enlarge on the advantages. The rower should also be a swimmer. If he is so, and if he goes in for crew-rowing as well as for sculling, he will get the fine team-spirit, the sense of co-operation.

Rowing, like swimming, should be extended to large numbers of people. Cheap rowing in the parks and elsewhere should be encouraged.

Rowing, like swimming, develops the breathing-muscles and the muscles that assist the breathing. It may help the digestion and the excretion. By employing large muscles it brings on rapid changes in the body, known as "metabolism"; and, since the movements are rhythmical, they demand much less effort so long as the work is not dull drudgery.

Rowing, like swimming, is an outlet for superfluous energy, and turns the mind into new grooves, encouraging travel and outdoor life.

Here, again, there is great advantage in preparatory and supplementary training at home. At home the learner can prepare for a correct stroke. He can practise that stroke, with or without apparatus, when rowing is not possible, and so keep in training. It is much better that he should try this home-drill before he does much actual rowing, unless he is a genius at the art. The

ordinary person who rows wrongly, with his head forward, and his back rounded, and by his arms rather than his trunk, will gain little advantage by emphasising these bad habits on the river. A few minutes a day with his apparatus in his bedroom will help him to correct the faults. Then the rowing on the river will be worth more than double what it was to him.

The expert, on the other hand, who rows to excess, is apt to over-develop his lungs. Then, when he gives up his rowing, the over-developed part of his lungs

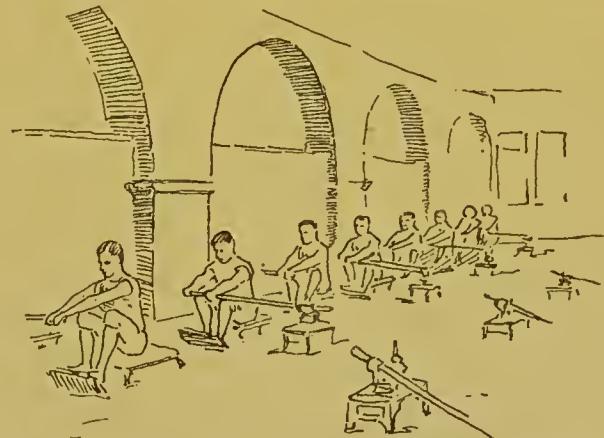


FIG. 16.—AN AMERICAN CREW AT HOME-PRACTICE DURING A SEVERE WINTER.

becomes a lumber-room for dust and disease-germs. His over-developed muscles of trunk and arms are likely to turn into connective tissue, popularly known as fat. In excess, also, rowing ruins the power of prompt adaptation, such as the boxer or Fives-player acquires.

With regard to apparatus, rowing has the advantage over swimming. There are many good kinds of rowing-machines on land. The Americans have invented one of the best. They actually have a machine for crew-practice when their severe winter keeps them off the river. The illustration shows them exercising as a team in a plain room. They have another



FIG. 17.—THE BEGINNING OF THE STROKE.

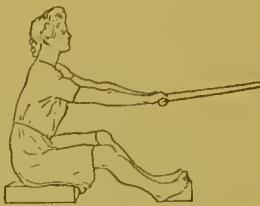


FIG. 18.—JUST AFTER THE BEGINNING OF THE STROKE.

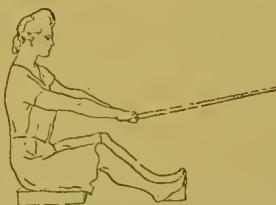


FIG. 19.—ABOUT THE MIDDLE OF THE STROKE.



FIG. 20.—ARMS BEGINNING TO BEND FOR THE FINISH.

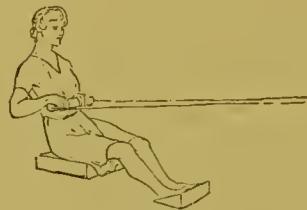


FIG. 21.—THE FINISH.

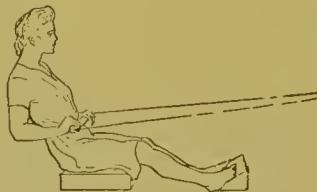


FIG. 22.—AFTER THE FINISH WRISTS BEGIN TO TURN OVER.



FIG. 23.—ARMS ARE STIFFENED AND BODY IS READY TO SWING FORWARD.



FIG. 24.—AVOID THIS BEGINNING—TOO FAR FORWARD, BACK ROUNDED ARMS NOT STRAIGHT.

A STROKE FROM START TO FINISH.

(Adapted from the "Isthmian Library" Volume, by R. C. Lehmann)

machine which registers the work done, the pace, etc.

One of the most important advantages of rowing, as of all vigorous exercise, is the change of clothing before and the washing after. The clothes should be clean for almost every, if not for every course. Americans and others neglect this useful accessory.

The washing and rubbing after the bath are invaluable, as the Japanese have recognised; they make the bath an actual part of the exercise. Exercise without a wash after it would be an impossibility to them.

If only as a motive for washing and training, rowing would justify itself, though the regulation training-diet does

not usually produce satisfactory results on the intellect at the time. It is a heavy condemnation of this diet that those who have submitted to it almost invariably rush out of it as if it had been something hard and objectionable. Nor can we be quite sure that even their physical feats are wonderful. Mr. Horace Fletcher, the slow eater, went to an American University, and without previous training put himself through the exercise of the young undergraduates in training, but was not at all stiff, while the undergraduates



FIG. 25—A ROWING APPARATUS FOR HOME OR GYMNASIUM.

were. He lived on about a third of the young men's diet. He himself was over fifty years of age, and had not rowed for years. The diet of our University crews seems to us positively ridiculous. To get rid of all that nourishment and stimulant would probably require twice or three times as much exercise as the man takes. And such exercise would strain the heart.

As in the case of swimming, for ordinary learners, we insist equally on a drill in the mechanisms of the breast-stroke, and then on the actual use of that and other

strokes in the water, so here to rowing practice we must add rowing itself, and to rowing we should add sculling, canoeing, and punting—a fine exercise for men and women.

In case of accident, it is always well to understand the restoration of the apparently drowned. Some time ago an article appeared in the *Daily Mail* on Professor Schäfer's excellent method which is worth mentioning. At once, he says, lay the person on his face (so that he may get rid of water and mucus through his nose and mouth, and not find his tongue in the way.) Straddle over him, with your head above his chest and your hands upon the backs of his lower ribs, press forward and down, then—moving your body somewhat as in rowing—remove the pressure; repeat every four or five seconds. This is not hard work for the hands or arms, and will not injure a patient's congested liver or other organ.

Too few of us are educated to realise our kinship with water. We are told that we are dust. We are not. It is nearer to scientific accuracy to say, with Professor Hughes Bennett, that we are "animated water." If we weighed 150 lb. as bodies, we might weigh not more than 30 to 45 lb. as matter or solid "ashes" without water. We call the earth our mother; let us call the water the bulk of ourselves, and let our insides, as well as our outsides, come into contact with it in due season, but far oftener than we let them do at present. We are not, as the Japanese are, and as we should be, a nation of water users, any more than we are a nation of game-players. It is the rich and the few that make the brave show.

CHAPTER XXVIII.

LEISURELY EATING: FEWER MEALS FOR MANY.

Leisurely Eating Less Ascetic than Slow Eating—Mastication as Training of Sense, Nerve, and Muscle—The Jaw an Unruly Member—Contrast between Mastication and Sandow Exercises—A Suggestion—Some Examples—What Mr. Fletcher Allows Himself—Gladstone—Thirty Bites—How we Practised—Choice of Better Foods may become an Instinct—Sentinel Taste—Individuality—Absence of Strong Cravings—More Pleasant Taste—The Teeth—The Digestion—Physical Fitness without Regular Exercise—Does it Save Time?—Better Breathing—Brainwork—Moral Tone—Appearance—Regulation of Weight—Against the Hurrying Mania—Self-control in General—Objections—The Extreme Plan is not Necessary—Sense of Humour—Concluding Hints. FEWER MEALS: Some Advocate Heavy Breakfasts, Light Lunches—Dr. Dewey Lays down a Universal Law—Our Appeal is Different—Does the Plan Suit You? You Can Tell only after Fair Trial—Provisos and Concessions—Anglo-Saxon Prejudice—Social Objection—May not many Little Meals be Better?—Or a Light Breakfast?—The Plan has Sometimes Failed—How we Began and Progressed—Economy—Evening Meal should Probably be the Main One—Final Advice—Use a Holiday, not a Stress-period—Do not Demand Immediate Good Results.

PEOPLE find slow-eating “slow.” They should have had it brought before them as “leisurely eating”; that is a far more attractive word. It has been said that we take our pleasures sadly. We do worse than that; we forget that our pleasures are pleasures, as in the case of washing, and we take them desecratingly fast. It is no exaggeration to say that we lose three-quarters of the joys of life by not observing that certain things can be joys, and should be dwelt upon and lived more thoroughly.

Mastication is a despised branch of muscle-culture. It is not represented on placards. We see the man looking at his lumpy biceps; we never see him looking at his mouth. Yet the exercise of mastication may certainly improve

the shape of the face. Already we have treated of the culture of the diaphragm as a vital yet neglected muscle. We have seen that its proper use depends largely on the muscles around it, and, therefore,



FIG. 1.

TO KEEP THE JAWS SHUT IS MOST DESIRABLE, BUT
AVOID THE AGONISED LOOK OF FIG. 1.

FIG. 2.

on exercises that help to strengthen those muscles, such as those on the inclined plank and exercises with the hands up above the head. We have also treated of the little-known culture of the nerves and of the senses. Mastication is a culture of the nerves, especially in self-control. It is a culture of what we may call the sentinel taste, which should warn us not to swallow what is undesirable. Let us now consider the culture of the jaw-muscles.

To keep our jaws shut is a special branch of training. We should keep

them shut while we breathe in—and at many other times also. The jaw is as unruly a member as the tongue. When we use its muscles we should use them far more thoroughly than we do. The exercise of mastication at first seems as dull as some dumb-bell courses—a repetition of simple movements requiring no great co-ordination or balance or rapid adaptability. That may be so at first. They may be equally good, or even better training for the mind, since they are utterly unlikely to make our jaws muscle-bound, and they do not require the purchase of even cheap apparatus. They have another advantage over the Sandow system: that, whereas Sandow advises people to continue his exercises and to do them consciously long after they have passed what Lagrange would call the automatic stage, we do not give any such advice about mastication. Make it a habit; then cease to think of it. Think rather of the taste. Another advantage in our favour: when a person has practised the Sandow course for many years, we can scarcely imagine that he would get an increased amount of flavour out of the same movements; but make the mastication a habit, and you probably increase the pleasant taste of your food double or treble.

You need self-control, conscious self-control, till the habit has become easy and natural, and, we might almost say, inevitable. That is what you want to make your slow eating—no longer a bother and a fad, but a part of yourself regulated by your under-mind. For this

purpose a little self-suggestion just after you wake and just before you sleep may help you. Such a self-suggestion is, "I'm going to eat leisurely to-day because that will digest the food, give me more taste, and give me more energy, and will also save money"; but word your own suggestion for yourself.

It may help if you see the extreme practice first. We went over to Germany several times to see the extreme practice

of the *Naturheil* methods. As we said in the chapter on the subject, the treatments were not natural, but *ultra-natural*. So let us listen for a moment to Mr. Horace Fletcher, the chewing specialist or crank. We do not speak entirely from the outside; we have tried the plan on many foods. A banana took us 386 bites, a mouthful of dry biscuit



FIG. 3.—THE "POISONS" WHICH MR. HORACE FLETCHER'S SYSTEM PERMITS.

1,000 bites, a mouthful of a savoury dish 450 bites, a mouthful of bread and cheese 132 bites; a whole apple lasted us three-quarters of an hour of hard work. Mr. Fletcher includes liquids as well as solids. He says, "Chew all foods so long as there is any taste in them. Never swallow any foods by force; let all foods swallow themselves; put out the tasteless remains. Take whatever you feel inclined to take." He himself takes coffee, cigars, sugar, and several other things which many other people condemn. We cannot be at all sure that they suit him. What we are quite sure of is that he wants to take them—that is to say, that he follows his desires without self-restraint and apparently without ill-health. There are very few people in

the world who would not undergo a little trouble if eventually they might follow their strongest desires with equal safety.

Several people, however, do not go to Mr. Fletcher's extreme. It is said that Gladstone took thirty-two bites as his regular number. He could talk well during a meal, and he did not neglect any part of the all-round life merely because he ate less hastily. The thorough eating interfered with none of his pursuits. Others prefer thirty bites. If we include such half-liquid foods as porridge, it will be found that thirty is a fairly large number. It is a number quite common for dry foods, but very uncommon for wet mushes. We have observed carefully a number of people, and found that the average number of bites was less than ten for a mouthful of porridge. With cream and sugar the number was still smaller. And these are just the foods—starchy foods—that require most saliva.

Then, again, we need not go to the extreme at once. We can practise the plan for a month, a week, a day, one meal in a day, one course in a meal, one food in a course. There are graduations from the gentlest up to the strictest. We can jump up five steps at a time, or we can crawl up stair by stair.

For our own part we have adopted thirty-two by preference. We practised it for about a week consciously, during which time, except when we drank, we swallowed no morsel that we had not previously chewed with at least thirty-two bites. We found that the habit became sub-conscious. We can eat fast when we specially wish to. Otherwise we find ourselves taking either thirty-two bites or more, never less. We should advise the reader, for the sake of interest, to count his present number of bites during a meal—not morbidly, but with

a certain sense of its being a game which he will probably play rather badly.

Mr. Horace Fletcher found that not only his pace of eating, but his choice of foods, became less conscious. We find ourselves gradually reaching that point. He has trained his sense as a sentinel. The taste, like the watch-dog, can be mis-trained. It can sometimes be quieted by poisoned meat; at other times by a wily burglar who is fond of animals; and so on. With Mr. Fletcher, however, there has arisen, so he says, a choice of right foods, right amounts, and right times for eating. He finds he is considerably better without breakfast, not because he determined to give up breakfast, but because he no longer desired to take it, and because he was fitter without it. You may not be led to choose the same foods, amounts, and times as he does; but the chances are that with slow eating you will be led to choose and desire foods and amounts and times that are better suited for you than those to which you are now accustomed.

His choice has been in the direction of cheaper and simpler foods; they give him equal or greater pleasure, as compared with the mixed diet. He differs from us altogether in the history of his change. He started simply with slow eating. He took it extremely seriously. He found that he gave up breakfast by preference, and that he gave up flesh-foods by preference; but he can still take flesh-foods, he can drink coffee and alcohol, and smoke if he likes. We started by giving up the flesh-foods and choosing a nourishing basis in their place. We then gave up breakfast. We then practised leisurely eating. We have arrived at results somewhat similar to Mr. Fletcher's, but we should not care to go back to any flesh-foods. We prefer not to eat breakfast; we prefer

not to eat fast. We believe that Mr. Fletcher and ourselves each have a weakness. He cannot eat fast without discomfort; we cannot eat flesh-foods without discomfort.

But to neither of us any longer is there any necessity, any craving for many strong tastes and large amounts and abundant stimulants.

We both get more taste and more tastes from our food. In a given mouthful the taste is more noticeable, and the elements of that taste are more noticeable too. That is one great advantage, that you cultivate your sense of taste and cultivate your sense of choice also.

Another advantage which no one will deny is the advantage for the teeth: Doctors put down the degeneration of modern teeth to fast eating, and especially to the fast eating of white bread and sloppy foods. The leisurely-eating plan certainly must be good for the teeth. It should therefore be taught to the very young.

It must be equally good for the digestion. We doubt if there can be many exceptions to this rule. Mastication breaks up the food into smaller pieces, and does not leave this to be done by the stomach, which has no teeth. The mastication also, by its pumping action, produces saliva, which moistens dry food, helps to digest starchy food, helps to neutralise acids and poisons (notice how the saliva comes when you take ink or dust in the mouth), and flushes away what is harmful. When you masticate your food you send it down into your stomach in smaller quantities. The larger quantities might stay there and ferment and cause discomfort and depression. The saliva, in fact, is a juice with several functions. It is said that when you swallow food of the wrong kind a certain mucus is poured upon it to wrap it up

and carry it out, like Ananias. This may be the case with such irritants as pepper and mustard. It is not the gastric juice which is poured upon it, but a protective and, so to speak, scavenger-juice. The saliva has this function as well. There is a saliva that adds to the taste. There is a saliva that helps to digest starch. There is also a saliva that carries off what is undesirable.

With regard to the excretion, one naturally questions the extreme plan of Mr. Fletcher. Can it be good to put out of the mouth the fibrous material which, we are told, makes our organs of excretion work? Shall we not become constipated if we do not swallow a certain amount of cellulose, as it is called? Will not the walls of our stomach collapse together?

Well, Mr. Horace Fletcher's experience is worth more than a theory. In five years the walls of his stomach have not collapsed, though his food has been almost free from cellulose. With regard to excretion, it has not been regular, but that which has been kept in the system has been less harmful. There has been considerably less waste, and the waste which there has been has done little harm when kept in the body. For a meat-eater such irregular action of the bowels would be disastrous. For a slow eater of fleshless foods it apparently would do little harm; but that is still a matter of theory, a matter to be decided by personal experiments. Anyhow, he says that the absence of regular motions has not depressed him at all.

More food is assimilated and used when food is eaten slowly. This Mr. Fletcher has proved in his own case by his body-weight and by an examination of all that has come out of his body. More food being used, less food is needed.

Mr. Horace Fletcher claims that by thorough eating he thrives on about $\frac{1}{3}$

of the Body-building material, $\frac{1}{2}$ of the Heat- and Fat-producing material, and

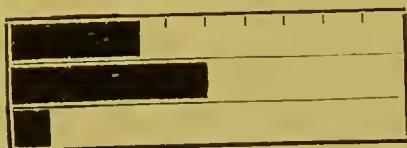


FIG. 4.—THE PROPORTION OF FOOD AND WASTE IN MR. FLETCHER'S DIET.

with $\frac{1}{10}$ of the waste, which has been believed to be normal.

Economy, therefore, will be one of the prime motives for an experiment. Not only does he eat by preference simpler and cheaper foods, but he eats smaller amounts of them, taking between $\frac{1}{2}$ and $\frac{1}{3}$ of what scientific people have said is necessary to maintain life. Experiments are now being made by twenty privates from the Hospital Corps of the American Army at Yale University. But, meanwhile, it is interesting to know that Mr. Horace Fletcher has lived on a part of the orthodox amount for a healthy working man for five years now. When we saw him he looked fit and sound. He told us that he could ride a cycle for a hundred miles a day. He also told us that, though he is fifty-four, he can, without previous practice, go through the exercises of a college athlete in training. He eats less frequently than the orthodox person; that also tends to economy. His meals, he told us, take about thirty-five minutes a day. He takes less stimulant, irritant, and narcotic. Calculate what it would mean never to have a craving for stimulants, irritants, narcotics, or drugs. The saving in expense for the nation per annum would be enormous. The drink-bill alone is a sum to make us tremble.

Then there is the economy of energy. Energy is not money, but it can be devoted to the earning of money. The slow-eating plan gives the special organs their special

work, and does not throw wrong work upon the organs of digestion and excretion. Less energy is needed, either for digesting, or for holding, or for excreting masses of stuff. Less energy is needed for working the system, including its brain-work and exercise with clogged flues. "It's not the miles you travel," nor yet simply "the pace that kills"; it is, to a great extent, the dirty and obstacle-laden body with which you try to travel the miles at the pace.

Economy of time is far less obvious a result. Time is, again, not money, but the opportunity for the earning of money. Mr. Fletcher takes less time for digesting his food. He can start his exercise or work immediately after his meal without discomfort. He takes far less time for rest, finding five hours of sleep enough, in contrast with the ordinary man's eight. He saves time because he is seldom or never ill or depressed or worried or hurried.

Less exercise also is necessary, to remove the effects of mistakes. We may regard exercise from many different points of view, but every orthodox trainer regards regular exercise as a necessity for health. Mr. Horace Fletcher and the Editor do not. We regard it rather as a luxury; we can keep fit without it. We are inclined to suspect that, with many people, it is a prompting of Nature to counteract the multitudes of mistakes that they have been making in other ways—by over-eating, by eating wrong things, by eating too fast, and so on. We both find ourselves in perfect condition after a long spell of sedentary life. We can take heaps of exercise and not feel stiff afterwards. We find exercise easy and pleasant, without being essential.

One merit which, apparently, Mr. Fletcher has not realised, is that this slow-eating encourages one to breathe in through the nostrils. The same applies to the slow-drinking. Mr. Fletcher takes

a sip of coffee and keeps it in his mouth for about half a minute. During that time he is breathing through his nostrils.

It must be partly owing to this that his breathing-capacity has improved so much. An interviewer in *The World's Work* says that, in December, 1902, Mr. Fletcher climbed the 854 steps of the Monument in Washington, and then ran down without resting. He told us that he rode about fifty miles on a bicycle before breakfast without any fatigue. So far as we remember, this was just before he went up the steps. One November he skated for three hours, though he had not skated previously for thirty-five years. He did not feel sore afterwards. In France and Germany, in 1900, he covered on his bicycle 750 miles in ten days, living on rolls, milk, cream, potatoes, and beans.

This speaks loudly for his endurance, as well as for his economy; and it must never be forgotten that he takes precisely what he wants to take. When we met him we were perfectly certain that, though there was much seriousness and sense of a mission in the world, there was no asceticism, practically no self-restraint. How hard it is for one man to realise another man's inclinations; yet there they are.

His brain-work, he says, has improved enormously; he can work far more easily than ever before, and far more satisfactorily.

He told us of followers of his who have found their moral tone improve. Greater and easier self-control with regard to the passions and the craving for drink—these are among the most important results, and are just what we should expect.

Then, again, there is an improvement in the appearance; the skin becomes clearer and the whole body cleaner.

As to weight, there is no doubt that most of us have our organs too low. The

stomach, over-filled with food, perhaps with fermenting food, presses down and compels the colon to fall also. Even those who are not too fat elsewhere may find that their stomach is swollen. Now Mr. Fletcher, taking all the time just what he craved for, after three months reduced his weight by forty pounds and his waist-measurement by seven inches; and this without any physical weakness. We know a similar case which was the result of a change of food without slow eating. It has become with Mr. Fletcher a question of which food as well as of how much of it. His instinct gives him an answer to both these unconscious queries. We imagine that the result in a case of thinness would be equally satisfactory. Thinness is largely due to faulty digestion and faulty excretion. There is enough food in the body, but it is not assimilated. Probably the thin person also worries, is lacking in self-control.

Anyhow, the weight would be easy to regulate. The too-fat person, by self-control here, would get self-control with



FIG. 5.—THE PUP THAT EATS MOST LEISURELY IS LIKELY TO GROW MOST QUICKLY.

regard to alcohol and drinks in general. On the other hand, he would not starve. A friend of ours is a good judge of dogs. When he is choosing from a litter of puppies he sets food before them. The animal which eats most slowly, even if it eats only a quarter of what the others do, he chooses. He finds that this becomes the biggest and strongest of the family.

Most animals eat slowly. We are not alluding merely to the grass-eaters—they are not a fair test—but to animals in general. We believe also that nations which live simply also eat slowly—the Irish, the Hindus, and the Japanese. The two latter nations must find their slow-eating a training for their world-renowned placidity, and for good manners too. Why is it considered bad manners to eat noisily, good manners to eat fast? Surely unnecessary hurry is bad manners from every point of view.

The Fletcher-plan can make our meals a more leisurely time, a time of greater repose and rest. It distracts the mind to the pleasures of taste. True, it interferes terribly with conversation, if it is carried to an extreme, but there is no urgent necessity to carry it to an extreme during a social meal. We have not found the thirty-two bites interfere with our own talk at meals.

But self-control is surely the chief advantage of the system—self-control which must of necessity now be easier in other spheres of life. Let us compare the vile modern habit of fast-reading. Watch people with their books or papers; they are exactly the same with their food. Let them get a more leisurely way of eating and digesting, and they will get a more leisurely way of reading and digesting, which means of using also. Besides, there will be greater discrimination, together with greater thoroughness of character.

The man who has learnt how to eat sensibly cannot but have increased his self-respect. He is now too proud to remain the weak slave of so many stupid mistakes. He has more thought for the servants who live within him. He has a victory that he can appeal to. He can say to himself, “I won that victory over that ridiculous habit. I will keep up

that victory. As I won that victory, so I will win another.” This self-reminder must help him. And, if he is a full-blooded person, he needs all the help that he can get.

Contrast the weight-lifter. Some years ago he could perform a certain feat; he cannot perform it now. True, it was a feat at the time, but now he can only lift twenty pounds less. The leisurely eater has won a greater victory than the weight-lifter: it is a permanent victory. He can always eat as leisurely as he did on the day of his success, the day when the leisurely eating became a habit, easy and natural.

Let us be fair, however, and cite the objections.

Was not meat meant to be eaten fast? Was it not meant to pass through the system quickly? Perhaps it was. Animals eat meat fast. But we do not know that there is any objection of a serious kind to eating meat slowly, especially cooked meat, which, as it has its proteid coagulated, is an altogether different affair from raw meat. This applies to eggs also.

Are not some digestions abnormally active and strong? Yes, certainly they are, and they seem to be injured by the fast eating very little, if at all. Others, again, may need liquid swilled down.

The real objection will not be brought forward by those who refuse to try the

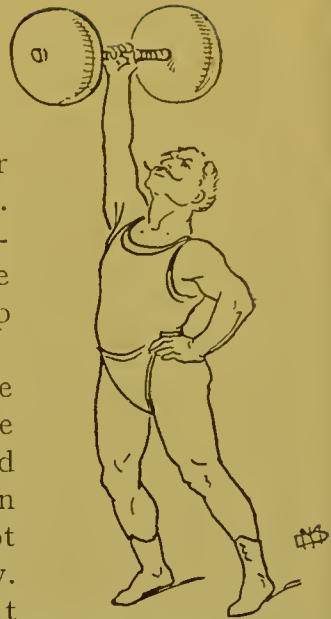


FIG. 6.—THE VICTORY OF THE WEIGHT LIFTER IS NOT PERMANENT.

plan. It is that they are too weak-minded to stick to their experiment. In their inmost hearts they feel it to be right, but they are abnormally weak and silly, and slaves to their passions. Patience is needed for some considerable time. Will-power is needed. They have not patience; they have not will-power. Such virtues have not been trained within



FIG. 7.—THE EXTREME PLAN IS APT TO ANNOY THE COMPANY.

them by sensible practice. So they find excuses. They say, "It will make me morbid; it will make me anxious and self-centred and self-introspective" and "The worry will bring on indigestion."

Other people say that they do not wish to annoy those with whom they eat. They do not care to put out what Mr. Horace Fletcher says that it is useless to swallow. Now there is no crying necessity to do this. We can eat slowly without eating ridiculously slowly. We can swallow the cellulose.

A more serious objection is that he who has learnt to eat slowly will never be able to eat fast again without discomfort. Mr. Horace Fletcher himself, in a conversation with us, implied that he did not think he could eat fast again. But will it ever be essential to eat fast? Will not the leisurely eater in five minutes get as much good as the fast-eater in five minutes? We cannot be sure, but in most cases it is quite likely to be so.

A still more serious objection is as to

the excretion. Will it not be extremely uncomfortable if the regularity of our motions is disturbed? Well, we need not carry the plan so far as Mr. Fletcher did. But he finds no inconvenience—none of that horrible depression that most Anglo-Saxons naturally dread.

The mistake, in fact, is to pretend that the extreme way is the only way of doing the thing. That is where the crank fails. He implies not only that his is the sole cure for all human ills; he also implies that it must be rushed into; that you must take your complete dive into cold water before you have learnt how to dive or how to help your diving.

The plan, indeed, in its extreme form is grotesque. It will be less grotesque if you do it without anxiety and without tension. See the humour of it; for it is humorous. During the week when we learnt the art in Germany, we were the first to laugh at ourselves. The result was that no one else laughed at us, or, if they did, we laughed with them.

It is not customary, this leisurely eating, but then neither is leisurely reading nor leisurely walking nor leisurely anything. We are in so great a hurry that we have no time to be sensible. But if you have come across a good thing, a thing really worth while to your character as well as to your health—you must hold to your own precious conscience and sense as your inalienable possession. Do not let anybody laugh you out of it.

True, the practice needs good teeth, but dentists to-day are more skilful than ever at substituting and at preventing.

The idea that leisurely eating lengthens the meals may be a mistake. If, as in the case of Mr. Fletcher, it reduces your food by nearly two-thirds, and by one meal out of three, then it will take about the same time or less.

After all, however, the proof of the

pudding is not in the eating, but in the effects of the eating. A fair trial is the only way of arriving at a fair verdict. Contrast the results of a month of slower eating—say, thirty-two bites to a mouthful—with the results of the next month of fast eating. Contrast the results all round, especially the mental.

Begin the practice as early as possible. Start it to-day. Begin it, if you like, only at meals that you take in private; for meals that you take in public are full of temptation, perhaps too difficult a game to play at first.

In conclusion, do not neglect that view, if it helps you a quarter as much as it helps us—that idea of “playing the game.” It is an error to go in for all these physical education Courses with grim earnestness and strain and tension. Why not treat them as a game to be won cheerfully?

FEWER MEALS: SHOULD WE EAT HEAVY BREAKFASTS?

While Dr. J. H. Kellogg, the founder of about twenty-five “Sanitariums” (or Nature-Cure Establishments) in America and elsewhere, decides that people should take a large breakfast, and while most Anglo-Saxons would probably support his view (and add a heavy lunch and a heavy tea and a heavy dinner), a certain American doctor, E. Hooker Dewey, after years of training as a physician, adopted the plan of eating no breakfast at all.

He recommended this plan to his patients, not because it had suited him, so much as because he said it was a universal law that no one should take breakfast ever again. Whereas Mr. Horace

Fletcher lays it down as a law without exception that everyone should chew every mouthful of solid or liquid food so long as it has taste, and should put out the rest, Dr. Dewey lays it down as a similar rule that no one should take a mouthful of food in the early morning. He goes further, and says that those who do not feel up to the mark or are in any way unwell at any time should invariably fast completely until they feel a genuine appetite.

No amount of failure can influence such an opinion in the least. We know of several cases where a fair trial of the no-breakfast plan has failed miserably. That sort of fact does not influence a crank, because, you see, he has hold of a universal law. There is never a crank who has not. You might show a crank failure after failure, but he is unwilling to weigh evidence. He quotes his own case and the case of some others. It has suited these people; therefore it must suit everyone.

Now we can appeal to the public with much greater force than Dr. Dewey, because we live on foods which are supposed to be “weakening.” We live on fleshless foods, and have done so for upwards of eight years. If, therefore, the simple food plan were unsatisfactory for us with three meals, it would be all the more so with two meals of this supposedly “weakening” diet. Besides, the plan failed at first, but has gradually been increasing in its success; and we now keep to it not from any idea of sticking to our guns—we have no such idea if the guns are old-fashioned and we can get a better kind from our own or any other country—but because we find that we work better and play better and *last* better without food at breakfast.

But our most important claim to be heard is that we are not dogmatic. The

plan is worth a fair trial, and a fair trial may for many be a gradual progression through lighter breakfasts *towards* no breakfast.

Nor are we scientific. We can quote the Old Testament, where it says that a land is unhappy when its princes eat in the morning. We can say that the best energy of the day must be that which is stored up by a night's rest, during which the arrears of bodily work are finished, the arrears of digestion and assimilation. We can call attention to Pawlow's experiments showing how long the process of digestion is, for how many hours the gastric juice continues to be poured out. It would not so continue if the digestion were over. We could cite other reasons.

But we admit a very important objection in theory—it must have occurred to every reader already. If it takes, say, five to eight hours to digest a meal, and if we fast till one o'clock, and if after the one o'clock meal we work hard or take hard exercise and so injure the digestion, probably we shall not have digested our first meal till, let us say, seven o'clock in the evening. Can we go the whole day of nearly twelve hours, to say nothing of the previous night of eight or nine hours, on the strength of the last meal which we ate? We are in the habit of taking three or four meals a day. Some take five, some six, and on steamers even seven. We have been led to consider this natural. Can we go a whole day on one or two meals? Is that natural? Is it scientific?

We do not really care much whether it is or not. "Scientific" means so many different things in so many different periods and countries and to so many different individuals. What we do ask is whether the plan suits you as an individual; and we defy you to give us an

answer until you have tried it fairly. At present no one can tell you how long your energy, made and stored by your night's rest, will keep you going. The mere fact that you feel faint, say, at 10.30 a.m., is no proof that you are underfed. The feeling may be due to fermentation and habit. After a few trials I found it disappear, never to return. I conclude that in my case it was not a genuine hunger.

Let us begin with a clear statement of provisos, after remarking that we have collected statistics as fairly as possible from many people (of all classes and conditions and occupations) who have tried the plan on our suggestion. Most of them find it agrees with them, at any rate after a week of experiment—usually less.

Anglo-Saxon prejudice is against it. It produces a want of faith, a self-suggestion, "I'm being starved, I shall faint"; and the results may be unsatisfactory, the trial inconvenient, for the first few days, especially if there be heavy work that must be done.

Above all, the excretion may be hindered. There is no doubt whatsoever that the Anglo-Saxon heavy breakfast helps the movements of the bowels by its heat and bulk, if not by such aperient elements as porridge and marmalade seem to possess. We can get over this objection, however, by taking aperient foods, such as prunes, or by flushing the colon, the night before.

Another objection is: if we take no breakfast, shall we not eat too large a meal and eat it too fast at mid-day? That is a very solid objection, and the answer is, "Yes; you probably will, if you are weak-minded and silly."

Then, again, people will say that breakfast is to them a social meal; they meet at it to see one another and talk before the day's work.

Another question which people will ask is, May not many small meals suit me better than two large meals? Or may not a light lunch suit me better, or no lunch at all? It is easy to cite cases of people who take a heavy breakfast, then work well till the evening, when they have their dinner, or perhaps only a light supper.

Or may not a light breakfast be the best thing? Mr. C. Arthur Pearson takes a fruit breakfast, and on it can play tennis and work. Canon Edward Lyttelton recently adopted the fruit and nut breakfast. Others adopt the Continental plan of coffee with roll or toast and butter. Others take tea or cocoa or coffee alone, or milk alone, or hot water alone, or cold water alone. Others add to the liquid a biscuit, perhaps, or some fruit.

This is the case even where eventually the person is led, through a lighter and lighter breakfast, to no breakfast at all.

It will be observed that we are working along our usual lines of candour. The fanatic does as much harm with one hand as he does good with the other. While those who adopt his advice and find it suits them, owe much to him, those who adopt his advice and find it does not suit them, are alienated from reformers in general. To take an example, our main difficulty in diet-reform is to undo the ridiculous cocksureness of the ignorant faddist. He says that no one must ever again eat meat or this or that; that it means disease, incompetency. He lays down a special diet—perhaps bread and apples. Well, that diet may suit many. Those many are the better for it. Then there comes a case which it does not suit. The person tries the diet fairly—as a famous musician tried our favourite diet—but finds it a failure, and blames not only the crank, but blames all diet-

reformers. (The musician did not blame us, because we had offered the plan to be judged by results.) The crank does not listen to the evidence of this person. The crank is not a searcher after truth; he merely states—or shouts—part of a truth. You see in his wild eye that he has not a receptive mind. He finds it more blessed to give his fraction of truth than to receive ninety-nine other fractions.

Now the no-breakfast plan or even the light-breakfast plan has failed lamentably in certain cases. This may be partly due to the evening meal preceding it, which was too light or was taken too late. Still, there has been failure, and we gain nothing by denying the fact.

But what we wish to emphasise is that failure at first for most people, failure all the time for a few, must not condemn the practice. Lieutenant Flynn does not find the plan suitable when he has a morning of heavy exercise. Perhaps he will find it suitable some day—we cannot tell; but he does find it suitable for a morning of heavy brain-work. We now find it equally suitable for either purpose.

It is both for and against the practice that habit is potent. There was a case, in America, of a child whose number of meals was increased to eight, then diminished to one. As each of the seven meals was docked off, the child complained and cried; but eventually the new habit was formed and the child preferred the one meal to the eight. We were only able to get our new habit by slow degrees. Here are the steps, which may be altogether different from another person's steps.

We began during a holiday, and for two or three days we suffered extraordinary depression of mind and body. We gave up the attempt. Later we repeated it, and it was a success after about the first day. We compared and

contrasted our endurance and enjoyment of a walk from Scarborough to Robin Hood's Bay, first with breakfast, then without it. We found little difference, but what difference there was was in favour of the no-breakfast. But we did not find that the plan suited us when we had to take exercise after eleven o'clock. Up to eleven o'clock the body was fit; the mind was fit till much later. Then, having kept to the plan of taking only a

than the heavy breakfast, or even better than the light breakfast for purposes of work, exercise, or both. Perhaps this is, as we have said, because by the night's rest the best energy of the day is stored up for the best work of the day, whether it be brain-work or exercise or both. Shall we use this best energy for digesting our breakfast, or shall we consecrate it to some nobler purpose? If a heavy breakfast demands upwards of eight

THE THEORY OF NO BREAKFAST OR LIGHT BREAKFAST.

EVENING MEAL, FOLLOWED BY QUIET ENJOYMENT.	REST AT NIGHT: ENERGY STORED UP.	ENERGY READY FOR MORNING USE.	IN THE MORNING, ENERGY USED FOR WORK OR EXERCISE, NOT FOR DIGESTING A HEAVY BREAKFAST.	AFTER THE MORNING'S WORK (SAY 12 OR 1, OR 1:30) FIRST MEAL, EATEN LEISURELY AND FOLLOWED BY REST OR RECREATION.	THE FIRST MEAL PARTLY ABSORBED, AND ENERGY USED FOR MORE WORK, ETC.	THE EVENING MEAL AGAIN.
---	--	-------------------------------------	---	--	---	-------------------------------

THE QUESTION OBVIOUSLY IS, HOW MANY HOURS WILL THE FRESH DAY'S ENERGY LAST? "SCIENCE" HAS NO ANSWER. PERSONAL EXPERIMENT MUST DECIDE, AFTER UPWARDS OF A WEEK'S TRIAL—WHICH MAY BE A TRIAL IN MORE SENSES THAN ONE.

cup of tea in the morning for many months, we tried exercise again from eleven to one-thirty. We compared and contrasted results on the two plans, and we found that we lasted better and played better without breakfast. Sometimes we have extended the plan till the afternoon, and on these days we have sometimes felt rather weak and sometimes exceedingly energetic. Who knows? We may some day come to have our first meal at four o'clock. But we should be sorry to be unable to take lunch without heaviness; for lunch is a social meal and a good time for meeting friends and enemies.

It must be granted in favour of the plan that, if it agrees with us, it is economical of money, of time, and perhaps of digestive energy. Moreover, it allows us an interval at midday for our exercise; for we can begin our work earlier.

Once more, it actually suits many better

hours for full digestion, then it is surely a mistake to do hard work or exercise when the blood and power is needed by the digestive organs.

The evening meal undoubtedly seems the right one to make large. Let that be the heaviest or the least light, because our digestion will probably be undisturbed after it. This is one rule, not for all, but for nearly all. Another rule, surely, is to make the trial a fair one, not rushing into the full practice at once and expecting satisfactory results at once, but, if it suits your nature better, gradually lightening the meal and stopping at some half-way house, perhaps at the tea or coffee or cocoa with fruit, then at either of these alone—we ourselves are at the cup of tea stage—and so on, every now and then taking a little step in advance, in your curiosity to see whether the lighter meal is your plan or not.

We do not urge the plan on those who are entirely satisfied with themselves. For all others we do not insist, we simply advise. Use a holiday, when nothing important is at stake. Try for several days entirely, if you like, or else partially.

Last, but not least, judge by all-round results. You may find the plan excellent for brain-work, bad for body-work. In that case you can adopt it on your brain-work days and take breakfast on your body-work days. Or you may find it the reverse.

Do not imagine that the experiment is morbid or objectionably self-conscious. Do not let those words put you off from a plucky attempt to better yourself. They are the words of the lazy self-satisfied. On the other hand, you need not take yourself too seriously. You can, as usual, see the humorous or even the grotesque side of the experiment ; there is no harm in that. What you want to do is to improve your physical, mental, and moral condition, to bring it nearer to normal fitness. If you were living a healthy outdoor country-life, you might not need such care. As you are living a trying indoor city-existence, such care may be worth while. You have a new set of conditions to face and overcome. The world has never yet had this problem of city-life before. Regard it as a good game to win.

Hackenschmidt, before his famous championship-match with Madrali, knew

that he had a tough problem to face. He prepared at least five special devices or tricks. He was ready to resort to the second if the first was a failure, and so on. No one would have regarded that as morbid or self-centred or priggish. If his first four tricks had failed instead of his first succeeding, and then his fifth had succeeded, and he had written to the papers to say how he had won, everyone would have said, "How clever!"

Why is it that we are such fools in the really important matters of life ? A man has a wrestling-match against whatever it is, his athletic or mental difficulties, certainly his moral difficulties. Why should he not have five devices, and try each in turn ? It may be that the first will succeed. It may be that all five will fail. But the chances are that one of them will succeed.

What is not morbid in games is not morbid in life. The no-breakfast or light-breakfast plan has its disadvantages, but the experiment can be a short one, and can be reserved for holidays—the ideal times for finding out what suits you.

We should say to our readers, then, Regard your search for health as a game ; do not be satisfied with your present standard ; be sure that you can raise it, and try whether the no-breakfast plan, through the light-breakfast plan if you like, may not, after all, be the first trick of the five or ten which will help you to overthrow your Madrali, or rescue your "Little Mary."



FIG. I.—A BRITISH SYSTEM EXERCISE AT CARLTON ROAD SCHOOL.
(By permission of Mr. T. Chesterton.)

CHAPTER XXIX.

THE BRITISH SYSTEM.

(This chapter includes Notes from an Interview with the Editor of "The Gymnasium," Mr. W. M. Vardon, of the St. Bride Institute, E.C., who kindly arranged Photographs for them. For the sake of clearness we keep in the main to one single idea as to what the British System is. Other ideas are held by other authorities.)

Is there a British System?—Yes; there are Examinations, Text-books, Teachers, Training-colleges for Teachers—It Started with Individuals—Government Waited till it Succeeded—Not Connected with Games and Athletics—Inventions by Individuals—Not Especially Good as Nerve-Training—Nor as Recreation—Nor as Preparation for Games and Athletics—Characteristic Features—Freedom—Music—Many Drills—Personal Teachers—The Army System Contrasted—Indefiniteness—It has Copied Nomenclature—Other Systems have Borrowed from It—And Share Features with It—German Apparatus—Ling? A French System—How Did the British Originate?—Has it Changed?—Is It Graduated?—Will it Change More?—Its Faults: 1, Incomplete Breathing; 2, No Relaxing or Economy; 3, The Two Sides Together, as a Rule; 4, General Remedial Work Neglected; 5, Everyday Apparatus Neglected; 6, Recreation Neglected; 7, Preparation for Games and Athletics Neglected; 8, Reasons not Taught to Pupils—An Appeal to the Leaders who are Open-minded and Patriotic.

A GERMAN lady once objected that there was no such thing as a British system in existence, because there was no examination in connection with it. There are, however, two examining bodies, the National Society of Physical Education and the British College of Physical Education; so at least some general principles of a British system exist. The lady might have been nearer the mark if she had said that

there were too many so-called "British" systems. If recreation is a part of education (physical as well as moral—this we shall prove in a later chapter), then the National Society of Physical Recreation should be cited as well. Its examination is not on paper, but in the parks and other places for play. The results are not marks and brain-fag, but health and freshness.

There is more than one text-book of

the British System as well. We have before us Thomas Chesterton's "Manual of Drill and Physical Exercises," F. J. Harvey's "Teacher's Manual of Physical Exercises;" books on musical drill by H. Alexander, Colonel Cruden, and Ervine; A. Alexander's "Gymnastic Exercises" (written in a popular rather than a textbook style); Lagrange's "Physiology of Bodily Exercise," and Chesterton's "Theory of Physical Education"—these are among the works which the British system uses.

Surely here it is noticeable that the instructions were at first devised by individuals; afterwards they were adopted more or less officially. This is typical of England. India itself was first exploited by a few men. When these few had succeeded, at length the tardy Government took up the matter. It is characteristic of us as a nation (or rather as a Government, for the two things are utterly different) to let individuals work out important national matters at their own expense; then, after success, to take up the matter; but to give little Government-support whatsoever to many really vital investigations in their most crucial stages. If careful mastication is ever advocated or recommended, it will not be because Government has hitherto moved a finger in the matter of educating the people. It will be because an individual of independent means visited England and interested a few specialists at Cambridge and elsewhere. Government troubles not one atom over most of the common things of life until a thousand cranks have failed and one or two have succeeded, chiefly through

private money or philanthropic support.

Besides its examinations and its textbooks, the British system has its training colleges at Aberdeen, Dundee, Exeter, Liverpool, St. Bride (London), Southport, and elsewhere; it has its teachers, who themselves have trained hundreds of teachers. Let us take a few names almost at random: Colonel Cruden of Aberdeen, Hubbard and his successors at Birmingham (where rowing is also practised), Sturrock at Dundee, Harvey at Exeter, Chesterton, Elliott, Gelling,

Sully, and others in London; Renshaw at the Y.M.C.A. in Manchester; Wareing (the successor of the Alexanders at Liverpool, where the gymnasium has a running-track after the American model—we believe that basket-ball is also practised here); Vardon at the St. Bride (which has a cricket pitch for indoor practice). Quite apart from the hundreds of

lady teachers, we may mention Messrs. Clague, Mason Clarke, R. Clarke, Ervine, Foreman, Gorman, Levesley, Leyland, Madgwick, Mass, Mills, C. H. Moss, Monkford, Nicholls, Pearce, Pyne Gilbert, and Robson. We select only one name apiece from only a few localities. There are plenty more who are deserving of mention.

Is this widespread system connected with games and athletics? That is the first question which one asks. No; it does not include them at all.

In what ways, then, is the system typically British in character as distinct from the German system, which is typically German? In the vaulting-horse exercises there is more running, more dash,



FIG. 2.—RIGHT ARM AND LEG EXERCISE WITH DUMB-BELLS.

more sporting work, so to speak, in contrast to the German scientific leg-work. In the drills there is hard work, though not necessarily slow work.

But the most strikingly British feature in the system would be the inventions by individuals. Mr. Vardon, perhaps with others as well, prefers faster movements with a short rest in every position. He does not believe in incomplete tension such as belongs to some Sandow exercises and such as belongs also to some decidedly graceful and "showy" poses. He prefers full movements. He is in advance of the Macdonald Smith system, when he makes his pupils hold these extensions for a short time. In club work, again, Cobbett and Jenkins have devised a clever nomenclature for club-swinging; H. Lawton, of Leamington, has introduced into club-swinging trunk-bendings and lungings; Lieutenant Flynn has popularised among teachers club-manipulation in the form of juggling and other fancy play. These are only a few examples of original work. Germany, Sweden, and other countries are more inclined to stereotyped systems without such additions.

We naturally ask how far the British system trains, not merely the muscles, but also the nerves? It trains them partly by apparatus-work. A pupil has a series of movements to do on the parallels. He

thinks them out, and then performs them. After that he has a

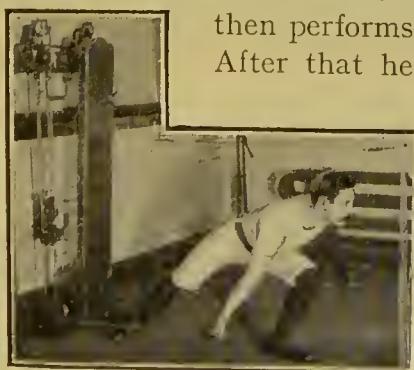


FIG. 3.—A BOWLS EXERCISE.

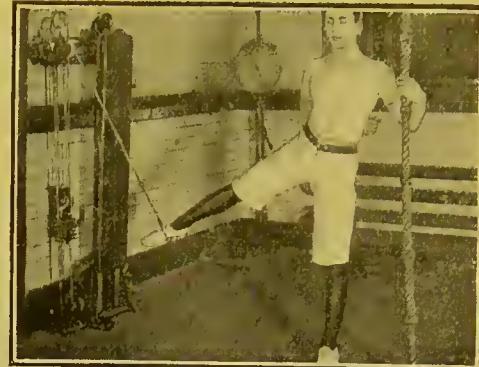


FIG. 4.—WEIGHT PULLEY FOR THE LEGS.

slight pause. In apparatus-work, too, there is some pluck required, for there is some danger. The pupil must learn how to tumble. But that is not the chief mark of the system. That part of the work, the training of the nerves, is left largely to our games and athletics. Without them the British system is one-sided, just as without some "System" the games and athletics are one-sided. We imagine that either the inventors of the British system were not themselves players of games, or else that they took games for granted, and wished to confine themselves to supplementing games. They certainly have not done a great deal to prepare for the best-known British athletic games. There is something, but not much, that will be of use for starting, catching, and, in general, for timing the ball at cricket, or for playing fives or lawn tennis.

The British System has certain features which have been borrowed by other systems. Among these are the use of Indian clubs in general, the use of the bar-bell (which prevents the hands from slipping), the use of long wands (which allow of better movements behind the back), the use of advanced swinging-exercises on the rings and trapeze, the preference of the pulley and weight to the American elastic apparatus: the former makes the effort more uniform, for, of course, with the elastic apparatus

the effort does not begin with the beginning of the movement ; it becomes severe at the end of the movement. The pulley and weight can have a rowing attachment, with or without sliding seats.

The Americans may have perfected their elastic apparatus more than we have perfected our pulley and weight apparatus. Naturally they would, because owing to their severe winters and summers they can take less open-air exercise on the river, etc., than we can. British also is the use of the skipping-rope, some teachers making the pupils use the wrists chiefly so that the legs and lungs may get full exercise.

The work, on the whole, is more free, more extended, more open. The pupils run in files, each leader being responsible for his own file, not in one long line as they run in Germany.

Music may be considered a part of

barn-dance tune and lunge to a march or a *wa tz*

As we shall see directly, drills form a conspicuous part of the British system, and among them are the drills with arm, trunk, and leg exercises on the march or at the double, and drills with balls, scarves, etc

But more depends on the individual teacher in the British than in most other systems. He is allowed to invent ; and then, if his invention is good, other teachers will adopt it. More depends on his tact, too, than in most other systems. He has not a set of rules and orders to which he must rigidly adhere.

It is this that has led many to ask *what* the British system is. Are people agreed as to what it *is*? Many army authorities want the British system to be simply an army system extended widely, if not nationally. Now the army



FIG. 5.—A BRITISH SYSTEM EXERCISE FOR GIRLS, WITH BAR-BELLS.

(By permission of Mr. T. Chesterton.)

the British system. The Ling system forbids it. The German system uses it, but does not vary it scientifically. The best of the British teachers who use it will vary the music according to the work, making the pupils run to the

system, if it is useful for any people, is useful for men already made, who need, let us say, more chest, more strong muscles, and more setting up. It may be considered, in fact, as the slow work taken out of the British system. The

quicker work and the lighter work and the leading-up work of the British system is equally important for the nation.

But, while we can say that the British system is not the army system, it is characteristic of the British system that we do not know precisely what it is. What it is in practice is not the same as what

been adopted by our teachers because it is convenient.

Other systems have copied from the British. They have copied club-work, but the work is inferior. Some foreigners use bar-bells, but most prefer short wands. Similarly, in more than one Continental country British games and athletics are being adopted with great advantage.



FIG. 6.—A BRITISH SYSTEM EXERCISE WITH DUMB-BELLS.

(By permission of Mr. T. Chesterton.)

it is in theory. That applies to our monarchy. The King's real influence is not that influence which comes in a school text-book, but a social and a diplomatic influence of international range that is not mentioned there, but in recent years has been gigantic. We have already seen that a similar difficulty exists about the Ling system when it gets to England. While it is still in Sweden it is fairly easy to define. Directly it becomes settled here it changes its character—dropping this, altering that, adding that.

The British has copied from other systems, especially the nomenclature of its exercises and the order of words in the commands. It is not English to say, "Knees raise"; it is foreign, and has

The British shares with the German not a few features, such as the use of dumb-bells (which are less popular in Germany), the use of clubs, the use of short wands, and the use of bar-bells (though generally short wands are preferred). There is a greater difference between the German and MacLaren's old British system than between the German and the present British system. This latter has apparatus very similar to the German hanging-rings, on which the Germans do very little swinging-work, and the trapeze, to which the same remarks apply. Puritz mentions these two in his code-book. Then there are the horizontals, the parallels, and the horse (which Jenkins omits), and the ladders. On the horse the Germans do more leg-



FIG. 7.—A HORSE-EXERCISE.

circles and less running-work, as we have said already. Again, the German system has fewer drills than we have. One well-known exponent of the British system, Mr. Eugene Sully, gives four drills every night, with special music for each. There is the drill with dumb-bells, with bar-

bell, and with the clubs, as well as running. But the chief difference between the German and the British systems is that the former is more definite than the latter and encourages individual invention and needs individual tact to a much smaller extent.

When we come to contrast the British and the Ling systems, we are met with our former difficulty of what is the Ling system. There is the strict and original and practically unalterable Ling system. There is the Ling system taught in a slipshod way by half-trained teachers and others; and there is a so-called Ling system adapted to English interests. It was utterly alien to Ling's spirit that anything recreational should be introduced. The movements were serious, educational, remedial; call them what you like—anything rather than interesting to an average Anglo-Saxon. They were more like our rules in Latin grammar, which no one yet has regarded as recreational.

Now, however, we find some teachers sensibly allowing their pupils to perform exercises as games—allowing little children to pretend that they are birds or fishes or signal-posts. We find the same teachers adding games (such as hockey), and still calling their system the Ling system. Ling himself

fenced, but we are not aware that he was a player of games. In fact, now that it has come to England, it is the Ling system no longer. Contrasting the British system with the original Ling system, we should say that the Ling had certain tables of certain definite movements in a certain definite order. It discouraged music. It possessed very little apparatus—no horse (in our sense of the word), no parallel bars, no slanting ladders, only a large horse (which is more like a whale), and the squares, and ropes. But the Ling and the British have many movements in common, such as the neck and trunk movements.

Is there a French system? We have not heard of any teachers or text-books of this. We might guess *a priori* that the French system preferred light work and leg-work—dance steps and so on—and that it included fencing and perhaps some ball-play. But we cannot safely say that there is any French system at all. Doubtless there will be one some day. There is a Swiss system taught in England—at least, a German system taught by a Swiss expert. With regard to the drills of other nations, people must not take Alexander's work too seriously. He professes to give "the drills of all nations." The idea is a good



FIG. 8.—RUNNING HORSE-EXERCISE FOR SQUAD.

one, especially in combination with music. But it is not a good representation of what the drill of these nations is.

How did the British system originate? MacLaren was one of the earliest to formulate it some decades ago. Those other teachers whom we have mentioned have all done something towards building it up. Thus Colonel Cruden of Aberdeen, the Alexanders of Liverpool, and Renshaw of Manchester might be cited out of a large list.

Has the system changed much from MacLaren's time? MacLaren's was much nearer to the Army system. It had few exercises, and these slow and somewhat stiffening. Hence the British system was condemned, and rightly condemned. It is now quite a different affair—far wider, far more sensible.

The British is equally good for females as for males, and that is more than can be said for the Army system. It is especially good if the long wand be used.

The British is also graduated. It is easy to select light work—for instance, light work with the pulley and weights—so that a weak man may be trained up. The Narraganset apparatus has weights as light as one or two pounds. Then there are the neck and other bending and turning exercises, the light drills with flags and scarves for girls, the free calisthenics, and so on. Yes, the system has changed considerably, and can now be adapted to many utterly different types of individuals.

Will it change more? Yes, except perhaps for the groundwork. That is Mr. Vardon's opinion. We are indebted to him for most of the materials in this

chapter, and he has arranged the photographs to illustrate the system. He is a good example of the neat and energetic British teacher, not posing as an ideally developed man, but working steadily and earnestly as a teacher, and always ready to welcome new ideas; not rushing at them American-wise like a fish at a bait, but quietly considering them and digesting them.

The reader will naturally ask what are the faults in this groundwork, if the groundwork is to remain unchanged. Many faults are common to the British and other systems.

First of all, too little attention is paid to *thorough* breathing. Too many teachers develop only the diaphragmatic or lowest breathing. Too many others leave the breathing to develop itself, at the most telling their pupils to close their mouths. Now merely to close the mouth and to take exercise is not necessarily to develop the full breathing. Breathing is the commonest act of life, and one of the three most vital. It can be taught. It should be taught. It should not

be regarded as an extra. It should be regarded as the foundation. It need not be taught the first thing of all. At the beginning it may suffice to tell the pupils to close their mouths, but it can and should be taught at intervals between the other exercises and after them. This is part of the Japanese system of physical training, this breathing during the intervals. Together with relaxing the muscles, thorough breathing should form a part of the British system.

Relaxing is not taught at all. We believe that 70 per cent. of us are likely to live in cities and to work with our

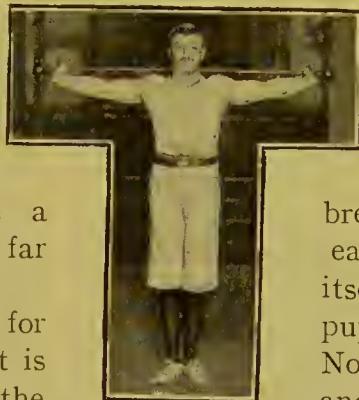


FIG. 9.
A USEFUL POSITION,
ONLY POSSIBLE
TO THE ORDINARY MAN
WITH BARBELLS OR
LONG WANDS.

brains for a great part of our time. We must realise that one of the prime arts of modern life for most of us is the art of *not* using muscles unnecessarily. First of all, we must learn not to use muscles unnecessarily when we are lying, sitting, or standing ; then not to use them unnecessarily when we are moving.

Now that is an art not belonging to the British system at all. Hence nine people out of every ten, even when trained by the British system, waste a vast amount

come with authority, and would reach tens of thousands of children and adults.

It is doubtful whether we should be able to convince all the teachers that there should be more independent work for the two sides of the body—one arm being moved, for example, while the other is kept limp. It may be that at first the right hand and the left should frequently work together. Even that we doubt, however.* But, seeing that the brain has two sides, it appears to us beyond dispute



FIG. 10.—A BRITISH-SYSTEM EXERCISE AT CULLODEN STREET SCHOOL.

(By permission of Mr. T. Chesterton.)

of their physical energy by employing muscular and nervous force in a spend-thrift fashion. The art of relaxing can be taught, and can perhaps be taught most easily as we suggested that breathing should be taught—namely, at intervals between the more violent movements. We cannot but believe that a competent committee, formed of the various teachers of the British system, would agree to add to the British system not only more scientific breathing, but also more scientific relaxing. The leaders of the system are intelligent enough to work out at any rate three good exercises on feasible lines. Such exercises would

that each side should be trained to work while the other side rests. Instead of that, the great majority of movements work the two sides together, and often work them in precisely the same way.

The Macdonald Smith system begins by working the two sides independently. That seems to us scientific. The British system is in advance of games and athletics in so far as it develops the left side no less than the right. It is behind the Macdonald Smith system in so far as it fails to develop the left side independently of the right. Why is it that the

* For the American researches, see a subsequent chapter.

man who rows and the man who swims are apt to be feeble when they are set to a game demanding rapid movement, now of one side, now of the other? One answer seems to be that the two sides have too often been working together, rhythmically, in rowing, and in the breast-stroke in swimming. Unexpected movements by one side or the other have not been trained for, and are not well performed. There is, of course, the plea that it would nearly double the time needed; but, in view of the result, that extra time seems worth while. We shall deal with the left side later.

Nor does the British system attend much to remedial work. The natural answer would be that remedial work is individual. That is utterly wrong. Remedial work is, to a great extent, national *to-day*. How many people lie rightly, sit rightly, stand rightly, move rightly? How many people are free from needless tension? To get rid of these faults is remedial work, but remedial work in which it is safe to treat the great majority of people together. People sit wrongly, and for the most part sit in the same wrong way, crossing their right leg over their left rather than their left leg over their right; rounding their backs; and having their heads far too forward. If it were made a special feature of the work to remedy these defects,* though a few would not need the remedy, the majority would be benefited.

And a general system must aim at the benefit of the ma-

jority. The few would not be appreciably injured by the special drill.

This suggests apparatus. The British system, considering our sedentary life, should certainly come forward and insist on better apparatus, not merely in gymnasias, but also in rooms, in railway carriages, on omnibuses, and elsewhere. It is a great opening for reform, and an opening for the leaders of the British system. Let them collect statistics, as they easily could, about the benches or seats in use at various schools or on various trams. They would find these horribly unscientific, forcing the children's organs out of place—forcing the children to round their backs, curve their spines unhealthily, and so on. Let them add an examination of desks. There is abundant material for a scourging article in a magazine. Notice the angle of the chair. It tilts the body forward where it should be back, back where it should be forward.

The British system† has not insisted on these points. It has also somewhat neglected the recreational side of life. Many of its less expert teachers repeat the old cliché that recreation is an extra. Recreation is not an extra, but an essential. It is essential to man as an animal. It is essential to children. It is invigorating breath to the mind. It is tasty food to the mind. Of course, the leaders can say that they leave recreation to games. Yes; but games are not yet organised for the nation; the British system is



FIG. 12.—WEIGHT-PULLEY, FOR THE ARMS, AT ST. BRIDE'S.

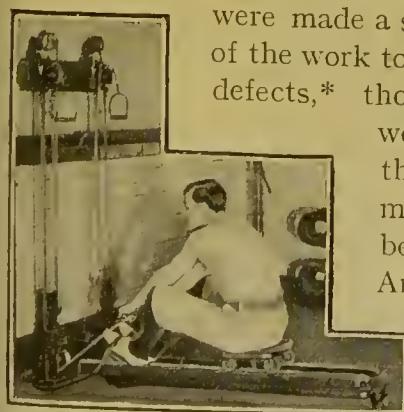


FIG. 11.—ROWING EXERCISE, FOR TRUNK, ARMS, AND LEGS, AT ST. BRIDE'S.

* See the exercises in a later chapter.

† There are, of course, exceptions.

organised. It should study Mr. Corsie's school at Wandsworth, and see whether it cannot introduce more of the recreational spirit without any sacrifice to health, but with great benefit to health, happiness, interest, and perseverance. For the British system is not the kind of system which individuals are very likely to continue of their own free will. They are likely to continue games and athletics if these be organised and prepared for.

We suggest also that movements preparatory to games might be introduced freely everywhere. As we have shown elsewhere, movements preparatory for Golf, Football, Cricket, etc.—to say nothing of those for swimming and rowing and fencing and boxing—are not only attractive, but also healthy; they use many of the largest muscles of the body.

Then there is another omission—the omission of the theories, the omission of the reasons for the various exercises. Part of the theory, though we do not think it is very satisfactory, is taught to teachers. But why do not teachers teach it to pupils? Surely they would interest the pupils if—again in the intervals between the exercises or just before an exercise—they explained some of the reasons.

Last, but not least, if we were asked to set down in order the most important features of physical education, we should set down not only some knowledge of the theoretical reasons, but also some practices. Leisurely breathing and muscular relaxing would be among them, and the third, if not the first or second, would be leisurely eating. Not one word about it does the British system say. It

is a *muscular and nervous exercise* controlled by the mind. It is extremely valuable for digestion and excretion, as Mr. Horace Fletcher has shown. Few exercises give more self-control. It is certainly physical education, even in its narrow sense of muscular education. The part of the brain devoted to regulating the jaw-movements is an important one. The muscles are large muscles. The British system utterly ignores that part of the brain and those muscles.

Nor is there a word of advice about the A B C of diet, so far as we know.

We therefore hope that Mr. Vardon is not correct when he says that, though the British system will change in the future, its groundwork will be the same. We would add to its groundwork the culture of better breathing with the whole breathing apparatus; better repose, especially for the muscles which we gain nothing by using; leisurely and thorough mastication of food; and more teaching for the pupils themselves about the importance of the various exercises; and at any rate about the essential elements of our food-supply. Whether it would be advisable to add something about washing—which surely is a British art—we leave to the leaders to decide: but the points which we have mentioned they cannot now excusably ignore. Indeed, we feel sure, judging from the exponents of the British system whom we have met, and with whom we have had many pleasant talks, that these patriotic teachers will no longer ignore them.

What they want is a new text-book. The already existing text-books will still have their value in their proper spheres, but, unless they deal more



FIG. 13.—THE BRITISH SYSTEM RAISES THE HEELS FOR BACK SWINGS AND CERTAIN TWISTS WITH CLUBS.

sensibly with breathing, which we are always engaged in performing, and muscular repose, which we need to some extent whenever we sit or lie—that is to say, for nearly half of our lives—and more leisurely mastication of food, as well as more sensible choice of food, they leave many most important physical spheres of life untouched ; and these are the spheres, we maintain, which most readily and powerfully affect the mind. Who does not want repose and self-control ? To make a person move certain muscles of the trunk or neck or legs or arms in a certain way does not develop much repose, nor does it develop nearly sufficient self-control ; it is not complete physical education ; does not come near to complete physical education. This is no disgrace to the teachers, because in recent years science has been advancing, and new discoveries have not yet reached the masses. It will only be a very great pity if they continue to omit such science. And this, let us repeat, we are *sure* that they will not do.

For the leaders of the British system

have the important interests of the British nation at heart, and are not mere money-grubbers. They work devotedly. What the home and the school will not do for our children, the British system, coming with the full weight of its sober authority, can, and should, and will do. Not a few of its best exponents are working on these lines already, and with fine results. What we want is to see the improvements, originated or adopted by individuals, extended and made an integral part of the system as a whole.

It seems to us a clean system, free from the catch-guinea fakes of advertisers. It certainly is a safe system for almost all. It certainly has prestige and power. It appears to us to be an excellent means for teaching the people, and especially the young, those physical (really mental *and* physical) arts which are vital to health and fitness, but are seldom taught either by the home or the school, and are scarcely ever learnt at all, except as the result of bitter experience, perhaps when the prime of life and hope are nearly past.

CHAPTER XXX.

COURSE OF PHYSICAL DEVELOPMENT FOR BOYS.

(Photographs by permission of Lieutenant T. A. W. Flynn.)

Parents Know Little about the Health, and Helps to Health, of Children—An Exercise that They Allow Boys to Perform—Why Parents Choose This or That School—Three Tests They should Know—Breathing-capacity—The Heart—Pure Blood—The Child should be Told some of Its Responsibilities, not Morbidly—A Word to Parents and Masters—A Word to Boys—A Fourth Matter: Food-values in Better Proportions—Lieut. Flynn's Advice—Should Boys be Trained?—A School Run—An Eton Boat-race—Shakespeare's Seven Ages—Catch the Young in Time, and Prevent Unhealthy Instincts and Desires—Purer Diet—How to Begin It—The Plucky Boy—The Weak Boy—The Physical Culture Medicine-chest and Its Use—Our Plea for the Weak Boy's Care—A Fine Example of Graduated Work—Individuality—Hints on How to Train.

IMPORTANT INTRODUCTORY NOTE.

PEOPLE eat and think and talk and read ever so much faster than they used to. There is a growing tendency not to digest whole articles, but rather to look at the illustrations and to let the eye slip lightly over the subject matter. We should prefer this whole chapter to be read by parents and pastors and masters, but we insist that the prefatory note shall be read. It is a brief answer to a query expressed or felt by thousands of searchers after the best for boys. We can consider it as an answer to some parent or schoolmaster who has asked us about exercise for boys in the form of the question, "Are games and athletics sufficient for them?"

Games and athletics are essential. The thought of home or school without them is horrible. Games and athletics are so important, so vital, that they deserve preparation. They seldom get it, however unsafe they may be without it; for the strain on the heart and lungs and nerves may be enormous for the untrained boy. But games and athletics are not enough by themselves. They, like severe gymnastic feats, need prepara-

tion; they need supplementation. What preparation, what supplementation?

Here is a Course, worked out specially for the PHYSICAL EDUCATOR by Lieutenant Flynn. It is not complete physical education; especially is it not complete for the senses and the nerves. It cannot give that training which, for example, throwing and catching a ball would give. Neither is it training in relaxation and repose. Neither is it in itself athletic. Athletics—games, sports, boxing, swimming, and so on—should go with and follow this Course. It is not recreational; recreation we deal with in other articles. To it should be added the alternate walk and run, and skipping, etc.

Athletic and recreational exercises are essentials. They are not extras. They are not merely useful as adjuncts. Neither recreation nor this kind of Course is an extra. As well might we have one without the other as nourishment without taste or taste without nourishment.

This special Course may be done with dumb-bells, though we would suggest free exercises first. The Course is a selection

from what is generally known as the British system, as found in the best military gymnasias. Ling exercises are included. Our object is to deviate from what exists as little as we can, except by choosing the best and leaving out the rest.

We wish, in fact, to exercise most parts of a boy's anatomy judiciously, giving a clear description of each position and movement, and arranging these positions and movements as a graduated series with sequence in view—sequence together with variety. For instance, let the boy be told to bend his trunk backwards. This is easy when the hands are on the hips. It is harder in the "neck-rest" position. It is still harder with the arms stretched above the head. The initial position will give variety and graduation.

At the end comes what Lieutenant Flynn has called "the medicine-chest," including spring-grip dumb-bells, expanders, etc., for the various muscles which in most boys are weak. It might be bad to use this medicine-chest indiscriminately at first. The nature of a child and of his muscles is against slow and prolonged straining work, is in favour of quick and short and light play. Therefore let us begin with the general Course and appropriate games and athletics. But after the general Course and the leading-up move-

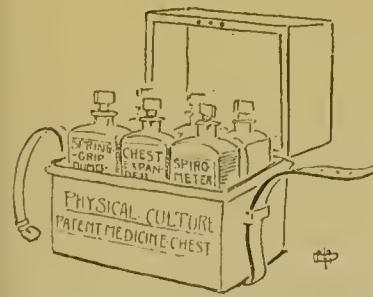
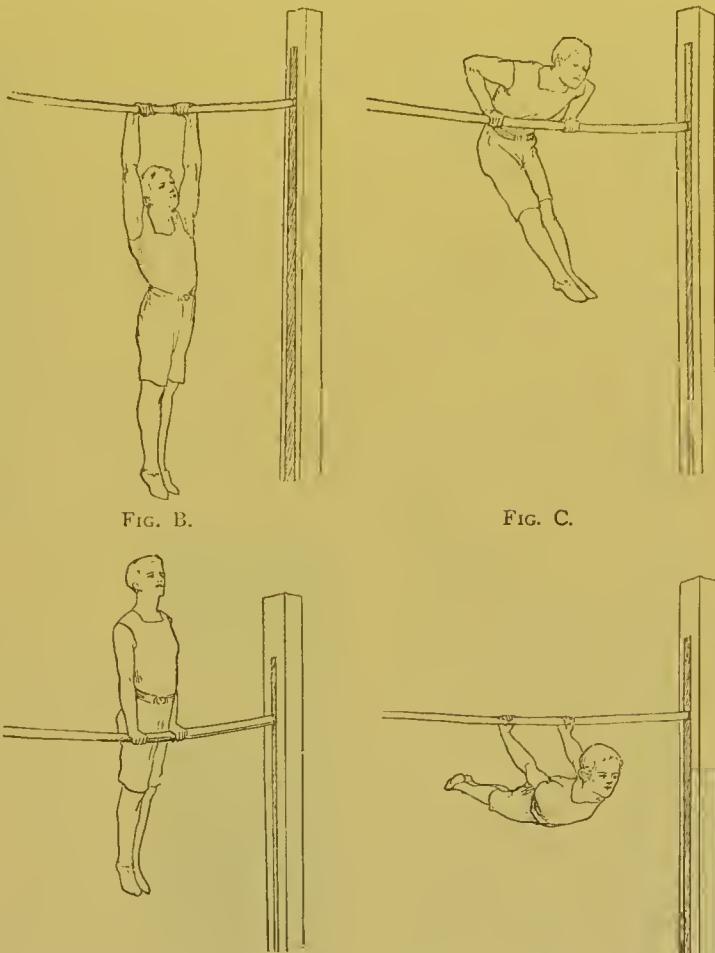


FIG. A.



TOO SEVERE EXERCISES, WHEN NOT LED UP TO,
AND WHEN REPEATED.

ments, a certain amount of strain will be good for certain muscles. Nearly all boys should have the general work first, while they are young enough to be drilled and to like being drilled. They should be given a pride in doing their drill well, as individuals and as members of a class. And all the time there should be play as well.

That a certain amount of this medicine-chest work is good there can be no doubt. Both Lieutenant Flynn and the Editor, as boys at public schools, were considered muscular, yet they found gymnastics hard. In those days there were no such patent medicines as expanders and grip dumb-bells; there was no

leading-up work. If we wanted to learn an exercise, we merely slogged away at the exercise itself and over-exerted ourselves. It is with other boys, and perhaps weaker boys, in view, that we offer the local exercises. We feel sure that they are just what most boys sadly need. How can they take a proper pride in their bodies if important parts of their bodies are undeveloped?

PROBABLY parents and masters and mistresses care a great deal whether the children under their charge are healthy or unhealthy; but, when it comes to practical knowledge, they do not carry their emotion into action. They know conspicuously little about the health of boys and girls. The few tests that they have are utterly inadequate.

We remember one of them saying to us, "My boy competed at Aldershot in the Public Schools' Competition," as if that were proof that the boy was a success, not only from the athletic, but also from the whole physical standpoint. Let us consider for a moment the kind of exercise which he was asked to perform: Figs. B C D E on the previous page are an example. To perform it once is hard work; to repeat it three times is, from a growing boy, an abominable demand which could only have been made by supremely ignorant and inexperienced managers. To such managers the parents are quite content to leave the making or

unmaking of their sons. Notice in Figs. B and C the different movements as the boy passes from "suspension" (if we may use a technical phrase) to "support." The muscles of the neck contract energetically with an effort that seems to thrust the neck down between the shoulders. The whole body is drawn together, and the dorsal region of the spine is strongly curved in, so that the shoulders may come as far as possible in front of the bar to lighten the work of the arms. At the same time the pelvis is raised as much as possible to lift the whole weight of the body and also the centre of gravity. At this moment the gymnast has the most ungraceful appearance it is possible to imagine. We know that the body tends to preserve the imprint of an oft-repeated attitude (Lagrange). This attitude is, as we say, repeated three times.

"My boy competed at Aldershot." Yes; but was that a sign of health or a help to health? What is the physical state of your boy viewed years afterwards? That is the question.

On one occasion the Editor heard a parent consulting a schoolmaster at a seaside place as to whether she should send her boy to his school. The following considerations eventually induced her to do so: that there were family prayers in the evenings, that there was a matron, that the boys wrote letters home once a week, that the headmaster took an interest in some of the boys (!), that his son occa-

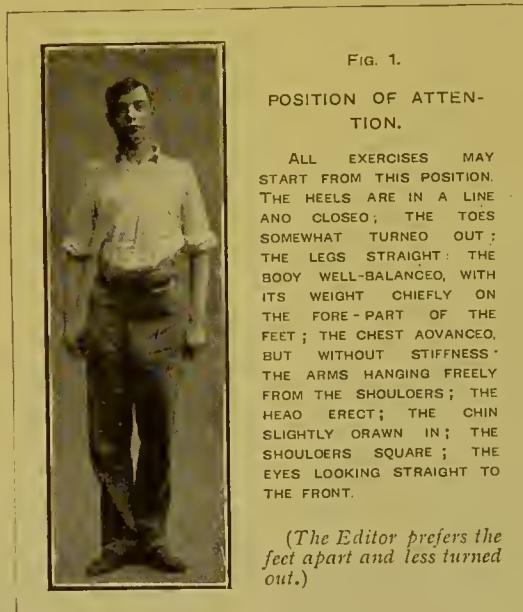




FIG. 2.



FIG. 3.

COMMENCING POSITIONS.

THE BOY SHOULD BECOME THOROUGHLY FAMILIAR WITH THESE POSITIONS. WE SHALL EXPLAIN THEM AND THEIR VARIOUS OBJECTS.

FIG. 2.—"FEET CLOSE."

KEEP THE LEGS STRAIGHT, AND CLOSE THE FORE-PART OF THE FEET BY TURNING ON THE HEELS.

FIG. 3.—"FEET OPEN."

SEPARATE THE FORE-PART OF THE FEET BY TURNING ON THE HEELS. COMBINE THESE MOVEMENTS WITH A SLIGHT PAUSE BETWEEN THEM. THIS EXERCISE INCREASES THE MUSCULAR POWER OF THE HIP-JOINTS.

sionally played games with them. She asked not one word about the hygiene of the school or the exercise of the boys. She "loved" the boys, but she hated knowledge. As a rule, however, parents do not go even to that trouble to inquire about these apparently petty and commonplace details. What ordinary school does not fulfil these conditions? Generally parents choose schools according to locality, high name, and so on.

But in this chapter we are going to begin by telling parents and masters of a few tests which not one out of a thousand thinks of applying. We shall not beat about the bush; we shall simply tell them that to ignore such tests is a close approach to criminality. They are responsible for the children at that early age. It is not as if they gave the children any voice in their own management—

they do not. They map out the whole of the child's life, except such parts of the life as the child manages to spend in private and to conceal in public. The responsibility is terrible. Hitherto it has weighed lightly on the shoulders of these orthodox ladies and gentlemen. Now let it weigh heavily, and crush them into a little common sense. For the first thing that common sense will bring is the destruction of that paralysing complacency which many parents and masters display with regard to the lives which are in their hands. It seems sufficient for them that most other masters and parents are failing to produce much better results.

Let us put it personally. You, parents, for some I can hardly call mothers, will admit that one of the most important things in life is a sound body, if only for the sake of a sound intellect and sound morals; if not for its own sake also and for the sake of the family and the race. What is the most important part of the sound body? Probably among the five

most important things is the breathing. Has your son a good breathing capacity? We say without hesitation that ninety-nine of you out of a hundred do not know at all. Mind, it is not the same as the size of the chest or even the same as the expansion of the chest, though that is



FIG. 4.—"HIPS FIRM."

PUT YOUR HANDS ON YOUR HIPS, WITH THE FINGERS TO THE FRONT, THE THUMBS TO THE BACK. PRESS THE ELBOWS SLIGHTLY BACK. BRACE THE SPINE WELL UP. THIS HELPS TO MAINTAIN AN UPRIGHT BODY AND SQUARE SHOULDERS.



FIG. 5.—"FEET ASTRIDE."

CARRY EITHER THE RIGHT OR THE LEFT FOOT ITS OWN LENGTH TO THE RIGHT OR THE LEFT. THIS MAKES THE VARIOUS EXERCISES MORE DIFFICULT IF IT IS USED AS A COMMENCING POSITION. FOR EXAMPLE, BEND THE KNEES FROM THIS POSITION OR STRETCH FROM THIS POSITION, AND YOU WILL FIND IT HARDER THAN FROM THE ORDINARY COMMENCING POSE.

a better test. A real test is how much oxygen the boy can inhale to purify and invigorate his whole system. Of course, much depends on the size and the build of the boy. Still, the matter is worth going into at regular intervals. If he has an abnormally small capacity, look to it. Teach him to breathe deeply and fully

through the nostrils. That is one of the important duties of mastership and motherhood.

And, to turn aside for a moment, people must know simple things like this before they have any right to become parents at all—that is to say, while they are still boys and girls—for the sake of themselves and their possible children. Are lungs indecent or immodest? No. Then attend to them until they become normal. If they are indecent or immodest, make them decent.



FIG. 6.—"FOOT FORWARD."

CARRY THE RIGHT FOOT ABOUT TWELVE INCHES TO THE FRONT WITH KNEES STRAIGHT, SHOULDERS SQUARE, AND BODY WELL-BALANCED ON BOTH FEET. THIS MAKES LEG AND HIP MOVEMENTS, AND ALSO TRUNK MOVEMENTS, MORE DIFFICULT.

Then what is the state of your son's heart? Here we admit you are in difficulty, for the Editor knows of a case where a boy who wished to enter the army received six different opinions about his heart, and five utterly different pieces of advice from six expensive, if not celebrated, physicians. But, at any rate, the heart has to be looked to, for, as Sir Lauder Brunton says, to let a child take violent exercise merely because that child is big, without regard to the power of the heart to pump fresh blood to the muscles and to pump foul blood away, may be disastrous. Then—and here we come to a really vital matter on which we demand that the nation shall be instructed—has the child pure blood? Or is the blood weak, and perhaps at the same time clogged? The nation is right to demand information of the simplest and most authoritative kind from those who control

the destinies of a large proportion of its children. We are not aware that Government takes or proposes to take any single step to instruct any single person as to any test of comparatively pure blood.

These are three essential matters—the lungs, the heart, and the blood. We are perfectly certain that examinations can be made in the home so tactfully that, without morbid care—which we abominate—the child would be brought to take a reasonable interest in its body and feel



FIG. 7.

"HEELS RAISE."

RISE AS HIGH AS POSSIBLE ON THE TOES, KEEPING THE BODY AND LEGS STRAIGHT AND THE KNEES TOGETHER. THIS ACTS CHIEFLY ON THE CALVES OF THE LEGS AND THE ANKLE-JOINTS, AND GIVES BALANCE TO THE BODY.

its responsibility to those myriad little cell-lives which Virchow has proved to be at work so faithfully within. They are the boy's kingdom of health; over them he is, theoretically, king; but, till he reaches years of discretion, he is under the supposed mercy of his elders and

and, in order to answer those questions, consider the simplest helps to fitness and the simplest tests of fitness and its opposite.

Children, if this should be allowed to reach your eyes, never mind if occasionally parents or masters snub you. Eventually you will find someone (it may not



FIG. 8.



FIG. 9.



FIG. 10.



FIG. 11.

HEAD-MOVEMENTS.

FIG. 8.—“HEAD FORWARDS BEND.”

THIS, LIKE THE FOLLOWING EXERCISES, CAN BE DONE IN THE POSITION OF “ATTENTION,” OR “HIPS FIRM,” OR “ASTRIOE.” KEEP THE BODY STRAIGHT AND LOWER THE HEAD TILL THE CHIN TOUCHES THE CHEST, STRETCHING THE BACK OF THE NECK WHILE YOU DO THIS, SO THAT YOU CAN FEEL IT BEING STRETCHED BUT NOT STRAINED. THEN RETURN TO THE UPRIGHT POSITION. DO THESE NECK-MOVEMENTS SLOWLY.

FIG. 9.—“HEAD BACKWARDS BEND.”

KEEPING THE BODY STRAIGHT, CARRY THE HEAD SLOWLY BACK AS FAR AS POSSIBLE, STRETCHING THE FRONT OF THE NECK. RETURN SLOWLY TO THE UPRIGHT POSITION.

FIG. 10.—“HEAD SIDEWAYS BEND.”

KEEPING THE SHOULDERS SQUARE, BEND THE HEAD SIDEWAYS UNTIL THE TOP OF THE HEAD HANGS OVER THE SHOULDER. THE SHOULDER MUST NOT BE RAISED. RETURN SLOWLY TO THE UPRIGHT POSITION.

FIG. 11.—“HEAD TURN.”

KEEPING THE SHOULDERS SQUARE, TURN THE HEAD AND NECK TO THE RIGHT UNTIL THE CHIN IS OVER THE SHOULDER. KEEP THE HEAD ERECT. THEN RETURN SLOWLY TO THE FRONT.

THE OBJECT OF THE HEAD-MOVEMENTS IS TO DEVELOP THE MUSCLES OF THE NECK AND TO MAKE THEM SUPPLE, AND ALSO TO BRING THE CHEST TO THE FRONT, AND, IN THE BACK-BENDING MOVEMENTS, TO RAISE THE CHEST AND STRAIGHTEN THE SPINE.

so-called betters. In their hands rests his future fitness. Let them see to it.

We must preach for a moment.

Parents and masters, be intelligent. Welcome all the questions of children; let the children know that you are their friend, and that you have been a child yourself; be a child once again, without losing sight of the experience of an adult;

be a parent or master at all) who will help you. Ask your questions freely. If you are constipated, for instance, it is less disgusting and improper to ask someone what you are to do than to go on being constipated. This is just a type of question.

There is yet a fourth matter on which science—that is to say, especially the



FIG. 12.



FIG. 13.—CORRECT LUNGE.

STEP OUT SOME 32 TO 36 INCHES ACCORDING TO YOUR HEIGHT, FIRST WITH THE LEFT, THEN WITH THE RIGHT LEG. THE BACK LEG SHOULD BE KEPT PERFECTLY STRAIGHT AND THE BACK FOOT FLAT AND FIRM ON THE GROUND. THE FRONT LEG SHOULD HAVE ITS LOWER PART PERPENDICULAR TO THE FOOT, AND THE TOES STRAIGHT TO THE FRONT. THE BACK HEEL SHOULD BE IN A LINE WITH THE FRONT FOOT.

FIG. 13.—INCORRECT LUNGE.

THE BACK LEG IS BENT AT THE KNEE. THE LUNGE IS MUCH TOO SHORT. THE BACK HEEL IS NOT IN A LINE WITH THE FRONT FOOT, AND THE FRONT FOOT IS TURNED IN.

theory of food-analysis—speaks with a very certain voice, but on which the medical profession, as usual, disagrees. That is the question of the right food for boys and girls.



FIG. 14.



FIG. 15.

TRUNK MOVEMENTS.

THESE MOVEMENTS CAN BE DONE WITH THE HANDS ON THE HIPS ("HIPS FIRM"), "ASTRIDE," "NECK REST," OR RIGHT OR LEFT FOOT FORWARD. THESE POSITIONS SOMEWHAT INCREASE THE DIFFICULTY, AS THE TRUNK-MOVEMENTS ARE EASIEST FROM THE POSITION OF ATTENTION.

FIG. 14.—"TRUNK FORWARD BEND."

BEND FORWARD, KEEPING THE BACK STRAIGHT. BEND SLOWLY FROM THE HIPS, FORCING THE CHEST WELL TO THE FRONT. THEN RETURN SLOWLY TO THE ERECT POSITION.

FIG. 15.—"TRUNK BACKWARD BEND."

FIRST LET THE HEAD GO BACK. THEN SLOWLY BEND THE TRUNK BACK FROM THE HIPS. RETURN SLOWLY TO THE ERECT POSITION.

Now science has dared to lay down laws as to what are the right proportions of the various elements in food for children of various ages. Here is a table:—

Dr. A. M. Davies, M.R.C.S., says that an ordinary man requires daily:—

When at rest, 2½ oz. of Proteid (1 oz. of Fat, 12 oz. of Carbo-hydrates, $\frac{1}{2}$ oz. of "Salts").



FIG. 16.



FIG. 17.

FIG. 16.—"ARMS UPWARD STRETCH."* SWING THE ARMS UP ABOVE THE HEAD WITH THE PALMS FACING FORWARDS. TAKE AN INWARO BREATH THROUGH THE NOSTRILS AS YOU DO THIS MOVEMENT

FIG. 17.—"TRUNK FORWARD BEND."

BEND RIGHT FORWARDS AS YOU LET THE BREATH OUT, KEEPING THE CHIN IN, THE BACK AS FLAT AS POSSIBLE, AND THE LEGS STRAIGHT.

Doing ordinary work, 4½ oz. of Proteid (3 oz., 14 oz., 1 oz., as above).

Doing hard work, 6½ oz. of Proteid (5 oz., 16 oz., 1½ oz., as above).

A boy requires far less, absolutely, since he weighs so much less, but far more Proteid, in proportion to Fat and Carbo-hydrates, since he is growing, as well as repairing waste.

We have never yet seen any table that asserted the importance of elements beyond these. And all these are to be obtained from, simpler foods, if we choose sensibly and cook sensibly.

* The Editor prefers to use each side in turn, with the other side relaxed.



Fig. 18.

FIG. 18.
"TRUNK SIDEWAYS
BEND."

THIS CAN BE DONE
FROM THE POSITION OF
ATTENTION, "FEET CLOSE,"
OR "NECK REST."

BEND THE TRUNK FROM
THE HIPS AS FAR AS POSS-
SIBLE, FIRST TO THE RIGHT,
THEN TO THE LEFT. KEEP
THE LEGS STRAIGHT, THE
SHOULDERS SQUARE TO THE
FRONT, AND THE CHIN IN.
RETURN SLOWLY TO THE
UPRIGHT POSITION.



Fig. 19.

FIG. 19.
"TRUNK TURN."

THIS CAN BE DONE
FROM THE POSITION OF
ATTENTION, "FEET CLOSE,"
"NECK REST," OR HANDS
ON HIPS ("HIPS FIRM").

KEEPING THE HIPS
RIGID, TURN THE TRUNK
TO THE RIGHT UNTIL THE
SHOULDERS ARE SQUARE IN
THAT DIRECTION. HAVE
THE LEGS STRAIGHT AND
THE FEET FIRM. THEN RE-
TURN AGAIN TO THE FRONT
AND DO THE MOVEMENT TO
THE OPPOSITE SIDE. KEEP
THE CHIN REASONABLY IN.

THE OBJECT OF THE
TRUNK-MOVEMENTS IS TO
DEVELOP THE MUSCLES OF
THE LOINS, CHEST AND
WAIST, AND ALSO TO GIVE
SUPPLENESS TO THE SPINE.

We suppose that no well-known authority on food-values would question its general accuracy. If we were to criticise it, we should say that it takes too little account of the chemical "salts," which not only help to digest the food, build the body, neutralise poisons, and excrete waste-products, but also perhaps have several functions which science does not yet recognise. In general, however, the table may be taken as representing the present state of theoretical knowledge.

Very well, then, what foods supply the protein, carbo-hydrates, fats or oils, "salts," and water, as well as a certain amount of cellulose or fibre in the right proportions? Does one in a hundred parents or masters know or take

the trouble to find out by purchasing a shilling book on the subject? No; the fathers have eaten acid meat, and children's instincts are set on edge by a similar diet. Here are four vital matters: breathing-capacity, heart-power and heart pace, purity and strength of blood, purity

FIG. 20.

FIG. 20.
"ARMS
SIDEWAYS
RAISE."

RAISE THE
ARMS SIDEWAYS
IN A LINE WITH THE SHOULDERS. THE ARMS SHOULD
BE WELL STRETCHED OUT AND THE SHOULDERS
PRESSED BACK. THE MOVEMENT IS MORE SEVERE IF
THE PALMS ARE HELD UPWARDS. RESUME THE POSITION
OF ATTENTION AND REPEAT THE MOVEMENT.
INHALE THROUGH THE NOSTRILS WHEN YOU RAISE THE
ARMS. EXHALE THROUGH THE MOUTH WHEN YOU
LOWER THEM.

(THE EDITOR WOULD PREFER OFTEN TO MOVE EACH
ARM IN TURN, WHILE THE OTHER HANDS RELAXED.)

ARM-RAISING
AND
SWINGING.

FIG. 21.

FIG. 21.—"ARM FORWARD AND UPWARD RAISE."

KEEPING THE ARMS PERFECTLY STRAIGHT, SWING THEM SMARTLY TO FRONT AND REAR TILL
THE RIGHT HAND IS AS HIGH AS THE SHOULDER AND THE LEFT AS HIGH AS THE WAIST. THEN
BRING BOTH HANDS TO POSITION OF ATTENTION, AND REVERSE THE SWING. AS YOU SWING
YOUR RIGHT ARM FORWARD, TURN YOUR BODY ON THE HIPS TO THE LEFT, AND VICE VERSA.



FIG. 22.



FIG. 23.

FIG. 22.—ARM-SWINGING

SWING THE ARMS ABOVE THE HEAD WITH THE PALMS INWARDS. THEN SWING THE ARMS FREELY AND SHARPLY TO THE REAR WITHOUT BENDING THE ELBOWS MORE THAN YOU CAN HELP. SWING THEM DOWN AND CLOSE TO THE THIGHS. THEN RETURN TO THE FIRST POSITION. REPEAT THIS MOVEMENT THREE TIMES, AND AT THE FOURTH TIME MAKE THE HANDS MEET SHARPLY BEHIND THE BACK AS IN FIG. 23. THIS EXERCISE WIDENS THE CHEST AND DEVELOPS THE MUSCLES OF THE ARM, NECK, AND SHOULDERS, THE CIRCULAR MOVEMENT LOOSENING THE SHOULDER-JOINTS. (SEE NOTE TO FIG. 20.)

and proportion of food-elements. On such matters children are left uneducated. Posterity will record it as a standing disgrace to whatever Government happens to tolerate such a neglect of responsibility. We can imagine no more severe indictment of a Party than that it allowed members of the nation to grow up, so far as it was concerned, in complete ignorance as to how to breathe, how to keep the blood pure and strong, to say nothing of how to economise muscular and nervous energy.

But in this chapter our scope is limited. It is chiefly with exercise that we must deal, and, as usual, we have gone to our friend and adviser, Mr. Flynn, asking him for his opinion as to good exercises for most boys; for he has trained boys of all kinds, and he has a boy of his own. In these respects he must be considered as higher authority than the Editor. We now cite his suggestions, with occasional additions of our own.

ARM-BENDING



FIG. 24.

AND STRETCH-ING.



FIG. 25.



FIG. 26.



FIG. 27.

RAISE THE FORE-ARMS TILL THE HANDS ARE IN FRONT OF THE SHOULDERS. CLENCH THE HANDS WITH THEIR PALMS TOWARDS YOU, AS IN FIG. 24. (HERE, AND IN MANY OF THE FOLLOWING MOVEMENTS, THE EDITOR WOULD PREFER OFTEN TO EXERCISE EACH ARM INDEPENDENTLY WHILE THE OTHER HANGS RELAXED.)

EXTEND THE ARMS OUTWARDS AS IN FIG. 25. BRING THEM BACK TO THE POSITION OF FIG. 24.

EXTEND THE ARMS UP ABOVE THE HEAD WITH THE FINGERS STRETCHED OUT, AS IN FIG. 26. BRING THE ARMS SMARTLY DOWN TO THE POSITION OF FIG. 24.

EXTEND THE ARMS STRAIGHT TO THE FRONT, AS IN FIG. 27. BRING THE ARMS BACK TO THE POSITION OF FIG. 24 WITH FISTS CLENCHED. STRAIGHTEN THE ARMS DOWN TO THE POSITION OF ATTENTION.

Many books have been written on training for men ; few have even touched on fitness for boys, at any rate in a practical way. Indeed, one well-known trainer of men, Harry Andrews, considers that no boy under nineteen should train. Then, he proceeds to say, "under that age the more exercise and sports the boy goes in for, the better." He really means that no boy under nineteen should train violently; but we take his statement as it stands, not as his view, but as a common view. It represents the common or garden or city manner of dealing with children. Don't train them, but set them first to severe work of body and brain, or perhaps brain and body. Don't train them well ; don't feed them carefully ; never mind about their emotions, their interests ; let them play ; and let them, perhaps, in the excitement of play—which surely is as powerful a stimulant as alcohol—draw freely on their physical capital.

With this very wholesale, yet candid opinion we cannot agree. Take a case in point. Some years ago, at one of the big public schools, a boy, in his plucky endeavour to get through one of the "runs," literally ran himself to death. His heart may have been affected ; but what we wish to emphasise is that, had he been through even a mild course of training, he or his trainer would have discovered his weakness, in which case the run would not have been attempted ; or else, if it was a case of weak physique, he would have been put through the right preparation first, and then would have comfortably performed an otherwise impossible task.

Again, who does not know the pre-

maturely old and obese type of boy, the boy who would want most careful handling to make even a decent show in a donkey race, with someone else to do the whipping-up business ? Is he not to train because he has not reached the magic age of nineteen ? Or, to take the other extreme—Eton *versus* a crack college eight at Henley, the final heat ; Eton, we may suppose, having had a thoroughly



FIG. 28.



FIG. 29.

SECOND EXERCISE.

ARMS UPWARD BEND, AS IN FIG. 24. STRETCH THE RIGHT ARM UPWARDS SMARTLY, WITH THE PALM OF THE HAND TO THE FRONT, THE LEFT HAND HANGING RELAXED AND TOUCHING THE THIGH WITH THE PALM INWARDS, AS IN FIG. 28. BRING THE HANDS AGAIN TO THE SHOULDERS, AS IN FIG. 24. SEND THE LEFT ARM UPWARDS AND RIGHT ARM DOWNWARDS THIS BEING THE REVERSE OF FIG. 28 (SEE FIG. 29). BRING THE HANDS SMARTLY AGAIN TO THE SHOULDERS (FIG. 24). STRAIGHTEN THE ARMS DOWN TO THE POSITION OF ATTENTION.

good drilling earlier in the day to win their heat. How, may we ask, can these boys do their forty to the minute, some of them under nineteen, without training, against men their seniors in years and stamina, and—as is frequently the case—give them a handsome hiding ? Surely the mere fact of their being able to do so is sufficient proof of the advantage of some training.

Again, the more a boy knows of his anatomy in general, and especially of his muscles, which he can feel and see,

TRUNK- AND ARM-MOVEMENTS.



FIG. 30.



FIG. 32.



FIG. 31.

FIRST EXERCISE.

FIG. 30.—RAISE THE RIGHT ARM SIDEWAYS TO THE RIGHT UNTIL IT IS PERPENDICULAR OVER THE SHOULDER, WITH THE BACK OF THE HAND TOWARDS YOUR FACE. DIRECT THE EYES TO THE HAND. THROW THE HEAD BACK. KEEP THE SHOULDERS AS SQUARE AS YOU CAN TO THE FRONT, AND BEND THE BODY WELL OVER TO THE LEFT. LOWER THE RIGHT ARM. RAISE THE LEFT ARM, REVERSING THE ABOVE POSITION. REPEAT THE MOVEMENT.

SECOND EXERCISE.

FIG. 31.—SWING BOTH ARMS UP TO THE RIGHT, TURNING ON THE HIPS, AS IN FIG. 31. SWEEP THE ARMS DOWNWARDS IN FRONT OF THE BODY AND SWING UP TO THE LEFT, REVERSING THE POSITION OF FIG. 30.



FIG. 34.



FIG. 33.



FIG. 35.

THIRD EXERCISE.

STEP WITH THE RIGHT FOOT TO THE ASTRIOE POSITION, KEEPING THE LEGS STRAIGHT, AND PLATE THE FINGER-POINTS ON THE TOES (FIG. 32). STRAIGHTEN THE BODY AND GO TO THE POSITION OF FIG. 33. STRAIGHTEN THE ARMS ABOVE THE HEAD, AS IN FIG. 34.

FOURTH EXERCISE.

KEEPING THE ARMS RAISED, AS IN FIG. 34, MAKE A CIRCULAR SWEEP TO THE LEFT IN FRONT OF THE BODY UP TO THE RIGHT, AS IN FIG. 35, AT THE SAME TIME RAISING THE LEFT HEEL AND THROWING THE WEIGHT UPON THE RIGHT FOOT, AND TURNING THE TRUNK TOWARDS THE LEFT.

THE OBJECT OF THE COMBINED ARM- AND TRUNK-MOVEMENT IS TO WORK MANY PARTS OF THE BODY AT THE SAME TIME. THE MUSCLES GRIEFLY USED ARE THOSE OF THE NECK, THE CHEST, THE BACK OF THE THIGH, AND THE ABDOMINAL MUSCLES. (SEE NOTE ON FIG. 20.)

and also some plain facts concerning those which are out of sight and out of touch, the more can he benefit his all-round physical welfare if he likes. Add to this a knowledge of how he may become at once supple and strong and of good lung-power; add some quite elementary knowledge of food-values, and then tell me, if you dare, that all this vast improvement in his power and in his intelligence is to be thrown on one side because the age limit has not been reached. We fancy that no one who has thought out the matter, even from the boy's point of view, would assert this.

The pity of it is that by such excellently straightforward people as our schoolmasters so loose a negligence should be tolerated. For we emphatically insist that a man should train during every part of his life, if he wishes to get the most out of his life—the most enjoyment alone, if you like. Let him take Shakespeare's seven ages as a guide. Let him knock out the muling and puking, and also the somewhat uninteresting old person "*sans everything*." Let him simply devise a scheme

of training best suited for his own special case in the other stages, and we can guarantee him, from our personal experience, to be in considerably better fettle at the fifth stage than the noble exponent of justice therein recorded.

Of course, the whole thing hangs on



FIG. 36.



FIG. 37

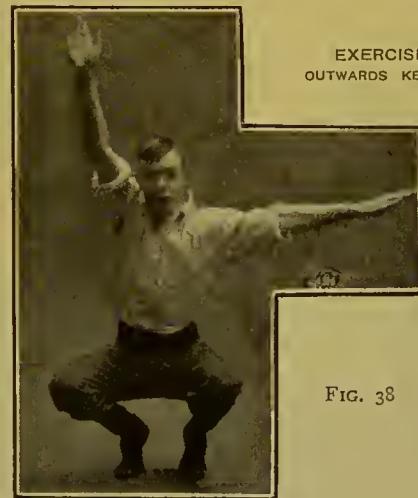


FIG. 38

LEG-MOVEMENTS.

EXERCISE I.—HEELS RAISE, AS IN FIG. 36. BEND THE KNEES OUTWARDS KEEPING THE BODY AS STRAIGHT AS POSSIBLE. COME TO THE POSITION OF ATTENTION. (SEE FIG. 1).

LEG-MOVEMENTS WITH ARM-RAISING.

EXERCISE II.—HEELS RAISE (FIG. 37). KNEES BEND AND ARMS RAISE. COME TO THE UPRIGHT POSITION, BRINGING THE ARMS TO THE SIDES.

EXERCISE III.—HEELS RAISE. KNEES BEND, AND EXTEND THE LEFT ARM OUTWARDS, RIGHT ARM UPWARDS, AS IN FIG. 38. COME TO THE UPRIGHT POSITION, BRINGING THE ARMS TO THE SIDES.

THESE EXERCISES WORK THE MUSCLES OF THE LEGS AND ALSO THOSE OF THE FRONT OF THE THIGHS AND OF THE NECK, BACK, AND LOINS, TO KEEP THE EQUILIBRIUM. THEY CAN BE DONE WITH HANDS ON HIPS OR HANDS ON HIPS ASTRIKE.

the one word "training" and what it means.

Now what most men understand as training consists in going without pastry, potatoes, alcohol, and tobacco, taking a great amount of hard exercise, and fervently looking forward to the day of the race, match, competition, or whatever they are in for, to put an end to their purgatory and to their nervousness,

popularly known as "the needle." In plain language, they do not care how soon it is over, so that they may go back to their ordinary life and diet, with a few extras thrown in, such as late hours and the stimulating effect of the Lounge at the Empire.

How can this state of affairs be altered? Probably only in one way, by our catching the young before they have had time to cultivate acquired tastes for wrong foods and drinks and thoughts. There is only one easy way of getting to the root of this unnecessary growth of false tastes.

We say "false," for a healthy boy does not naturally like smoking and spirit-drinking at first. It is his wrong idea of what is manly. That is the primary cause, unless he is the son of a dipsomaniac, and then he will like the pungent taste of spirits. What is



FIG. 39.

FIG. 40.

LUNGEING WITH ARM-MOVEMENTS.

EXERCISE I.—FIG. 39. LUNGE TO THE RIGHT, IN THE WAY ALREADY DESCRIBED: SWING THE RIGHT ARM OVER THE HEAD, BUT KEEP THE LEFT HAND ON THE HIP, THROW THE HEAD WELL BACK, AND LOOK AT THE RIGHT HAND. PUSH OFF THE GROUND WITH THE RIGHT FOOT. BRING THE RIGHT HAND TO THE SIDE, AND COME BACK TO THE POSITION OF ATTENTION. THIS EXERCISE AIDS THE CHEST-DEVELOPMENT AND ALSO BRINGS THE ABDOMINAL MUSCLES PROMINENTLY INTO PLAY.

EXERCISE II.—FIG. 40, AND RETURN, AS IN EXERCISE I.



FIG. 41.

FIG. 42.

FIG. 43.

BALANCE MOVEMENTS

THESE CAN BE DONE WITH HANDS ON HIPS OR "NECK-REST."

KEEPING THE BODY PERFECTLY UPRIGHT, RAISE THE RIGHT LEG OUTWARDS AND UPWARDS AS FAR AS POSSIBLE, AS IN FIG. 41. BRING THE HEELS TOGETHER, AND RESUME THE POSITION OF ATTENTION. DO THE EXERCISE WITH THE LEFT LEG.

LEG-SWINGING.

GRASPING A CHAIR, AS IN FIG. 42, AND KEEPING THE BODY PERFECTLY ERECT, SWING THE RIGHT LEG AS FAR AS POSSIBLE TO THE REAR, NOT BENT, AND WITH THE TOE POINED AWAY DOWN. SWING THE RIGHT LEG TO THE FRONT, AS IN FIG. 43, RAISING IT AS HIGH AS POSSIBLE, AND KEEPING THE BODY ERECT. DO THIS WITH THE LEFT LEG.

THESE EXERCISES BRING INTO PLAY THE MUSCLES OF THE BACK, CHEST, AND ABDOMEN. BY IMPROVING THE BALANCING POWER THEY HAVE AN EXCELLENT EFFECT ON THE GENERAL CARRIAGE OF THE BODY.

SHOULDER-EXERCISES.

FIRST EXERCISE.

RAISE THE ARMS, CLENCHING THE HANDS WITH THEIR PALMS UPWARDS. THEN EXTEND THE ARMS OUTWARDS. REPEAT THE MOVEMENT.

(THE EDITOR WOULD AGAIN PREFER, IN THIS AND THE FOLLOWING EXERCISE, OFTEN TO MOVE EACH ARM IN TURN, KEEPING THE OTHER RELAXED AT THE SIDE.)

SECOND EXERCISE.

TAKE THE POSITION SHOWN IN FIG. 44 AND STRAIGHTEN

THE ARMS TO THE FRONT (FIG. 45), THEN CLENCH THE FISTS, AND DRAW THE ARMS AS FAR BACK AS POSSIBLE (FIG. 46). REPEAT THE MOVEMENT, AND COME TO ATTENTION.



FIG. 45.



FIG. 44.



FIG. 46.

our remedy ?
The answer is short — a pure diet. Give a boy that to

start with ; handicap him how you like otherwise. Put him in a dull office, penalise him, and you will still find him leading in the last lap of this stern race of life. Why leading ? Because he has good blood in his body. He does not desire to eat forbidden fruit, and that gives him an enormous start from the very first.

Consider this momentous question for a little, you heads of our great schools, whose chief thought is the school honour and the big scholarships and prizes you hope to see flatteringly alluded to in that often very hollow function, Speech Day.

Burn indelibly into your minds that this food-question is something more advanced, yet more elementary, something higher and deeper, than all your teaching of the classics, expert as that may be ; for it affects generations yet unborn.

Give the matter, therefore, the full power of your brilliant intellects ; thrash out this problem of diet as a means of building boys up to a better all-round standard, the boys to whom

you stand *in loco parentis* ; be practical ; come down from your pedestals ; be human. Try yourself, as more than one great public schoolmaster has done with benefit to himself, and as some of the



FIG. 47.



FIG. 48.

THIRD EXERCISE

TAKE THE POSITION SHOWN IN FIG. 46. THEN LUNGE OUT TO THE RIGHT, AND STRIKE OUT VIGOROUSLY FROM THE SHOULDER WITH THE LEFT FIST, LETTING THE SHOULDER DO WELL FORWARD. THEN DRAW BACK THE LEFT ARM, AND HIT OUT WITH THE RIGHT. CONTINUE ALTERNATELY. (THE EDITOR WOULD PREFER TO KEEP THE HAND RELAXED TILL IT IS WANTED FOR THE BLOW.)

FOURTH EXERCISE.

TAKE THE POSITION SHOWN IN FIG. 46. LUNGE TO THE LEFT, AND HIT OUT VIGOROUSLY WITH BOTH FISTS, AS IN FIG. 47. THEN BRING THE ARMS BACK TO POSITION. REPEAT. THIS EXERCISE HAS A GOOD EFFECT ON THE SHOULDER-BLADES, AND TENDS TO EXPAND THE CHEST AND RENDER IT FLEXIBLE. THE LEO-MUSCLES ARE ALSO BROUGHT INTO PLAY WHEN THE LUNGE IS MADE.

SPECIAL EXERCISES.



FIG. 49.

FOR BACK, LOINS,
AND SHOULDERS.

FIG. 49.—THE "COMBINATION PULLEY-WEIGHT AND ROWING-MACHINE," BY SPENCER, HEATH, AND GEORGE. THE PUPIL MUST DO THE EXERCISES IN CORRECT FORM, OR THE WHOLE OF THE STRAIN COMES ON A FEW STRONG MUSCLES, AND THE WEAK MUSCLES DERIDE BENEFIT. THE POSITION HERE SHOWN IS SIMILAR TO THAT IN ROWING, AT THE BEGINNING OF THE STROKE.

NOTE.—BACK IS STRAIGHT, SHOULDERS DOWN, AND BODY SWUNG WELL FORWARD BETWEEN LEGS.



FIG. 50.

FIG. 50.—LEG-ACTION OF SLOPE, IN WHICH THE EXTENSOR MUSCLES OF THE THIGH AND TRUNK ARE BROUGHT MORE INTO PLAY. HANDS SHOT WELL OUT TO THE FRONT, AND THE BODY IS JUST COMING FORWARD FOR THE NEXT STROKE. BOTH THESE MOVEMENTS ACT POWERFULLY ON LEGS, BACK, AND LOINS, AND AS A REMEDIAL AGENT FOR WEAK SPINE.

DEEPENING THE CHEST.

FIG. 51.—SAME MACHINE, USED FOR INTERCOSTAL MOVEMENTS. THE PULLEY-WEIGHTS BEING ABOVE THE HEAD, THE CHEST AND RIBS ARE MOST POWERFULLY RAISED WHEN THE HANDS ARE BROUGHT DOWN ALONG THE DOTTED LINE. THE EFFECT IS TO DEEPEN THE CHEST.



FIG. 51.

first thinkers and scholars have done. We appeal to you as thinkers, as moralists, as scientists, to give your boys a better start, or—shall we put it in another way?—a less heavy handicap.

Give them simpler foods, which need not be any the less nourishing or tasty for their simplicity. Do away with as



FIG. 52.

TRICEPS, BACK, SHOULDER, AND CHEST MOVEMENTS.

TAKE UP POSITION AS SHOWN IN FIG. 52, WITH THE BACK NOT TOO HOLLOW, THE LEGS STIFF, AND THE HEAD WELL UP.



FIG. 53.

BEND FORWARD, AS IN FIG. 53, AS FAR AS IS POSSIBLE, WITHOUT STRAINING, KEEPING THE HEAD WELL UP. FROM THIS POSITION PRESS UP TO THAT OF FIG. 52. THE ABOVE MUSCLES ARE POWERFULLY BROUGHT INTO PLAY IN THIS EXERCISE.

many stimulants as you can; for the boys, so science tells us, do not require stimulants. Interest the boy in the matter. Have a special table where simpler foods, well chosen and well cooked, may be served to those boys whose parents consent, *for at least one meal a day*. See how this works. If it succeeds on a small scale, go further ahead. If it fails, try to fathom your mistake,



FIG. 54.



FIG. 55.



FIG. 56

MOVEMENTS FOR THE SPINE, TRICEPS, AND ABDOMEN.

TAKE THE POSITION OF FIG. 54. FROM THIS PRESS UP TO POSITION SHOWN IN FIG. 55, ARCHING THE BODY AND THROWING THE HEAD WELL BACK. THE PART CHIEFLY EXERCISED IS THE SPINE.
LIE ON THE BACK WITH THE HEAD SUPPORTED. LIFT THE LEGS STRAIGHT, AS IN FIG. 56, NOT BENT. NOTICE THE POSITION OF THE HANDS.

for probably you have made one ; science has already nearly proved that.

And you, boys, just one straight lead from the shoulder to you. Don't funk a bit of an uphill game at first. Remember, men are all creatures of habit ; else how is it one hears of men crying when they come *out of* prison ? Get the right tastes, the right desires, and there-

fore—for nothing will help you more—the right diet.

As an excellent contemporary magazine, *Physical Education*, remarks, begin to train your child from the nursery. This is sound advice, and should be more generally followed. The experience of most instructors is that physical training is utterly neglected in a child's earlier



FIG. 57.



FIG. 58.



FIG. 59.

NECK-MOVEMENTS.

TAKE THE POSITION SHOWN IN FIG. 57, LETTING THE HEAD GO WELL FORWARD. NOW USING THE NECK ONLY, FORCE THE PULLEY-WEIGHTS BACK INTO THE POSITION SHOWN IN FIG. 58. THIS IS AN EXCELLENT MOVEMENT FOR A WEAK NECK OR "POKE" OF THE HEAD.

TAKE THE POSITION SHOWN IN FIG. 59, LETTING THE HEAD GO WELL BACK. BRING THE HEAD FORWARD AS FAR AS POSSIBLE, PUSHING AGAINST THE ARM, AND USING THE NECK ONLY.



FIG. 60.



FIG. 64.

EXERCISES
WITH TERRY'S
PATENT
"HERCULES"
EXPANDER.

MOVEMENTS FOR DEVELOPING THE
DORSAL MUSCLES.

TAKE THE POSITION OF FIG. 60, THEN FORCE THE STRETCHER DOWN TO THE LEG KEEPING THE ARM AS STRAIGHT AS POSSIBLE, AS IN FIG. 61. THESE MUSCLES ARE ESPECIALLY BROUGHT INTO PLAY IN ROPE-CLIMBING AND PULLING MOVEMENTS.

BICEPS MOVEMENT

PLACE THE RIGHT FOOT FIRMLY IN THE HOLE OF THE STRETCHER, AND BRING THE EXPANDER UP TO THE POSITION OF FIG. 63. THIS IS ONE OF THE "BEST POSSIBLE" MOVEMENTS FOR THE BICEPS. DO IT WITH THE LEFT HAND.

OBLIQUE ABDOMINAL MOVEMENTS.

PULL THE STRETCHER ACROSS THE BODY, AS IN FIG. 62, WORKING THE OBLIQUE ABDOMINAL MUSCLES. THE LEFT HAND SHOWS THE MUSCLES WORKED. KEEP THE ARM AS STRAIGHT AS POSSIBLE WHILE YOU ARE DOING THE MOVEMENT.



FIG. 63.

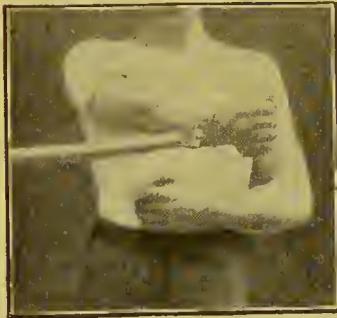


FIG. 62.

FOR DEVELOPING SHOULDER AND TRICEPS MUSCLES.

EXTEND THE ARMS OUTWARDS AS IN FIG. 64. TAKE CARE NOT TO ALLOW THE STRETCHER TO JERK BACK IN RETURNING TO THE BENT-ARM POSITION ON THE SHOULDERS, BUT KEEP THE MOVEMENT SMOOTH AND EVEN.

years ; the result is the survival of the fittest. Suppose a child has any malformation. The family doctor is consulted, and his verdict is generally either, "He will get right in time," or "Feed him up." Probably it is in this very feeding up, in this stuffing and stodging without regard to proportions of food, that the mischief lies. It is this upset balance that helps to make the child inert, and causes him to walk and sit and stand in faulty positions which are in their turn a cause of many malformations.

We will suppose the boy to have just left home or some small school for one of

the big schools. His age, we will say, is twelve or thirteen. Well, what scientific training does he find there ? Let him be a strong boy of good nerve and pluck. In that case he probably gets more than his fair share of attention. He possibly goes into the gymnastic eight, and represents his school at Aldershot. In this case, of what does his work consist ? Mostly of what is known among gymnasts as strong work on fixed apparatus, horizontal bar, parallel bars, and ladders. This strong work has its uses. It gives the boy determination and a certain power of overcoming difficulties ; but, as it is

rarely accompanied by mass exercises, by breathing, by relaxing—things very useful in rendering the limbs supple—the most that can be said for it is that he gets some slow strength at an age when he is ill-fitted to bear the strain. Perhaps he has a certain knack of balance and co-ordination; that is something. But he acquires neither a well set-up body nor an all-round activity, unless he is specially endowed by Nature.

And as to the remnants, the boys who are not of fine physique, the boys who want the most thoughtful training of all? Well, they are left, very much left. They still go on trying the upstart, the slow uprise, etc., and the usual old routine, until they either get in a higher form or leave the school just when they might do themselves some good. Of course, it will be said that they get plenty of cricket, football, runs, and so on. Granted, but how about the weak ones, the boys who feel that they are weak, and know they are not a match for their fellows, and generally, if left to themselves, would almost as soon go to a dentist's as to a football field? What of these? There are such boys; these are the boys we wish to cater for, and they are the boys about whom the parents are most anxious; for here, strange to say, the parent is almost right.

These are the boys who want the "patent medicines" of physical culture, who want teaching individually under competent personal supervision. And why should they not be so taught? Surely, in all conscience, the fees at most big schools are heavy enough. It is scandalous that someone should pocket the money and then teach the boys by the yard, as if they were pigs put into a machine and turned out as sausages and hairbrushes at the other end.

These are the boys who want touching

up—here with an expander, there with a grip dumb-bell (for it has its uses), and, when strong enough, with fixed apparatus, by all means. But, in the name of common sense, do give these poor boys a chance. Let them, at least, be gradually led up to what you wish them to do, not rushed into Homer before they know Greek, or Vergil before they know Latin; for that is about the state of things now.

Of course, the difficulty with the boys who are not strong and who wish to do advanced work beyond their strength has to be got over; that is the task of the instructor. There are many ways. Take the case of a very feeble boy whom the writer recently trained. He had been through the usual school routine—that is, he attended with his class, but, as he confided to the writer, he had never done

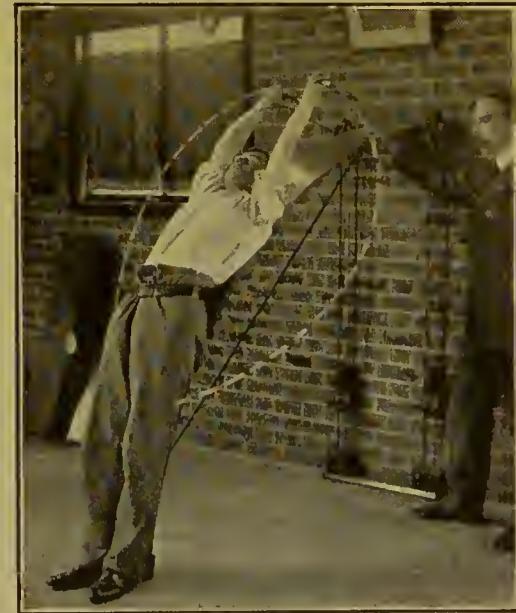


FIG. 65.

THE QUARTER-CIRCLE.

TAKE THE POSITION OF FIG. 65, CIRCLING THE ARMS ROUND ALONG THE OOTTEO LINE. THIS IS ONE OF THE BEST CHEST-EXPANDING MOVEMENTS, AND IS ALSO MOST USEFUL AS A SPINAL MOVEMENT, THE CURVE OF THE APPARATUS HAVING A STRAIGHTENING EFFECT ON THE SPINAL COLUMN.

anything; he "simply could not." He hated the whole of the life. What was to be done with a boy of this type? Obviously, fixed apparatus was out of the question. Boxing he fought shy of. Club-work was too much for his brain; he was a very stupid boy (not the only

induced to come to the Gymnasium and "try his strength," on the apparatus.

He came, he saw, he conquered. He climbed up the rope, he circled over the bar, he went along the ladder with bent arms. In fact, he gave his instructor such a practical illustra-



FIG. 66.



FIG. 67.



FIG. 68.

BREATHING EXERCISES.

FIRST EXERCISE.

PLACE THE HAND AS IN FIG. 66. TAKE A DEEP AND FULL BREATH THROUGH THE NOSTRILS, USING THE HAND TO RESIST THE OUTWARD PRESSURE: EXHALE SLOWLY THROUGH THE MOUTH. THIS EXERCISE, BY SENDING THE DIAPHRAGM DOWN, ENABLES THE BASE OF THE LUNGS TO GET MORE EXPANSION. THE OBJECT OF PRESSING WITH THE HAND IS TO LOCALISE THE MOVEMENT TO THE PLACE REQUIRED.

SECOND EXERCISE.

PLACE THE HAND AS IN FIG. 67 AND INFLATE THE APEX OF LUNGS BY TAKING A FULL AND DEEP BREATH THROUGH THE NOSTRILS, CONTINUING THE PRESSURE OF THE HAND, FOR THE SAME REASON AS BEFORE. NOW EXHALE SLOWLY THROUGH THE MOUTH.

THIRD EXERCISE.—MID-RIB BREATHING.

PLACE THE HANDS AS IN FIG. 68. EXPAND THE RIBS AS MUCH OUTWARDS AS POSSIBLE, AND, AT THE SAME TIME, SEND THE DIAPHRAGM WELL DOWNTOWARD THE FRONT, BREATHING IN THROUGH THE NOSTRILS AND OUT THROUGH THE MOUTH. (THE EDITOR WOULD PREFER NOT TO SEND THE DIAPHRAGM DOWN WHILE HE SENT THE RIBS OUT, IF HE WISHED TO TRAIN THE MID-RIB BREATHING ESPECIALLY.)

one in England), and utterly spoilt by his parents. That was a case requiring some management, was it not? There seemed to be little left besides such "patent medicines" as the grip dumb-bell and the expander and free movements. Well, by carefully explaining how the various muscles were individually worked with the expander, and again dwelling on the beauties of free movements, this young despair worked with such zest that after some months he was one day

tion of Hercules Redivivus that Hackenschmidt and Madrali's catch-and-snap-arm game appeared quite small by the side of it.

This is merely to illustrate how necessary it is to try different methods with different pupils. It would not suit all weak pupils equally. Whatever success the writer may have had he attributes to early struggles with Latin verses, for he there learnt that if they did not work out one way, the best thing to do was to

have a shot at another. He once heard a very distinguished officer attribute his success in getting out of hot corners in the field to the same source. Truly, you never know when the classics *may* be useful.

And now for a few hints in brief.

HOW TO TRAIN.

First approach the matter in the right spirit, determining to do yourself as much good as you can, to make your mind and



FIG. 69.



FIG. 70.



FIG. 71.



FIG. 72.

REMEDIAL EXERCISES.

FIG. 69 SHOWS THE FIRST POSITION OF AN EXERCISE ON THE SPARRED PLANK, WITH ASSISTANCE. THE OBJECT HERE IS TO ENABLE THE CHILD TO SINK WITHOUT STRAIN FROM THE BENT TO THE STRAIGHT ARM POSITION, AND SO TO CORRECT DEFECTS OF CHEST AND SPINE. SEE FIG. 70.

FIG. 71 SHOWS THE SAME CHILD ON THE "QUARTER-CIRCLE," THE OPERATOR DIVING HELP, SO AS TO PREVENT STRAIN.

FIG. 72 SHOWS THE CHILD IN HER USUAL ATTITUDE WHICH NEEDS CORRECTION, VIZ. WITH HER HEAD INCLINED AND DROOPING FORWARD, AND HER SHOULDERS ROUNDED.

body as healthy as you can. Do not covet the big lumps of your neighbour's muscle. Aim at good carriage of body generally, with head well set on straight shoulders. Try to get out of that awful slouch of the average schoolboy. Do not be ashamed to hold yourself straight, any more than you would be ashamed to act straight.

Carefully practise the breathing exercises.

When exercising, remember your object should be to exercise as many large and general muscles as possible each time.

By so doing you will build up the all-round frame.

Then, if you have any weakness, do the special exercises.

For home work, if you have weak forearms, a couple of corks held in the hands have a good effect when you do arm-work.

Another useful plan is to turn on the tap of the bath. Strip naked in the room, and, while the water is running, do breathing and some brisk work. Then, if you have a strong heart, plunge in, rub down, and finish with a few more exercises.

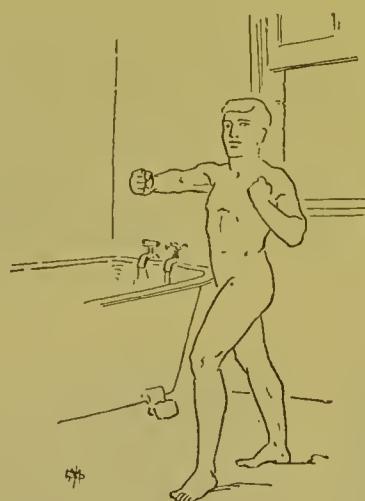


FIG. 73.



FIG. 74.

CHAPTER XXXI.

WHY WE FEEL TIRED.

Some of the illustrations are adapted from Mosso's "Fatigue," others from "The Training of the Body" (Sonnenschein).

Tiredness is an Interesting Starting-point—Advertisements Show This—The General Remedy is not a Sudden Shock, but a New Habit—Recent Researches—We can now Record Part of Fatigue on Paper—A Warning-instrument will be Invented—Effect of Severe Brain-work on Muscular Endurance—Each Individual has his Regular Curve of Fatigue—Work done by Fatigued People is most Exhausting and Expensive—Facts that are Interesting, but not used Practically—Contrast the Facts about Massage and Full Contractions—The Reader To-day and his Trying Conditions—He has Delegated his Exercise—He does not Know how to Extend and Relax his Brain as he Would his Muscles—An Eye-exercise—Prolonged Work—Youth needs Short, Sharp Spells—A Valuable Plan—Why is Dulness Exhausting?—Individuality—Change.

IF you want to find out what interests people to the extent of *leading to action*, look at advertisements. It is amazing to think how nicely and how frequently they must touch the spots of attraction and attention in order to pay for their initial expenses, and to make the profits which the proprietors of this or that juice or tonic or pill do undoubtedly make. It is still more amazing to think that so many newspapers seldom or never touch these spots of attraction and attention, and that orthodox education almost entirely ignores them. We are sure that this chapter must at any rate have the merit of "the familiar starting-point," "the point of contact in teaching," since everyone knows what it is to feel tired in mind and body. Everyone, we suppose, can remember the general impressions which fatigue produced on him when, perhaps, he was dead-beat and still had an hour of work to do or a mile of rough road to walk. Possibly he used a stimulant—tea—and then he seemed to be given a fresh lease of life; possibly he used sheer will-power, and said, "I

shall finish it"; possibly he gave in and did not finish it. However unpleasant the fatigue was, at least it was an experience that had hold of his mind. If only that he may know how to avoid such fatigue in future, the reader would like to hear a little that Science and its instruments can tell us as to what it was

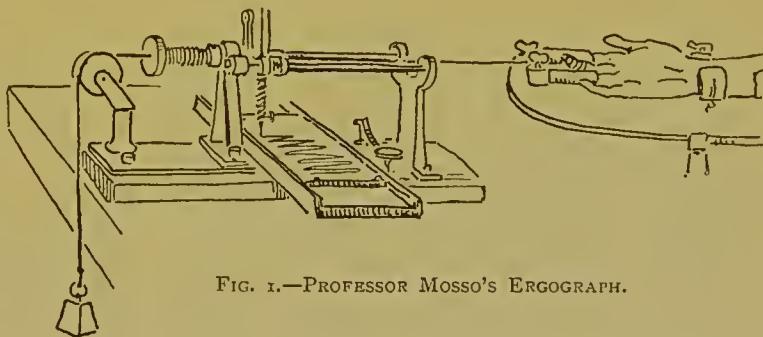


FIG. I.—PROFESSOR MOSSO'S ERGOGRAPH.

that caused the sensation as though some heavy weight were pressing somewhere, perhaps not without pain.

Now it might seem right to begin with some learned statement with regard to nerve-channels and the shocks that are sent along them; or even with the remark that "fatigue is a chemical process" (Mosso). But we prefer the way of advertisements. They are more human at the start. The pity of it is that at the

conclusion they too often are human only in so far as they err.

Advertisements teem with allusions to "that tired feeling" or to brain-fag or to back-ache, or some other ache. About the prevalence of these complaints they are right. About the permanent cure of them they are for the most part wrong. The permanent cure lies rather in new habits than in a few new shocks. The fact of it is that people leave the study of health till too late, when fatigue has become a habit, and is regarded as a matter of course. They do not remember that many causes of fatigue were being built up by mistakes during their youth.

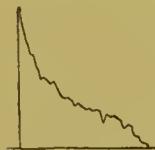


FIG. 2.

DR. MAGGIORA'S CURVE OF FATIGUE.

About these mistakes we are beginning to know more and more every year. Instead of vague ideas as to what our fatigue *is*, we can now record many signs of it on paper; we can register the heart's action, the blood-pressure, the temperature, the breathing, the changes in the writing, and so forth, instead of merely seeing the flushed face, hearing the trembling voice, feeling heavy, aching head.

Though the study is liable to be morbid and neurotic if we carry it to an excess, still it should enable us to find out under what conditions we are or are not fatigued. For example, if one day we eat a large and nourishing meal very fast, then immediately try to do dull work with body or brain, we can calculate part of our fatigue by tracings with the ergograph. Another day we eat a small and nourishing and easily digestible meal very leisurely, then do similar work and make similar calculations. It is not that we are any the more or less really tired because we see or do not see

our fatigue on paper. It is that "seeing is believing," more impressive, more compelling towards reform, than a mere feeling, which we may be told is due to "imagination." Imagination may be a factor, but the processes by which Mosso and other professors have impartially experimented now give us a clear and definite test. It is almost as if—and we believe it will become a reality before long—in addition to our conscience, which vaguely tells us that we are doing wrong, we wore on our wrist a little *vitiometer*, which would "show a disturbed rhythm," or a black or blood-red colour, when we were doing wrong. It is not at all unlikely that we shall be able to wear a tiny instrument telling us that fatigue is beginning and warning us to rest or change, in order that we may supplement our fatigue-conscience, our feeling of incipient weariness, which we too often violate and ignore because it does not impress enough of our senses at once.

FIG. 3.
DR. MAGGIORA'S CURVE OF FATIGUE,
AFTER EXAMINATION WORK.



A vast amount of ingenuity has recently been spent in *analysing* and *measuring* fatigue. While Lavoisier and Séguin showed that with fatigue there was a chemical change, Helmholtz with his *myograph* and Mosso with his *ergograph* have registered the amount of other conditions of fatigue by tracings on a piece of paper. Mosso has shown that in some cases severe brain-work will seriously interfere with the muscular activity and endurance following it. That is a practical point. His ergograph sets before our eyes the tracings which convince us how soon this or that person tires under these or those conditions. Figs. 2 and 3

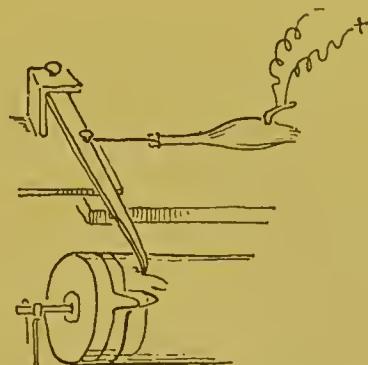


FIG. 4.—MYOGRAPH AND FROG'S MUSCLE, ELECTRIFIED.

show how some collapse suddenly, others gradually. *Each individual has his regular curve* (see the various diagrams), unless the conditions are changed—for instance, the season, or the practice. Another useful point is that when you have 500 movements to make, and begin to feel more and more tired after the first 250, then to continue with the remaining 250 will take far more out of you, will be a far greater strain and tax on you than the first 250 were; whereas if you rested, then did, say, 100 more, then rested again, then did 75 more, then rested again, then finished the number, these 250 would probably be a greater strain than the first 250, but perhaps a smaller strain than the last 50 alone of the 500 done consecutively. Both these points—which need not be of universal application—are useful. But most of the discoveries, fascinating as they are, teach us too



FIG. 5.

CURVE TAKEN BY MYOGRAPH.

little about the thing which we ought to know—namely, how best to *avoid* premature fatigue or exhausting fatigue.

For the labours of these scientists and of others, such as Marey and Kronecker, we have nothing but praise. Their results cannot fail to interest us. But they do not interest us yet to the extent of leading

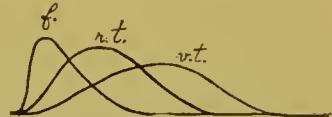
to action. As an example of such results, with which we may compare much of the information in an ordinary text-book of Anatomy or Physiology, let us take a quotation from Mosso's famous researches on Fatigue:—

"Fatigue is a chemical process. . . ; Lavoisier . . . demonstrated that muscular exertion increases the quantity of oxygen absorbed and of carbonic acid eliminated by man."

"When the sciatic nerve of a frog is stimulated [by equal electric shocks], we notice a contraction of the leg. The contraction, upon being repeated a great number of times, becomes more and more feeble. . . . The lack of energy in the movements of a weary man depends, as in the case of a frog, upon the fact that the muscles, during work, produce noxious substances which, little by little, interfere with contraction."

"The proof that we are not here dealing with a phenomenon of deficit is found in

FIG. 6.
THE CONVULSION OF A
MUSCLE.
f., FRESH; *r.t.*, RATHER
TIRED; *v.t.*, VERY TIRED.



the fact that after the frog's leg has been fatigued by prolonged exertion, we can restore its contractility and render it capable of a new series of contractions, simply by washing it. Of course, we do not wash the outer surface, but having found the artery which carries blood to the muscle, we pass through it water in place of blood. But not pure water, which is a poison to all the cells of our organism—a fact which it is well to remember when one has to wash deep wounds. The muscles would swell up and die if pure water were introduced into the circulation instead of blood. Hence a little kitchen-salt is added to the water (seven grammes to a litre), and this solution very closely resembles blood serum. Upon the passage of a current of this liquid through the muscle, the fatigue disappears, and the contractions return as vigorously as at the beginning."

The readers say, "How wonderful! What a marvellous machinery the human body is!" But do they learn to live more sensibly because they know that

"the muscles, during work, produce noxious substances which little by little interfere with contraction"? Or even by the subsequent information as to the effects of washing the artery with a solution of table salt in water? It seems to us that nine-tenths of the truths set forth in text-books do not impel to self-help and self-improvement; they fill the reader and learner with mental food which is not turned into useful work.

On the other hand, the following sentence from Mosso—an exaggeration—is eminently valuable for daily life:—

"We shall see in the sequel, in speaking of massage, that it is only necessary to knead a fatigued muscle well in order immediately to restore the energy which it had before it became fatigued."

Such a statement, or a similar statement, about the effects of full contractions of the muscles, is what we ought to know. It is the sort of statement with which our text-books of Anatomy and Physiology should teem, for it is likely to lead to action in daily life. It is this sort of statement about fatigue that we wish to include in this chapter, rather than a series of statistics without obvious application to our own conduct. Tell a man that "a tired muscle means a poisoned muscle," show him how full contractions of the muscles in both directions will empty the tiny vessels and channels of some of their poison (somewhat as squeezing will empty a sponge), show him how certain forms of massage (kneading, etc.) will serve this purpose also, and tell him, further, how these poisons may arise—by strain-work, by partial contractions, by unfavourable emotions (dejection owing to bad news, etc.), by similar acids taken in with the food—and you put him along the lines of reform. When he gets his writer's cramp, he will try relaxing the muscles, full contractions and mas-

sage, perhaps cheer himself somehow, and look to his diet, and so on. Fatigue is now his kindly physical conscience, his physical *vitiometer*, not "a beastly nuisance," or "awfully hard lines on me."

In other words, we shall try to write humanly for the practical reader.

This is all the more important to-day, when so much of our fatigue seems to be of a comparatively new sort. In days of country-life a man laboured in the fields, and when he felt tired he knew more or less why he felt tired. He rightly reckoned among the causes the muscular work done, and perhaps some circumstances that discouraged him. To-day he has delegated much of his muscular work to servants, to machinery, even to words spoken or written; his work is perhaps to superintend a large piece of machinery composed of minerals or of mankind; his is a nervous strain, intangible. After it, is not the fatigue from a day with the spade, making it a joy to stretch the limbs in bed, but an intangible weariness, elusive to deal with? In bed he could have stretched and relaxed the tired muscles of his legs; but the tired muscles of his mind—how shall he stretch and relax them? He is not educated to do that.

He has not been trained, for instance, to imagine a distant horizon, and so to release the tired muscles of his eye which fix his worrying gaze on the immediate present, out of all proportion and perspective.

In an age when we need healthy extension and healthy relaxation more than ever, frowning pedants call it frivolous and an extra, and add to our nervous burden. When shall we allow understanding

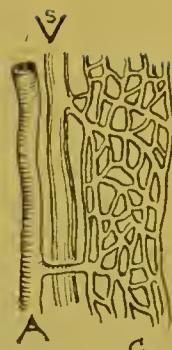
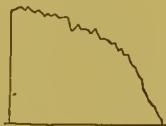


FIG. 7.
SECTION OF
ARTERY, SMALL
VEIN, AND
CAPILLARY.

and sympathetic people a powerful voice in the management of our education, so that the millions shall learn *why* and *how* to extend and relax themselves? When shall we listen to "pedagogues" who study "little children" with observation of their bodies as well as of their intellects?

One of the first questions which the practical reader will ask is about prolonged work. He knows—and Mosso's results confirm the experience—that when he begins to work he is not at his best;

FIG. 8.
PROFESSOR ADUCCIO'S CURVE
OF FATIGUE.



like a falling body, his work gathers momentum and power in its course. Personally we have found ourselves working more than five times as fast and easily and well at the end of six hours' unbroken reading. We were in the swing of it. In the last hour we might be said to be saving four hours. We seemed to have concentrated our whole energy on the task in hand. Certainly we had not eaten heavily, in which case this concentration might have left the digestive organs without energy, full of fermenting and clogging material. So far so good. Besides, we got up from our spell satisfied, and that feeling was worth something to our health. But, on the other hand, there would have come a point at which, on the principle shown above, an hour's work might have taken more out of us than many hours of work when we were fresh, or many hours of work divided into short spells. We are faced by a difficulty. Is there any definite answer?

One answer is that a great deal depends on the age. In our youth, briefer dashes full of interest; in our prime, longer stretches perhaps less full of interest because will-power and self-control can

take its place. About the brain-work, we can find no satisfactory statistics, but it is likely to be analogous, somehow, to the body-work, about which we quote these figures from Beneke.

Much of our energy depends on the power of our heart to pump fresh blood and to remove waste throughout our body, and therefore upon the size and volume of our heart. Denote this volume—relative to the height of the body—by 40–50 at birth, by 83–100 after the thirteenth and fourteenth year, and 150–190 at maturity. A grown man has three or four times as much heart-muscle as an infant. But whereas an infant has wide arteries into which to pump the blood, so that the stream is not hindered by pressure anywhere, a grown man has comparatively narrow arteries. His heart-muscle is, in proportion to his height, three or four times as large as that of a new-born babe; his arteries are, in proportion to his height, almost exactly the same. Moreover, they are likely to be harder, less elastic. What will fatigue a child will not fatigue the grown man, and *vice versa*.

FIG. 9.
DR. SATRIZI'S CURVE OF FATIGUE.



The young heart and arteries know little of fatigue unless the work is continuous; the arteries being large and the heart small as compared with the arteries and heart of later life, the blood can be pumped through them without obstacle, whereas in later life the heart has grown big and the arteries have not grown correspondingly big, and so the blood-stream meets with more opposition. It has to be forced along. The young heart and arteries know little of fatigue, except temporary fatigue, so long as the brain-work or exercise is not too severe nor too continuous.

Even after prolonged hard work, which is so bad for the young—and prolonged sitting may be of this nature—the system soon recovers itself.



FIG. 10a.



FIG. 10b.

FIG. 10a, DR. MAGGIORA'S CURVE, BEFORE EXAMINATION WORK; FIG. 10b, AFTER EXAMINATION WORK.

One cause of fatigue is the very prolonging of the work. Let an ordinary person out of condition run three miles consecutively, or try to do so. He will probably fail before the end of the first half-mile. Now let him run thirty yards at that pace, walk till he recovers his breath, run another thirty yards, and so on. He may be able in this way to cover his three miles quite easily, and apparently without any great strain. It is particularly important that the exercises of the young should be worked on this principle of short, sharp spells, rather than of continued strain and stress. And the same principle applies in later life. We ourselves have a series of bedroom exercises for ball-games. We find that a hundred to a hundred and fifty are quite enough for a single practice. If we did five hundred, we should probably be exhausted; but suppose we do a hundred, then rest, then another hundred, and so on, we can easily finish a thousand in the day without fatigue. We imagine that the practice is just as good *qua* practice as if we had done a thousand consecutively, and much better than if we had done only five hundred consecutively, for in either of these two cases the attention must have flagged. When we split up the exercises into hundreds, our attention need not flag at all.

Why is dulness exhausting? It calls

upon the will for that which would otherwise be done almost without the will—or, rather, with the *permissive will* which lets the machinery run and does not have to start it afresh. Our machinery, like a cycle, always starts slowly. We know how the muscles of a dead body will work when electric shocks are applied to them—that is to say, without the will. The will seems to give a somewhat similar electric shock. To a certain extent it is a matter of *either* interest *or* will. The latter is the more exhausting.

And here let us repeat one of the principles on which our PHYSICAL EDUCATOR insists—*individuality*. What is one man's interest is another man's *ennui* or drudgery. What is one man's "play"—interest giving the shocks—is another man's "work"—will giving the shocks. Apply this, only as a partial explanation, of course, to the question, "Is brain-work more tiring than body-work?" Much must depend on the individual. What would be play to a yokel would be work to a pedant, and *vice versa*; much on practice, especially on good practice; much on interest, which in turn depends on success, on change before severe fatigue, and so forth.

Change the exercise and use some other part of the body, and we may avoid extreme fatigue and strain. Some muscles rest—their refuse is taken away into the blood-stream and fresh food is given to them by the blood-stream—while other muscles work and quicken the flow of the blood-stream and the action of the heart which pumps it.

Professor Axel Key, the Stockholm physiologist, has collected statistics about the fatigue of children. Prolonged sitting, he says, is particularly harmful to children. More time *in school* should be allowed for free running, more time for real rest after meals. The prolonged sitting will

be all the more exhausting if, owing to improper apparatus (chairs and desks), the body be in the wrong position, the spine abnormally curved, the organs cramped; and if, owing to bad light, small print, etc., the eyes are strained. There are, indeed, some who see only *one* cause of fatigue, and that is strain of the eyes! Just as some say that sea-sickness has only one cause—for example, the sight of the movement. Whereas fatigue is possible, and so is sea-sickness, when the eyes are not strained or used at all. Such "specialists" forget that the partial contraction of the muscles has something to do with the fatigue; so has the dulness; so has the sheer length of the sitting.

No, let us not neglect the eyes, but let us try to find out other large causes, especially in the case of children, where fatigue shows itself so fatally in the headache, the round shoulders, the pale face, the absence of healthy hunger or satisfactory digestion, the surface-breathing, the shyness, the listlessness. It is awful to think that we take such signs almost as normal, almost as an inevitable matter of course, instead of seeking for large errors and then removing them in the period of cell-building and habit-forming—for we must never forget that Mosso's saying, proved up to the hilt, true as it is of the developed, is still more fatally true of the growing child—"When the body [or mind] is fatigued, even a small amount of work produces disastrous effects"; "the workman [and the work-child] who persists in his task when he is already fatigued, not only produces less effective work, but receives greater injury to his organism."

In many people the main cause of

fatigue is a weak heart. The heart is weak to pump the blood, which removes the waste-matters (chiefly acids), and substitutes the oxygen and other refreshing elements throughout the system.

Perhaps also the arteries are hard. We know that arteries are hardened by the presence of certain "minerals" which the system has not been able to get rid of. Such salts may come partly from food and drink—chalky salts from chalky water, acid salts from certain acid foods, of which we shall speak directly.

Then there are those subsidiary hearts all over the body, with their own little beats. We can give these hearts a tonic by various water-applications. Unless they are working rightly, we are likely to feel fatigue, for the channels which they regulate will be clogged with poisons.

Poisoned or clogged blood is at the root of most fatigue. We have already cited the case of the clogged flues, but it is a case that will bear repetition.

In our bath-room one morning, when the fire in the kitchen had been burning for some hours, we were only able to get the water just warm. Then we had the flues cleaned, and next morning, though only a small kitchen fire had been alight only for an hour, we were able to get beautifully hot water. It was not the amount of food which the fire had had to eat, but the state of the system's arteries and capillaries. What clogs the blood, and whence does the clogging cause come? There are many answers to this question.

Among the causes are the disease-germs, or, rather, their products, their excreta. These have to be neutralised or cast out by chemical and other forces in

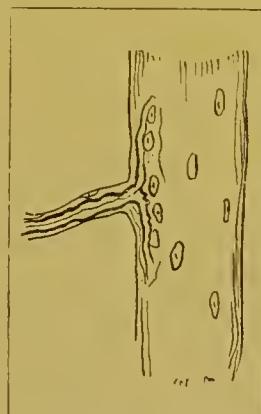


FIG. II.—SHOWING HOW A MUSCLE ENDS IN A NERVE.

the body. To a certain extent it is true that disease is a severe form of fatigue, in so far as both disease and fatigue are due to such poisons. But fatigue is not due entirely to them.

For among the most important of fatigue-products is carbonic acid, which apparently is not the excretum of a disease-germ. In 1846 Mattenci showed that a dead frog's muscles produce carbonic acid when they contract (Mosso), and Zuntz found that the horse during severe exertion used six times as much oxygen as during repose (*id.*). So to the disease-germ's excreta, as causes of fatigue, we must add carbonic acid and various mysterious chemicals and gases (about which Professor Auberon Herbert has written so ably), whether these are produced within ourselves by ourselves, or inhaled with the air of a badly-ventilated room. In such a room hard exercise may be the very reverse of cleansing to the body.

But these are far from the only causes.

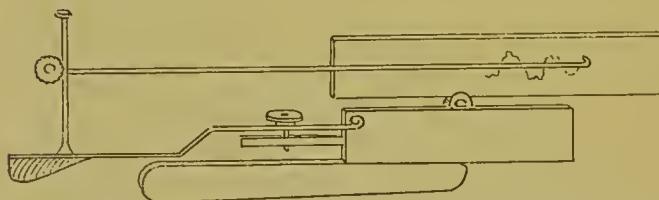


FIG. 12.—MAREY'S SPHYGMOGRAPH, FOR REGISTERING THE PULSE-BEAT.

(Adapted from "The Training of the Body.")

What else will give rise to fatigue-acids?

Mr. Horace Fletcher would tell us they come because we have eaten too fast and have loaded the system with unprepared and undigested material. This perhaps ferments. Acid fermentation may overtax the whole system. Anyhow, the mass has to be kept or got rid of at cost of great energy. When we have lost this energy, and when we need it for other

work, we feel fatigue. And if we used our energy—needed for digestion, excretion, etc.—for heavy and uninteresting work of body, or mind, just after a heavy meal, then also we should overtax our powers.

We must emphasise one point here. It is not so much that we have taken more food than the body needs ; it is not mere excess. It is that we have taken more than the body can digest and assimilate at that time, under those conditions. It is quite possible that we have taken less than half the food that the body really needs.

Dr. Haig will give an altogether different answer. He will tell us that fatigue is almost entirely due to the presence of "uric acid" in the system. Under the heading of "uric acid" he includes such allied acids as xanthins and purins. To "uric acid" we may add lactic acid, and various other waste-products, some of which have not yet been satisfactorily analysed.

How do these come ?

To anticipate an objection which will occur to most readers when they are told that some of these acids may come from flesh-foods—namely, the objection that flesh-foods are *stimulating* to them—we must quote Mosso's dictum : "It is a physiological law admitting of no exceptions [personally we doubt it] that all substances and all causes which depress and tend to destroy the functions of the nervous system begin by acting as excitants."

Some of the acids—Mosso in one place implies all of them—are made in the system by the work of the system. It is quite possible that the acids which are formed as the result of work and broken-down tissues are not only the result of work, but are also themselves the cause of fatigue. There is a close resemblance, at

any rate, between beef-tea and these results of work and causes of fatigue—for if into a frog's leg there be injected beef-tea, the effect will be much the same as if into the frog's leg were injected blood from a tired frog or other animal. Work your arm up and down a thousand times, and the probability is that you have broken down cells, and that their waste-products have gathered there and are causing you pain or discomfort. Du Bois-Reymond stated that a resting muscle is alkaline (or neutral), whereas a fatigued muscle is acid. Possibly the acid causes fatigue partly by a sort of tetanus or continued and stiff contraction.

But the acids may be added to the system in the form of food. We have already cited the table from Dr. Haig and Dr. Hall, the latter of whom allows for individual differences. Some people have a wonderful power of getting rid of these acids or of counteracting and neutralising them. Others seem to be easy victims of them, to be unable to throw them off. Among the supposed sources of these acids are flesh-foods, and especially flesh-extracts; and tea, coffee, and cocoa, and the pulse-foods. Their immediate effect may include that of a stimulant or narcotic. Their ultimate effect may include fatigue.

We know that the flesh of hunted (fatigued) game is unwholesome. Mosso, in 1887, showed that the blood of a tired animal was in certain cases poisonous, and, if injected into another animal, would produce the signs of fatigue. Ranke injected liquid extract from exercised muscles into a fresh muscle, and lessened its power of exertion. By washing the muscle he restored its power of exertion.

Indeed, we might almost say that every result of fatigue may itself become a cause of fatigue, whether it be carbonic acid or

uric acid, or some other acid, or some mental cause—such as irritability.

Let us pause for a moment to note that in this there is no "imagination," though there is plenty of romance—enough for an epic! It is, as Mosso says, "a difference which can be translated into figures by studying the modifications which take place in the action of the heart, in the pressure of the blood, in the temperature of the body, and in the respiration." The

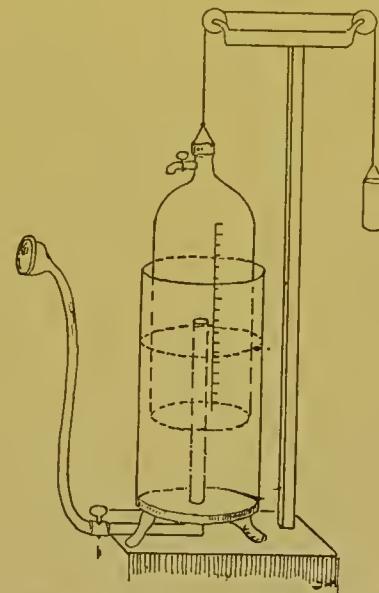


FIG. 13.—SPIROMETER, TO REGISTER A CERTAIN KIND OF CAPACITY FOR BREATHING.

(Adapted from "*The Training of the Body.*")

sphygmograph or pulse-register (Fig. 12) and the spirometer give sensible evidence. This applies to the work of mind and body alone. Haller compared the results of study and of love upon the circulation and the perspiration. Buffon knew that when he was hot and flushed he was beginning to be tired with brain-work. Mosso shows that fatigue "renders the pulse weak, whilst the head becomes hot, the eyes bloodshot, and the feet cold. These phenomena," he says, "depend on the contraction of the blood-vessels, which is needed to maintain a high blood-pressure." "In my own case," he proceeds, "fatigue

of the eyes precedes fatigue of the brain."

Taking one way alone of registering the fatigue of mind and body—namely, the ergograph or the myograph (see the figures on previous pages)—we can get a curve written before our eyes, as Mosso's various diagrams show. We can estimate part of the effect of brain-work (such as Dr. Maggiora's examination-work) upon the weight-lifting power of the finger.

But equally real and easier to test, and perhaps more interesting to the individual, is the evidence of his own feelings, and of all-round results under different sets of conditions. Here is an instance.

It was upwards of eight years ago that the Editor gave up the use of flesh-foods and flesh-extracts. During these past years he has not suffered appreciably from fatigue, and has not felt cramp, except on the few occasions when he has taken flesh-extracts unawares (as in tomato-soup made with beef stock as well as tomatoes). It was not imagination, since he did not know that the extract was present in the soup. It was hardly likely to be a coincidence, since each of the occasions on which he felt cramp and depression followed directly on the taking of some flesh-extract. Moreover, during the last year or so of his old diet, it was chiefly through severe cramp that he lost three



FIG. 14.—DR. MAGGIORA'S CURVES ON THE LAST DAY OF EXAMINATION WORK. BEFORE AND AFTER EXAMINING NINETEEN STUDENTS.

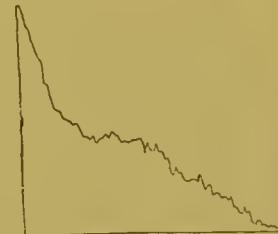
important matches. Now he has lost matches for other reasons, but never through cramp or fatigue during these recent years.

Yet—here is the interesting and instructive point—the immediate effect of flesh-foods used to be what it obviously is

to most people who use the mixed diet—namely, a stimulant and spur as well as a food. How can the same thing produce results so opposite as freshness and energy, fatigue and cramp?

We imagine that fatigue and cramp are often, if not always, due to the presence of acids in some part of the body, perhaps in

FIG. 15.—DR. MAGGIORA'S CURVE, AFTER THREE DAYS' REST.



some part of the blood-stream, clogging and hindering its course. Now put into the body something that will drive away elsewhere—not drive out of the body altogether—that clogging and hindering acid, and you have removed the fatigue and cramp, for the time being. Among the things that may have this effect are the acids found in flesh-foods, some of which acids are the results of the animal's work and broken-down cells. Other such stimulants may be tea, coffee, alcohol. Individuals differ in the ways in which these things affect them. But these things seem to be alike in one respect—they, as it were, drive the fatigue-stuff into the corners of the system, not out of the system. Indeed, they may eventually add to the system's sum-total of such acids. Their immediate effect, however, may be to clear the clogged part.

But how can they produce cramp? Well, perhaps in cases where they do so, they serve as fatigue-stuff. Theirs is the fatigue-stuff introduced through the mouth and digestive organs, and arriving at the spot, and having an effect just like that of the fatigue-stuff home-made on the spot by muscle-work. This will not always happen. Sometimes the internal juices,

etc., of the body may neutralise the stuff before it reaches the spot. Undoubtedly certain people can stand doses which would paralyse other people. The above explanation, however, sounds reasonable, in view of the facts of at least one case ; and, if offered as a makeshift theory, may be of value. The mistake would be to pretend that this is the sole cause of fatigue and cramp. It is nothing of the sort.

For many of us know well that, when "in condition," we are not easily tired, whereas with an extra stone on us (and in us) we have so much extra weight to carry about, and a clogged circulation as well. It is not merely the starch, as we have seen in a previous chapter ; there may be several other causes, including excess of fluid. When the Editor loses 6 lb. of weight over a racquet-match, he believes it is chiefly fluid that he loses.

There may be starch, against which others swear. They say that the use of certain forms of starch clogs the system extremely by causing constipation, and also by causing fermentation, and so by giving the system gigantic work in getting rid of what is hurting it, and—not least of all—by producing excess of fat.

Sheer excess of food is a cause which is more obvious to most people. Every atom of food in excess of what we need, forces the system to work harder whether in keeping it or in throwing it off. Doctors tell us that we all eat too much—we are getting sick of the hackneyed phrase. They seldom tell us why this is so severe a mistake. The reason is that it compels us to use up energy which otherwise we could use for a nobler purpose. We want it perhaps for brain-work ; why use it for sewage-work, to say nothing of the expense of the foods themselves ? Let the first claim upon our energy be our spiritual and mental work, part of our

mental work being the work of regulating our muscles.

There are some foods which do not produce fatigue directly, according to Dr. Haig, but prevent us from getting rid of fatigue-products. Certain kinds of alcohol are among them. Suppose we have a number of grains of "uric acid" in our system in excess of what we want. It may matter little whether we take something which keeps that "uric acid" in our system or whether we get rid of three grains of that and add another three grains in the form, let us say, of beef-tea. Exactly what will keep the "uric acid" in the system we cannot say beforehand ; but in numbers of cases it will be something acid, and perhaps tea or coffee. Many drugs may be classed here, and many stimulants. In fact, one reason why a stimulant removes the feeling of fatigue is that it drives away from the blood-stream the poisons which were circling in it and clogging it. It drives them away, not out of the system, but into the crevices of the system. Soon they creep out again, and we rush to the stimulant once more, as if, in a city full of criminals, we were to call in policemen, not to drive the criminals out of the city or to put them in gaol, but to drive them back into their lairs, whence they will creep out again as soon as it is dark.

As we have seen, the weakness of the stimulant is that it tends to become a necessity, in which case we constantly need more and more.

But if we were to collect experiences from all over the civilised world, we should find that the *feeling* of fatigue was caused as often as not by the giving up of a stimulant. Make the experiment now. Just look at the theories on tea and coffee. You will find that there is practically no nourishment in tea, or at least no nourishment that we cannot easily get from another source. Alcohol does,

indeed, supply some heat, but probably not in an economical or satisfactory form ; oil might be far better. In theory, then, we should say, Neither tea nor alcohol is necessary ; we will give them up. And at first we should expect to be freed from fatigue if we gave up what was unnecessary.

But see what happens. You take no tea for breakfast. Perhaps that tends to produce constipation at first. When the afternoon comes round after your dreary day, you want your cup of afternoon tea. You omit that. Do you feel fresh now ? Rather you are likely to feel, for any period from three days to six months, depression and enervation. You feel unhappy and unenergetic. Ask yourself what is the reason, and your natural answer will be, I never used to feel this constantly. I can only put it down to the fact that I have given up these stimulants. The same will apply to tobacco.

Now we cannot suppose that the real cause of our fatigue has been that we have given up these things. For, continue the experiment for a year, and you probably get a freshness which you never felt before. Where, then, is the cause of the fatigue ? It lies in years and years of mistakes in the past, mistakes which are registered in the books of your system. While your system is crossing out the mistakes, you naturally feel tired. The work of removing sewage is as fatiguing and unpleasant as any, especially if some of the organs be out of order.

The excretory organs must be strong and active if you are to be free from fatigue. Among the excretory organs is the mental one which gets rid of worry and anger and ill-feeling. Mental excretion is just as important as physical excretion and just as much neglected. But it is not our purpose to deal with that here. We must confine ourselves to the physical. You catch a cold, perhaps, when you per-

spire, and then stand in a draught. This closes the pores of your skin. Possibly your nose is blocked also, and your lungs. That throws extra work upon your other organs of excretion. Or your liver may be wrong. One of its functions apparently is to turn uric acid into a comparatively harmless product. If it fails to do its work, and under certain other conditions, the kidneys may be weak ; they may not pass off the poisons quickly enough. Overworked, they do not pass the poisons through them, but rather pass sugar or albuminous matter through them. In the first place we get diabetes ; in the second, we may get Bright's disease.

The result of it is twofold. If by our system poisons are retained and nourishment is excreted, we must suffer fatigue and depression. Closed skin, weak kidneys, badly-functioning intestines, may keep poisons within the body ; whence fatigue and depression ; whence, again, more poisons.

It must be remembered also that a weak digestion may cause fatigue. There are many digestive juices, each with its own function. Weakness in any of these may prevent you from digesting your food. The undigested material is waste. Energy is needed in order to get rid of it.

Then there are the emotions, which will affect the digestion and the whole blood-stream. When you are happy, perhaps owing to good news about money or success, it seems that nothing will tire you, nothing will disagree with you. So, too, when you are excited, though it is a question how far the excitement will cause you to draw on your capital or reserves, and how far it is itself, so to speak, a store.

A very potent cause of fatigue is impatience to get rid of a feeling. If only, when we begin to feel fatigued, we could wait, rest, sleep, or use some other simple

help like cold water, eventually we might get rid of the poison which caused the fatigue. As it is, we hurry not to remove the fatigue, but to remove the feeling of it for the time being. To use our former

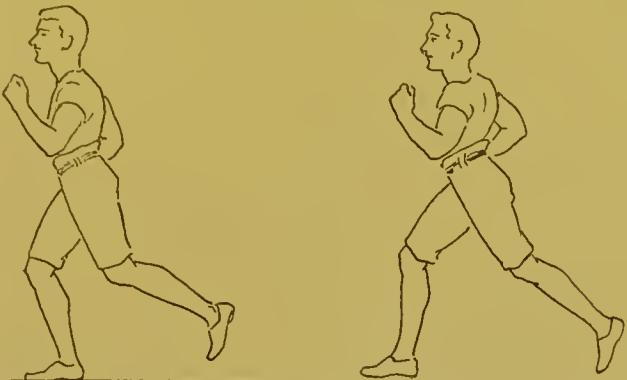


FIG. 16.—THE RUN WITH BENT LEGS WHICH FOR CERTAIN PURPOSES IS LESS FATIGUING.

(Adapted from "The Training of the Body.")

comparison, we call in the policeman to drive our burglars back into their dens. They will come out again when night falls.

Under-feeding is another clear source of fatigue. Perhaps we take too little proteid, perhaps we take too little "salt," especially of the alkaline kind, for fatigue is by nature acid. Perhaps we take too little oxygen, too little water. Perhaps we take too little cheerful thought and use too little intelligence.

But it seems from Mosso's and other experiments that under-feeding without poison would be less likely to cause fatigue than most of us have hitherto imagined. An experiment—unpleasant, yet somehow fascinating and really important in its suggestiveness—shows that the blood, which we have been taught to regard as essential to all vigour, can have a saline solution substituted for it in a cold-blooded animal (a frog), and the animal will live for a day or two, and for twelve hours will behave very like an ordinary frog. But take a well-fed frog, and inject "fatigued" blood into it, and that frog

becomes itself fatigued, in spite of the abundant nourishment ready for use within its body. Once again, it is the clogging of the flues far more than the mere want of sufficient coals upon the fire. So, with breathing, it is important to inhale oxygen; but it may be just as important, or even more important, to exhale carbonic acid and other subtler elements.

Another cause suggests itself. It is not solely the work done that tires us. It is partly also the skill and habit of doing that work. You walk without effort—a vast amount of work, yet easy because you are used to it. But you try a new exercise. You use unnecessary movements, you have to think and observe and correct yourself, and perhaps you are either anxious or bored. Unused muscles tire more quickly than practised muscles. This is obviously the case when the system is out of order, though we ourselves find—and Mr. Horace Fletcher's experiences are similar—that, with proper



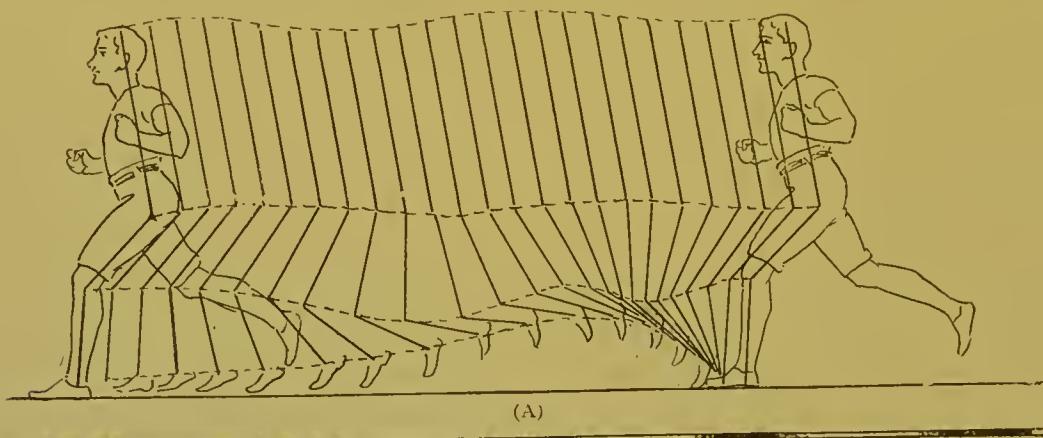
FIG. 17.—THE ORDINARY RUN.

diet, unused muscles can suddenly be put into action, and yet no stiffness follows.

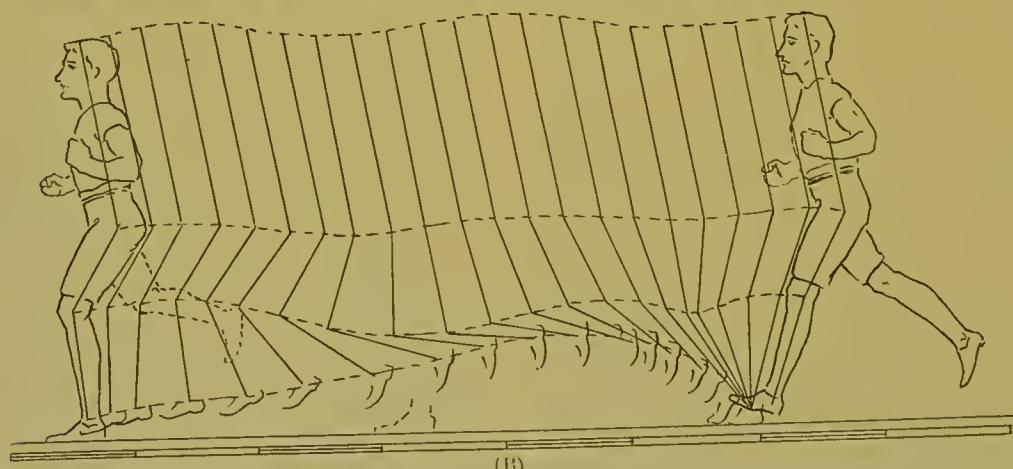
Again, it is not merely the amount of work done. It is also the way we distribute that work. You may tire your little finger without using up much power that Professor Atwater's heat-register-

room would calculate. Yet you may tire it so really that you feel tired with your mind, and incapable of moving your body energetically. To hold a skein of wool—how paltry a task as compared with an hour of mountaineering, cycling, football, during which, you are told, your heart

With regard to every pursuit, from the simplest and commonest upwards or downwards—the question of “How can I best do it (and, therefore, practise it) ?” arises for each individual. The answer will not be the same for each. But the problem is worth thrashing out. Granted



(A)



(B)

FIG. 18.—(A) THE BENT-LEG RUN KEEPS THE FOOT NEARER TO THE GROUND, AND SO USES LESS EFFORT IN LIFTING THE BODY THAN (B) THE ORDINARY STYLE OF RUNNING.

(Adapted from Regnault and Raoul's Chart in “*The Training of the Body.*”)

does enough work to raise pounds innumerable to distances incredible !

Part of the effort is due to misuse, as when you hold your skein of wool less with the firm trunk and shoulder than with the firm hand and finger. So when you button your apparently hole-less collar on to your apparently giant-headed stud. How utterly out of proportion to the actual work is your effort and your fatigue !

that a long-distance walk in Yorkshire or Devonshire would be a fine thing for you, shall you walk the whole or parts of it with stiff legs or with bent legs ? We consider some of the pros and cons in the article on walking. The diagrams of running will show that the bent-leg plan—with chin in and chest forward—means less effort in lifting the body, and less effort generally because the centre of gravity

of the body is further forward. That is just one example out of thousands. Scarcely a way of ours but is capable of improvement with a view to less fatigue, though, of course, if you *want* the hard exercise, it is an altogether different matter.

Among wrongly-used muscles, of course we must class the over-used. And let us repeat again and again that there is a fatigue beyond which all work is twice or three times as expensive as before. Take a five-mile walk, for instance. You are fresh ; it does you good. But try that five-mile walk at the same pace when you have already finished forty miles, or perhaps when your feet are sore and your stomach empty, and it may do you unspeakable harm. To work with a fatigued body is more fatiguing than to work with a fresh body.

What is excess for the wrong worker is no effort for the right worker, and is small effort for the practised worker, even if the practise has been unscientific. That little girl is laboriously and with frowns "picking out" her notes on the piano to-day ; in ten years' time she will be playing her Brahms, while she turns round and talks smilingly to her young man. She has delegated the piano-work to her subconscious nerve-centres. They are her specialist-servants, home-made. All genius, so easy in the seeming, may be methodical work by sub-conscious specialist-servants.

Small muscles will often tire more quickly than large. Move your fingers about in the same way for five minutes. That will tire you, yet you have done very little work. Swing your body about, or swim, or walk. You have got through an extraordinary amount of exercise, of which the finger-work would be but a tiny fraction ; yet you do not feel tired at all.

The swimming and the walking are less tiring also because they are rhythmical

work. Notice how rhythmical work to a musical accompaniment can be kept up almost indefinitely, whereas that same amount of work done jerkily and in answer to unexpected calls might tire you very much.

From the heart we may learn other lessons besides that of rhythm as a saver of labour. It is a vast muscle, not regulated consciously, and alternately resting and working. The lungs are similar. Notice how the disturbed rhythm of breathing tends to exhaust energy.

These two organs, mighty as their work is, yield first in exercises of fatigue. When the heart and the brain begin to suffer, then stop, says Mosso. We would add the lungs also.



FIG. 19.—A NATURAL BODY IS NOT CRAMPED ANYWHERE.

FIG. 20.—A BADLY-FITTING CORSET CRAMPS THE LUNGS, STOMACH, LIVER, ETC.

The fatigue of the lungs—and of some other organs—is partly due to wrong dress. Fig. 20 shows bad effects from a wrong kind of corset that cramps the lowest breathing. Such a corset allows the lungs to get rid of less carbonic acid and to receive less oxygen. It hinders the circulation. It displaces the stomach and liver below, and perhaps the heart above. Its effects may be tested by the spirometer.

For another instance of bad dress as causing fatigue, notice how the wrong sock or stocking, boot or shoe, displaces the big toe from its straight line of leverage

(Fig. 25), and also distorts the instep by the high heel. The action of walking may be adapted so that the big toe can get its leverage and thrusting-power, but then the legs lose some of their power.

The fatigue, from whatever cause it comes, affects both brain and muscles. The brain may poison muscles by its own fatigue-products reaching the muscles



FIG. 21.—THE NATURAL FOOT WITH STRAIGHT TOE.



FIG. 22.—THE UNNATURAL SOCK WHICH CRAMPS IT.

through the blood-stream (and *vice versa*, the muscles may poison the brain); the brain may also exhaust the muscles by draining them of useful stuff. The effects of fatigue may always be far-reaching.

A warning, however, is nearly always given—not always by the heart's disturbed action, by breathlessness, nor by headache, but perhaps by loss or weakening of attention. Attention gone, and you are likely to be drawing on your energies. It is true that attention upon one thing saves time and energy. But it may demand a most exhausting effort. Attention or the absence of it gives us one answer to the question, Shall we take exercise in the evening after our city work? That answer is another question, Can we easily attend?

The curves of the Italian Professor's work and fatigue after his examination, when his attention on hard and probably dull work had been exhausted, does not justify us in advising "No exercise after hard work," as Mosso seems to imply. For the exercise by which he tested fatigue was very dull. "No dull exercise

after hard work" would be far nearer to a rule. And here once more we have the individual factor. What is dull?

Healthy competitive play is not likely to be dull.

Social work is less tiring to many than individual work, especially if it be also competitive.

Unsuccessful work is more tiring still.

It is a branch of that large class of dull work to which we submit as slaves; work with no particular motive; that is an important branch of dull work. Take, for instance, our own racquet-exercises in a bedroom. For *us* they are *interesting* because we know that they are improving our game. For others they might be quite uninteresting. We imagine that they would not appeal to one person in a hundred. They appeal to us. On the other hand, many forms of gymnastics do not in the least—they appeal to others. For us the racquet-exercise has a taste which we like, so we enjoy it and digest it and profit by it.

Even such exercise with such a motive may pall if we take it too seriously and too much as a duty. To see the humour of an exercise occasionally may be to deprive it of a great part of its fatigue.

Again, work which is not understood may be tiring. Let a person know that a

FIG. 23.
A FOOT DEFORMED BY
AN UNSUITABLY-
MADE BOOT.



certain exercise will help digestion, excretion, the personal appearance, and so on, and that exercise becomes interesting and worth while. Precisely the same exercise, done as drudgery, might be extremely fatiguing.

So we would say to those who wish to get rid of their fatigue once for all, in so far as it is possible for a human being to do

so, understand the causes of fatigue. We have outlined just a few of them ; work out the rest. Understand what it is that clogs the blood, produces blood-pressure. Can you not feel the blood-pressure when you have a headache, or depression and restlessness ? Remember that what is a relief for a moment may eventually produce a worse state. Some exercises, together with other treatments, may be the permanent cure. Understand why they are so. Otherwise their immediate effects may disgust you with the whole treatment.

Understand also, and take warning by, the symptoms of over-fatigue ; the heaviness almost amounting to pain, the depression and want of energy, the irritability and sleeplessness, the feverishness and high temperature, the feebleness and frequency of the pulse, the want of appetite.

Fatigue—as this list will show—is not always felt where it (or its acid) exists. Thus “we can wound the liver, the muscles, the spleen, the kidneys, without causing any pain. The sensory nerves are found chiefly in the skin. The stomach and the intestines are quite insensible to temperature.” We must be very careful not to say that there is no fatigue because it is not felt as such.

If, then, fatigue is the result of exercise, someone will ask, Why take exercise ? Why not be like Joseph Chamberlain ? Must it not be a mistake to use up more oxygen, use up more heat-material, use up actual cells of the body, and produce waste ? And, indeed, the Editor has found that, with careful diet and living, exercise would seem to be almost unnecessary, and sedentary work for weeks does not spoil physical fitness and almost the very pink of condition.

But, on the other hand, exercise does get rid of or cover many mistakes of living.

Few can do without it. All our better

life is through death, and if exercise kills the old, it helps us so long as we set the better new in its place. Moreover, the waste stimulates us to get rid of it ; it is like the difficulties in the way of the great soul, to keep him great through incentive to effort.

Yet—we wonder. Economy is the cry of the day. The body is superior to a steam-engine in its use of imported energy; but is not much of our forced exercise a palliative to enable us to err again ? Is not much of it a very luxury ? That may be so. And it may be a danger, too, if we take it to exhaustion, continuous, uninteresting, or else too interesting and dominant. “We perceive fatigue only when it has reached a certain intensity ; absorbed in the attraction, we may neglect the danger-signal.”

But most people to-day are more likely to err in not being absorbed or attracted by exercise at all, owing to its lack of interest and variety, and its excess of “science” and “method” and “hygienic law.” Perhaps this chapter is guilty of this excess.

Have we no simple conclusions ? We have a few.

Attend to the food. Avoid what is likely to clog—wrong materials, excessive materials. Take what is likely to feed and to repair waste.

Take it leisurely.

Practise correctly and attentively, and so save effort.

Find your motives to give you attention, and thus also to save effort. Attention is the appetite-juice of the mind, digesting what you use, with speed, with ease, with power.

Stop before severe fatigue—a rule for all, but especially for the young. Over-fatigue may now and then be thought worth while later on. In childhood and youth it seldom can be.

CHAPTER XXXII.

CLOTHING, VENTILATION, AND AIR.

Ventilation of Clothing—Wet-sheet Pack—Shape of Clothing—Corset—Muscles Instead—Belts—Hats—Warmth together with Ventilation and Absorption—Pros and Cons of Wool and Linen-Mesh—Cotton—The Skin has Delegated a Function—Warning—Colour—Against Black—Amount—Bed-clothing—Sleeping—An Open-air Arrangement—Ventilation of Exercise-rooms—Windows—Carbonic Acid Gas Sinks in Cool Air, Rises in Hot Air—No Draughts—A Window Device—Test of Atmospheric Purity—A Comparison—Greedy Gas—Disinfectants—Theory Alone not Sufficient—American and German Heating—Railways—Concealed Ventilation Needed—Fresh Air—The Bessemer Process—Climate—Discomfort Largely a Matter of Diet—The Stoking Fallacy—Light—Sir James Wylie—Light and Air Bath—Light and Colour Treatments—Foot-Bath.

ON the subject of clothing there has been much discussion and conflicting advertisement, but about the necessity for clean clothing there has been no discussion. Clothing must be washed, and must therefore be washable. Moreover, here it meets ventilation on neutral ground. It must be kept sweet. As we have already said, we object to wooden lockers, chests of drawers, and so on. At Columbia University, in America, we found that the flannels of a great number of students were quite fresh when stored in openwork metal-mesh lockers, which kept out mice, but let in air. The Metal Fittings Company can now supply such openwork lockers in England. It is especially the flannels that need both washing and ventilation.

If, according to the advice we have given, packs and compresses be used,

thousands of poor cottages in Germany (see Fig. 1); it takes the place of drugs in cases of incipient fever, etc. It could easily be part of the equipment of every house; but it needs to be kept scrupulously clean and carefully aired.

The underclothing should also be turned inside out at night.

The discussions have not always been about clothing in general. They have gone into every detail, especially into the problems of shape, material, and amount. With regard to gymnastic and athletic clothing we need add little here to what we have said already. A broad belt with the holder at the back, in the case of pupils, and broad shoes—these are among the requisites.

As to the shape of clothing, the dress should not be the making of the fine figure; the figure should try to live up to the best possible clothing. The clothing should be as good as possible, but it should not be superior to the figure itself, any more than words should be superior to the ideas which they express.

We are not at all in favour of the ordinary types of hygienic dress. The upper part of the dress, and, above all, the boots and shoes which we recommend to ordinary people, are a compromise. True, it would be well to wear



FIG. 1.—WET-SHEET PACK.

the same remark will apply to them. The wet-sheet pack—either the whole pack or the partial pack—is to be found in

sandals or no foot-gear when one can. This would bring the big toe into a better

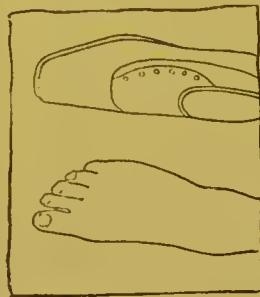


FIG. 2.
THE SQUARE-TOED
HYGIENIC BOOT.



FIG. 3.
A SUGGESTED
COMPROMISE.

line for action. But there is no absolute demand for hideous, oppressively hideous reforms.

Take, for instance, the corset. Here (in Fig. 5) is a type which is, on the one hand, fashionable, yet on the other hand *comparatively healthy*. It does not compress the upper part of the bust. It is elastic and allows the lower part of the

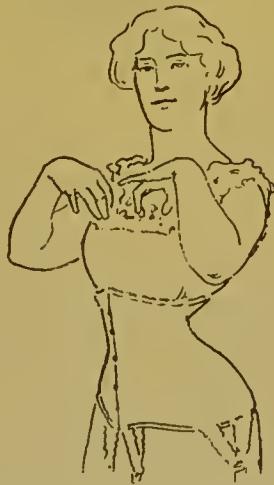


FIG. 4.—A CORSET (LONDON COMPANY'S) THAT DOES
NOT CRAMP THE MIDDLE BREATHING.

bust to move, so that the lower breathing is fairly free. Some lady teachers are quite right in saying that, though there may be objections to the corset, yet a not alto-

gether bad object might be not so much to produce a different kind of figure altogether as to produce muscles which shall take the place of the external corset. Many of their pupils are healthy and wear no corsets at all, yet are not conspicuous on that account. Whereas others wear corsets, they wear muscles, to the sacrifice, perhaps, of some of their lower breathing, but with many advantages which they believe to compensate for that.

The skirt must not be hamperingly tight or heavy. We owe much to cycling



FIG. 5.
A HEALTHY
UNRESTRICTED
FIGURE.



FIG. 6.
THE RESULT OF A
BAD CORSET
ON THE INTERNAL ORGANS.
(See also p. 385.)

and hockey in that they have introduced a more sensible skirt and corset. Men's trousers are comfortable, though not quite perfect in comfort, and men have not yet taken to wearing corsets to any great extent. We are free from these two troubles. Our problem lies rather with the choice between belt or braces. We believe that most men would prefer the broad belt when they had become used to it.

As to the hat, it seems to us a custom rather than a physical necessity. Undoubtedly the ordinary hat tends to baldness, yet we dare not go without it. The same applies to breathing. Ordinary

social atmosphere is bad. The remedy is to take every advantage of better atmosphere; with regard to head-gear, to take every advantage of occasions when we can be in the open without it.

No discussion, however, is so acrid as that about the material of clothing. Shall it be wool or linen? We have several sources of warmth. We

air may be dangerous; we may chill ourselves.

In favour of wool or Jaeger is the personal experience of many, of whom some actually sleep between blankets without sheets. They find that, when they become wet by perspiration, they do not get a chill in wool; they find that they are generally warm.



FIG. 7.—TWO ANTI-CORSET ABSTINENCE VOWS.

Theoretical Hygienist (man on the left):—“I PLEDGE MYSELF NEVER TO MARRY ANY WOMAN WHO WEARS ANY CORSET.” Practical Hygienist (woman on the right):—“I PLEDGE MYSELF NEVER TO MARRY ANY MAN WHO WOULD MARRY ANY WOMAN WHO WEARS ANY CORSET.”

may be self-warmed—that is to say, we may be so pure-blooded and strong-blooded that there is no freezing in any part; a rapid river will not freeze. In this case we may be well ventilated; that will favour warmth by promoting a rapid circulation. Or we may be warm by keeping our own heat in.

But to keep our own heat in may be dangerous. By a macintosh we may warm yet poison ourselves. On the other hand, to let out the heat and expose the untrained open pores of the body to the

On the other hand, the wool may irritate their skin and give them the wrong kind of warmth—the stuffy warmth. And, beyond any question, wool has a weak and slow absorbing power. It may be good for outside clothing, but for the underclothing of many it is wrong.

In favour of linen is this: that what comes out of our skin is seldom clean, and we need to have it soaked up. That is why we have so many towels and handkerchiefs of linen. These absorb more quickly and are dried more quickly. In

Ezekiel xliv., 17 and 18, it is said, "They shall be clothed with linen garments, and no wool shall come upon them. . . . They shall not gird themselves with any thing that causeth sweat." And, again, linen was weaved for underwear thousands of years ago in Egypt, India, and Greece. Apuleius spoke of flax as employed for the clothing of man close to the skin, following the law of Hippocrates that pure linen should be worn next to the body. Gilbert White, the author of "The Natural History of Selborne," was of a similar opinion. Ordinary linen may be too smooth and too densely woven. Personally we like the Deimel linen-mesh underwear better than Jaeger, which is entirely composed of animal-wool. It is merely an individual experience. On the other hand, we must admit that the linen needs to be changed oftener, and, in the city, we have not always opportunities for changing it. Linen admits more

air and more light, but when wet it may develop a chill.

We ourselves have found cotton a good wear for all the year round. It is very cheap, an under-vest costing a shilling or less. Flannelette is another material that we are fond of. A flannel-

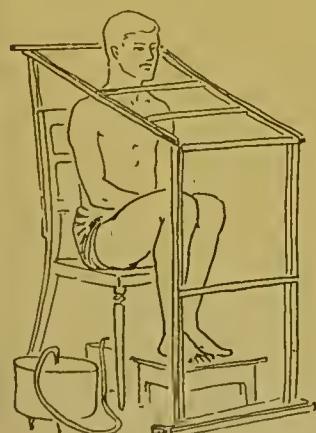


FIG. 8.

THE SKELETON OF A HOME-MADE BATH CABINET.

ette tennis shirt costs half a crown at the outset, and we have had some which must have been washed several hundred times. We do not assume that such materials are safe for many, but at least they suit us and are cheap and absorbent.

Anyhow, we must remember that to

clothing we delegate much of our skin's cleansing and elimination, and much of the keeping of our energy. We—once the animals that could adapt ourselves to sudden changes—now rely to a great extent on our covering, and, for the sake of a theory, it is not worth while to sacrifice a life. Most of us have lost the habit of adapting ourselves to changes. While personally we never wear a great coat if we can help it, we know well that for others such a plan—till they have become purer-blooded or stronger-skinned

or stronger-hearted—might be dangerous.

We are on the horns of a dilemma. To take extreme cases, a man might die within a short time, self-poisoned, if his skin were sealed up; it would not matter how warm he was, how woolly his clothing was. On the other hand, he might die self-exhausted if his body were alternately heated—say by violent exercise—and deprived of moisture by linen clothing, and then frozen and deprived of warmth by porous clothing. Unporous clothing can be compared with an unventilated room: it may be comfortable, without being very healthy. It may seem an absolute necessity, without really being so. A thick shawl may seem a necessity, though a loosely-knitted shawl may keep one warmer, "a calm layer of air being the best conductor of heat." Yet to try the change might need greater faith than most people possess.

It is important, perhaps, to distinguish



FIG. 9.

THE CABINET IN WORKING ORDER.

between underclothing and outside clothing, the purpose of the underclothing being to absorb, yet not to lose too much heat; the purpose of the outer clothing being to ventilate, yet to keep a certain amount of heat.

The colour is another matter. In cities it is expensive to wear bright clothing; it is also conspicuous. Yet the question is one of importance for those who are sensitive to colour. It is a pity that black has become orthodox. It was not so at first. We believe that Martin Luther was responsible for the black of the clergy. If we have faith in our religious truths, there is no ground for black as mourning for months afterwards. Sundays and funerals should not be marked by such gloomy colours. Fortunately in recent years there has been a reaction in favour of less idiotic colours, but there is still need of reform in high places. The Americans are setting us a good, if an extreme, example.

As to the amount, a good deal is of advantage if we wish to sweat and get rid of excess, and more is needed for the feet than for the hands; more also for the chest than, let us say, for the head and legs. The male waistcoat is a ridiculous article of clothing: just where the chest needs warmth the clothing is lacking; there is a great gap to make room for a fancy tie.

Bedclothing is almost equally ridiculous. One usually has it thick all over. It would be better either to have warm night-clothing for the body, and so make it independent of sheets and blankets, or else to have thicker clothing for the feet than for the trunk. It is the cold feet that spell sleeplessness; it is the hot body that spells feverishness. Coldness of the feet may be remedied by alternate hot and cold baths, with friction, and by fuller breathing. So that there is no vital

necessity for any heavy bedclothing at all. Two articles of bedclothing call for special criticism—the mattress and the pillow. The mattress should be well ventilated; not of feathers. The pillow should be the coolest part of the bed. Generally, owing to its feathers, it is the warmest. Why on earth it is so no one knows, except that custom is our king. The pillow is also far too high. A low and cool pillow—a fortune awaits the man who shall not only invent it, but also give publicity to it. In a paper written for intelligent people to-day there is no need to say that curtains round the head are an abomination.

As to the floor-clothing, it should be such as can be cleaned easily, whether it is of polished and beeswaxed wood or of some sort of linoleum, perhaps with a few cane-mats or shakable rugs over it.

As to sleeping, there is again no need to enforce the fact that two people should not sleep in the same bed. Steamer accommodation is a disgrace to modern

tolerance, which allows companies to violate hygiene for the sake of a few pounds. It is not as if the charges on most steamers were light! Why not simpler food and more sleeping space?

Open-air sleeping is admissible in a large number of cases; we offer here a device for it. Taking the bed out into the garden, or back yard if you like, set up behind it a wooden screen. Firmly fixed from the two sides of the top of this wooden screen let there run out wooden poles beyond the sides and beyond the end of the bed.

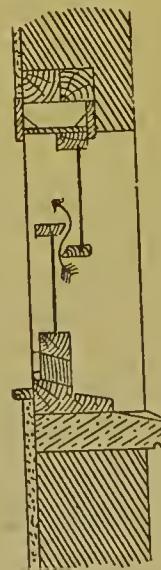


FIG. 10.

WINDOW VENTILATOR.

(Adapted from
W. Daley's book.)

Support these wooden poles at the other end by upright poles again firmly fixed. Now from these poles, running beyond the level of the bed, let there hang some waterproof material—perhaps paraffin-silk or cotton—of about two feet in depth. Inside let there hang down pieces of string, and at the end of these, one foot from the top, other pieces of waterproof material, reaching down a few inches below the edges of the bed. They should come beyond and outside the bed, and should not touch it. By this device you will ensure upper and lower ventilation without draught. The rain, unless it blows upwards, will not wet you. It cannot wet you behind, nor can it wet you at the front or at the sides, for you will be protected by the waterproof material.

VENTILATION.

The more exercise we take, the more air we inhale into the lungs, and the more careful we should be that the air is fresh. In ignorance of this fact, the compilers of the latest "New Syllabus" have said that, "with appropriate nasal breathing, any atmosphere that is good enough to live in will be good enough to exercise in." Now, nasal-breathing may keep dust-particles from the lungs, but it will not keep the carbonic acid and other noxious vapours from them. Indeed, the air which might not be so injurious if we breathed only a little of it, may become deadly when we breathe quantities of it. Therefore the ventilation of our exercise-rooms must be our first care, especially as this is a PHYSICAL EDUCATOR. The following remarks from Thomas D. Savill, M.D., with regard to the construction and hygiene of a gymnasium, will be of service :

"The windows serve two purposes.

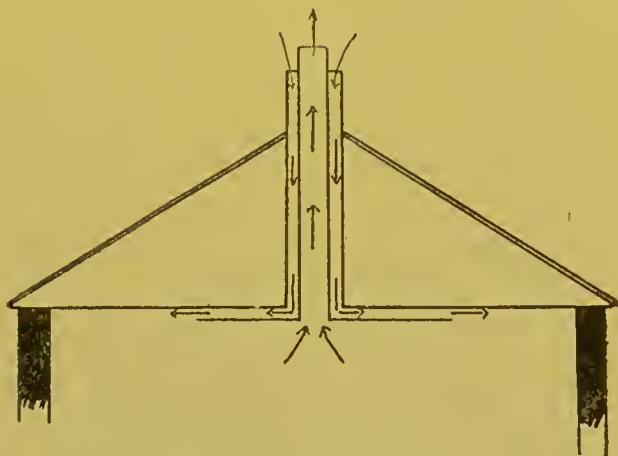


FIG. II.—MCKINNELL'S VENTILATOR.
(Adapted from Daley's Book.)

light and ventilation. As regards light, you cannot have too many windows (Mr. Flynn's gymnasium has twelve). The regulation for the County Council school buildings is that the window shall occupy one-tenth of the floor space. This, of course, is very small indeed, and I believe that the window space should be at least one-seventh for the purpose of light alone, and more if possible.

For ventilation, the windows should always go to the top of the wall flush with the ceiling, both for purposes of light and especially for purposes of ventilation; because it is at the top of the windows that ventilation chiefly goes on. If there is space between the top of the window and the top of the wall, that space will always be filled with the foul and impure air. Therefore they should always go to the top of the wall. As windows are often the chief means of ventilation, they should, of course, be made to open. They are generally made to open at the top, or to fall inwards. The window is one of the best inlets for fresh air—nay, it is the best. The window is often made the means of adapting other special contrivances for the inlet of fresh air, such as the Sheringham valve and the Louvred window panes. Again, windows nowadays are made with deep

sashes at the bottom, so that if you raise the window an inch or two the air comes in between the different parts of the window, both at the middle and at the bottom. In both cases the air is directed upwards."

If possible, Mr. Flynn adds, the gymnasium should have a sliding roof; failing that, a skylight which will open.

In a non-technical work we cannot go into many details with regard to principles and reasons of general ventilation; but a few points will interest and help the lay-reader, especially with regard to the getting rid of carbonic acid. For probably it is far more fatal to have within us too much carbonic acid, etc.—the "etcetera" includes a multitude of acids—than to have too little oxygen. Professor Mosso's experiments seem to make this clear. It is the getting rid of the carbonic acid, etc., that is the difficulty. With high ceilings, the poisonous air which rises could not reach down to our level for some time. That is the case, at least, when the poisonous air is warmer than the rest of the air. But, *when the rest of the air grows cool or cold*, the reverse is the case; *the carbonic acid, etc., becomes much heavier than the rest of the air and gradually sinks*. It is then that it becomes dangerous to us. *In a hot room we need high ventilation; in a cold room low ventilation.* It is for this reason that Miss Nightingale urges poor people (whose rooms are usually cold) to keep their bedstead, even when they must sell the rest of their furniture, since poisonous air accumulates near the floor.

There should not be a draught, however—that is to say, a direct stream upon some one part of the body. Miss Nightingale again reminds us how the plant opposite a chink at the bottom of the window will die from the cutting air, while the plant above the chink may die

from want of air. Air admitted from high up in the room will keep the room fresh without a draught, provided that the room be warm. Another way of getting rid of the draught is to bring in the air through a number of small inlets, as Mr. G. W. Bacon suggests. This divides and weakens the currents.

But, anyhow, it is important to have a supply of oxygen and to have no superfluous supply of acid poisons. The poisons may be partly due to the presence of animals, decaying food, rags, dust, etc., in the room, or to bad drainage, or to plants at night time, however good they may be for absorbing carbonic acid in the day. Now the waste from the human body includes not only carbonic acid, but various unanalysed poisons, which Professor Auberon Herbert has dealt with in a masterly manner. It seems that every excreting organ has a certain amount of general power. Every such organ has its special poisons to excrete; but, when it is incapacitated, as when the skin or lungs are out of order, then other excreting organs can relieve it of part of its work.

Thus what we exhale through the mouth and nostrils is not merely carbonic acid; it may contain small quantities of waste which, in a healthy person, would be excreted through the skin or the kidneys

or the other channel. These waste-products cannot all be tested. We must be content with a plain test for the atmosphere of a room—namely, the carbonic acid test. The water-test (Fig. 12) may be of value

with regard to more solid matters—germs, etc. We need some tests, and much more simple education..

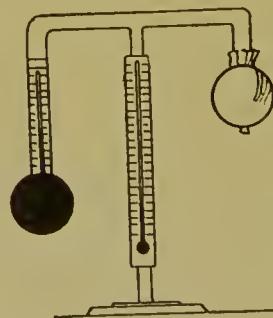


FIG. 12.—HYDROMETER.

Education should be largely through comparisons. Who would like to wear the unwashed clothing of others, which, before, had been the clothing of others, and so on? To use the air of others is even less pleasant than to use their clothing. Many other comparisons will suggest themselves. Then there should be teaching by examples. Most striking is that of the Blandford Hospital, where 150 small-pox patients were laid in the fields one night because the hospital had taken fire. After three days and nights of exposure, instead of dying, they all got up well except one. Again, at Glasgow, when ventilation had been introduced into a certain block of buildings, in eight whole years only four cases of typhus occurred, in contrast with a hundred cases in a single year previously.

It is said that, if a baby's cradle were hermetically sealed, the baby would die in half an hour. Many of our rooms are almost hermetically sealed. It is not simply from want of oxygen that we should die, but, to a great extent, from self-poisoning and mutual poisoning. The skin might relieve us a little, but the skin is not always in good condition.

Again, people need to be educated about the greediness of gas. Mr. Bacon says that an ordinary gas-burner consumes as much oxygen and throws off as much poisonous gas as the breaths of five or ten persons, according to the size of the burner. If the room has a high fire-grate, some of this may be removed. Those, however, who must burn gas should be sure that there is not too much pressure; otherwise, when the burner is turned low, Mr. Bacon says, there is an escape of carbonic acid from imperfect combustion. Professor Lankester, in his sanitary report, censured "the reckless use of gas in shops, workshops, factories, and sitting- and bed-rooms, where the

pure air does not enter freely nor the foul air escape freely."

With regard to the tests, let us repeat, we need those of a simple kind, as simple as a thermometer. Professor Herbert and Mr. William Daley approve of the following simple plan, as recommended for the household by Dr. Angus Smith. Put half an ounce of clear lime water in a bottle. Shake the bottle. Then, if the CO₂ in the air which is tested makes the lime-water turbid, a certain amount of this gas is present. A 20-ounce bottle, treated thus, shows a turbidity of .03 per cent. of CO₂.

But perhaps a better way, though it also requires no skill, is one advised by Messrs. Cohen and Appleyard. It shows the impurity of the water in this way: that the longer the solution takes to lose its red colour the purer the air is. "If the red colour in a bottle of a certain size disappears in less than two minutes, then the air of the room must be very bad, and must contain .13 per cent. of CO₂; if in less than three minutes, the air is bad, and contains .08; if in less than five minutes, the air is fair, and contains .05; if in more than five minutes, the air is good, and contains .04." A little work by Mr. William Daley gives other interesting information on this important subject.

A modern tendency is towards care in ventilation in certain places, which spoil one and do not harden one for bad ventilation elsewhere. For lack of space we cannot speak of these special systems here, nor about special grates, nor about special disinfectants. Mr. Bacon mentions these, and cites among them euclorine, hydrochloric acid, and carbolic acid, which, according to Dr. Parkes, tends to prevent growth rather than to destroy the microbes. Among the solid substances are chloride of lime, slack lime (which absorbs much carbonic acid), dried

earth, and charcoal, especially burnt bone. This last seems to be able to remove almost every form of gaseous pollution. Dr. Parkes says that it is especially effective with sewer gases and with organic emanations in disease. Charcoal must be kept dry, or else it will lose its purifying power.

The modern tendency is towards great care and scientific apparatus, which, however, is not necessarily effective. After all the money spent on the House of Commons, the experience of many members was that it was impossible to work well within the room; and other complaints have been made. So that a system which, in theory, sounds excellent, does not always work well in practice.

Similarly, in spite of the praise which the system of heating by pipes has gained for itself as being clean, easily regulated, and cheap, there are many who, for purposes of work, hate it. They would rather have the fire, with its attendant ventilation and cheerfulness; they would rather *not* have the heat, which the Americans, and even the Germans, carry to a ridiculous extreme—that heat which feels to them so lifeless and often breeds fear of the cold.

Modern buildings, again, with their closely-fitting doors, may seem excellent in theory. They may preserve more heat, but those who have lived in them find it hard to go back to older habits of freer ventilation. The primitive cottages, with their apparently clumsy cracks, have decided advantages.

To one form of ventilation, however, there can be little objection, and that is the modern tendency to ventilation of grievances, no longer shut up in dusty official pamphlets, but put forward freely in the daily papers, which, nevertheless, have not yet dealt with some of the most grievous mischiefs.

In railways, for example, who has the right—the stuffy or the healthy person? The stuffy person, at present. We have smoking carriages. We have no air-carriages. They might be arranged as they are in Canada, with netting over the windows to keep out some of the smuts. But certainly something should be done. We believe that a Government-inspection of railway carriages from time to time, like the railway inspection of passengers' tickets, followed by severe fines in case of foul air, would lead the railway companies to a better plan.

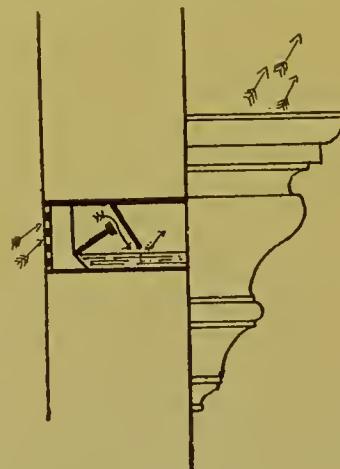


FIG. 13.
A NEAT BRACKET VENTILATOR.
(Adapted from Daley's book.)

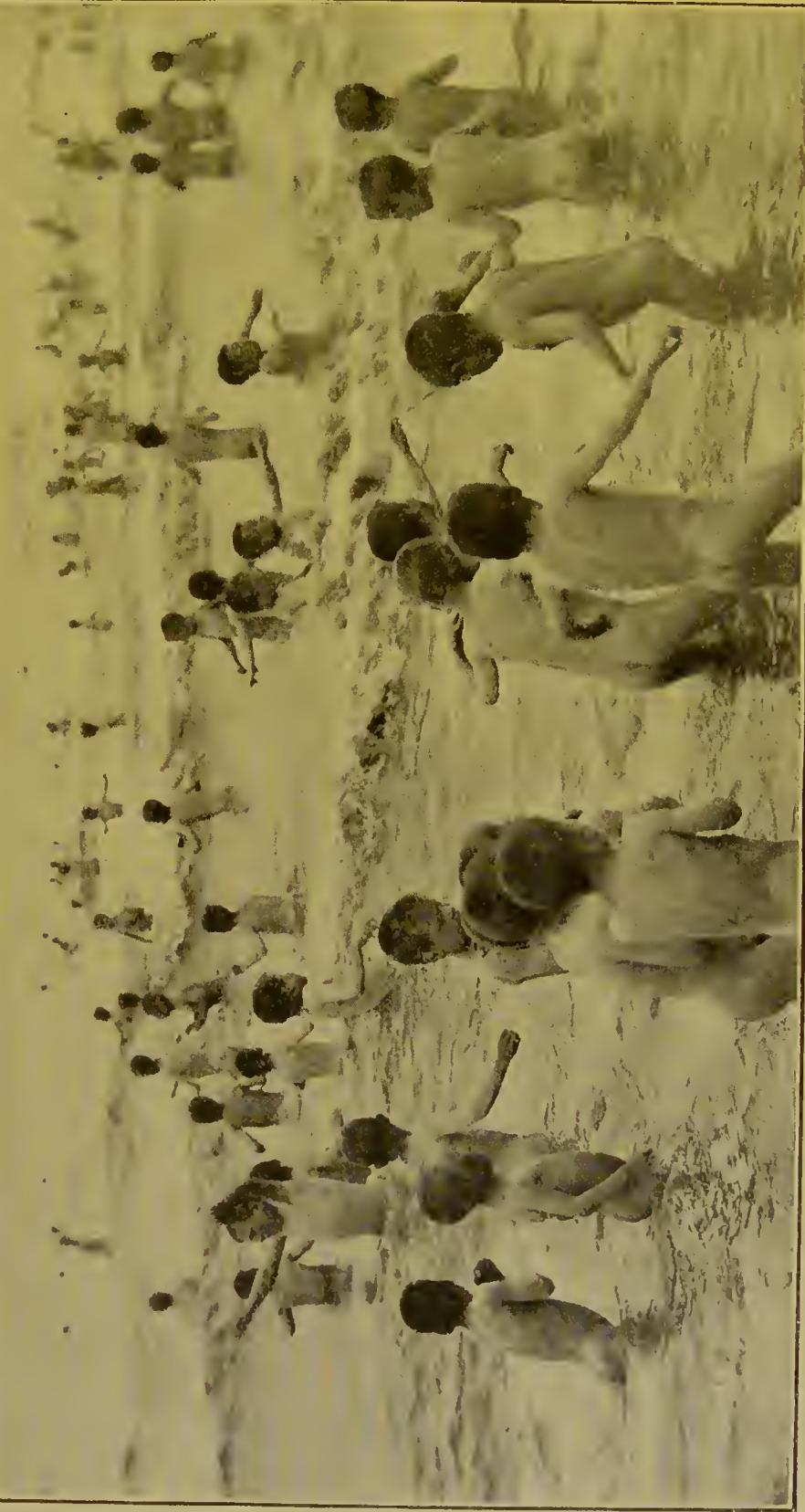
evil is intense, and one felt inclined to suggest that, even if the owner of the office insisted on stifling himself, he should provide his visitors with a tube connected with the open air, so that they at least could breathe with safety.

But if you are forced to live in foul air, make up for it whenever you have the chance. Breathe gingerly and rhythmically at the time, but restore the upset balance in fresh air directly you go out, and in your bedroom.

A window device is not difficult to invent for your bedroom and sitting-room. Here is one that Mr. Bacon suggests:—"Get a piece of wood about

FIG. 14.—THE LIGHT IS EFFECTIVE AS WELL AS THE AIR AND THE WATER.
REFORMATORY INDUSTRIAL SCHOOLBOYS AT ARDWICK.

(Photograph by kind permission of J. G. Legge, Esq.)



four inches wide, and long enough to fit exactly across the window. Fix it edge-wise under the lower sash, so that it will not quite shut. This will allow a current of air to pass between the sashes—an upward current which will cause no draught."

As to the value of fresh air, no word of ours is in the least necessary; but again a comparison may be of some use—the comparison of the Bessemer invention. It turns cast iron into steel. An American has aptly described the process somewhat as follows:—Within a vast brick-lined

longer; it is the finest and best of steel. " You yourself," says Mr. Herbert M. Casson, " are, in a certain sense, a Bessemer Converter. Whenever you take in a deep breath, you too are burning up the waste-matter in your body; you too are changing bad blood into good blood within your lungs, just as the air forced into the Converter burns up the silicon, sulphur, and carbon. Indeed, there is more difference between your blood before and after it has been through the lungs than there is between the cast iron and the steel. If the Bessemer Converter must have plenty of air, and pure air; if it would give a very poor quality of steel when air from some sweat-shop or basement bakery was pumped into it; how much more does this apply to your body?—how much more does it apply to the body that is fuller of waste products than yours is—to the tens of thousands who die from consumption and pneumonia? Without pure air are we not likely to be more like cast iron than like steel? Notice how, if you

take a few long breaths through the nostrils, which are your little holes, you will feel warmer and warmer, and perhaps will be almost giddy with the swift circulation of new blood."

Just one more item. The discovery of this Converter, whether it was by Bessemer or by William Kelly, changed the price of steel from threepence-half-penny a pound to a penny for three pounds. The man who breathes pure air will similarly cheapen the production of his own body and its work. He will be able to do far more work at far less vital and other expense.

It would be possible to write a whole

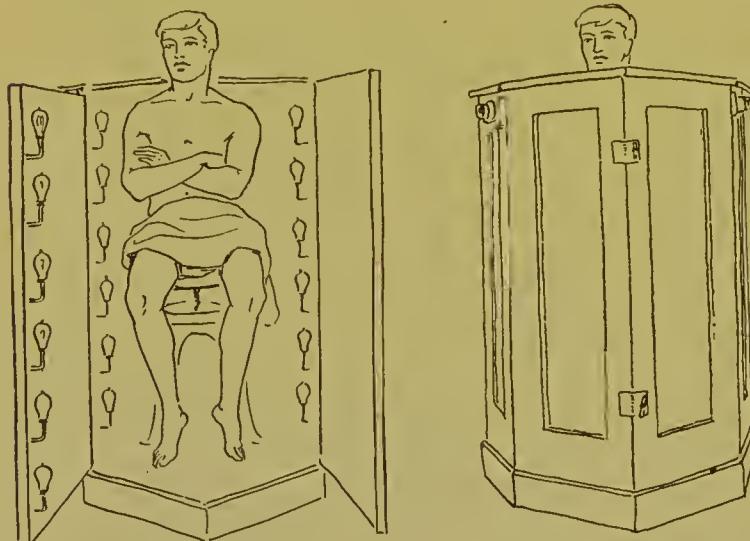


FIG. 15.—A COLOUR AND HEAT ELECTRIC BATH (OPEN AND CLOSED).

vessel of iron are poured from ten to fifteen tons of molten cast-iron. From two hundred little holes in the bottom of the vessel a strong current of air is forced up into this mass of liquid metal. This air makes the iron almost twice as hot as it was before. It burns up the waste matter, the silicon, sulphur, carbon, etc., by means of such fierce heat, and it leaves nothing but steel. The moment the air is pumped into the mass the mass hisses and roars like a living thing in pain, sending showers of sparks from its mouth and a column of white fire, as if it were a volcano in eruption. One long, deep breath, and the iron is iron no

treatise on one aspect of air—namely, the differences of climate. Much more depends apparently on dryness than on the actual temperature. The change from Sydney to Melbourne is a striking example.

It is not, however, a matter of air alone or of climate alone, as many faddists maintain ; it is a matter also of diet, which clogs the body almost, if not quite, as much as carbonic acid. People have cold extremities in winter, or they feel the heat much in the summer, not merely because the air is cold or hot respectively, nor merely because they have not stoked their bodies enough in winter. The discomfort is partly due to bad circulation. It can be removed by fresher air, but not always by that. Purer and stronger diet will be an advantage, and also perhaps a certain number of water-treatments rather than alcohol.

Then again, there is light. Sir James Wylie found that in those hospital rooms at St. Petersburg where there was little or no light, the number of patients who were cured was only a quarter of those who were cured in properly lighted rooms. This rule applied even to the two sides of the same hospital. Scrofula often arises from darkened rooms. Children are largely influenced by dull school-rooms, and not only get pale cheeks and other mischiefs, but also become indisposed to pursue their studies. A workshop or workroom produces the same effect on its occupants ; so, *as a matter of economy*, employers would do well to provide light and cheerful places for their workpeople."

Exactly how the light works in healing us and invigorating us we need not trouble to discuss ; that it does work is sufficient for us here ; and hence the most-used rooms in the house should be the lightest rooms. As it is, we often choose

the lightest room for the drawing room, into which we rarely enter.

Abundant light, even abundant sunlight, or air do not necessitate excessive warmth or excessive cold. In case of excessive warmth from sunlight entering the room, blue glass may be put in the windows for the time being.

The best light--or at any rate the best light that is also the most feasible—for the whole skin of a busy man, is probably that of the early morning. It is not merely the face and hands that need light and air ; every part of the outside skin needs them too. Hence we would urge the early morning—and, if possible, the mid-day air-and-light bath. We get it of necessity when we bathe, and we attribute the good effects to the water ; they are largely due to the air and light as well.

The light-cures of recent years have become popular, though at present they are not nearly cheap enough for the masses. By means of different coloured glass, electric light or sunlight (when we can get it) can be turned on with various effects to different parts of the body. The illustration shows a heat and colour-bath open and shut. The bulbs at the side may be of different colours, according to the purpose required, blue being cooling and "chemical" (as it is called), red heating. Inside this bath one gets a pleasant perspiration. Afterwards one has a wash and a rub-down.

If one cannot get the air-and-light bath for the whole body, at least one can get it for the feet in the early morning. The Kneipp-cure of barefoot walking on the grass is excellent for many ; otherwise one can do some exercises on the inclined plank. This will improve the shape of the feet ; while we know cases where the barefoot treatment has done much to remove the nervousness and even hysteria of women.

CHAPTER XXXIII.

A FEW MINUTES' COURSE FOR VERY BUSY PEOPLE.

This is a Brief Course, but not One to be Hurried Over—Practice will make it Brief—Not Complete, but, Rather, Interesting to Anglo-Saxons—Should be Graduated—No Strain—No Exhaustion—Repose of Parts not Wanted—Two Ways of Learning a Course—The Mirror—Dr. W. G. Anderson—Good Conditions—Effects of Interest—The Course—Massage—Add Your Own Favourites—An Important Point.

A FRIEND of ours, well known in the educational as well as in the athletic world, has sent us a letter in which he asks for a Course of a few minutes for the *extremely* busy. The Editor has done his best to devise such a Course, which, together with intervals for breathing and with one minute for relaxing, and with each exercise performed twice, takes him —now that it is familiar to him—exactly seven and a half minutes. This, practised twice a day, would take a quarter of an hour.

But please do not hurry: do not try to beat your previous records. Please do not frown. Please do not mind if at the beginning this Course, with each exercise done only once, and without intervals for breathing, and with only a quarter of a minute for relaxing, takes you a quarter of an hour. You will get it down to seven and a half minutes within a fortnight or so.

The Course is not complete, nor is any exercise scientifically perfect. That is not our claim at all. Our claim rather is that most of the exercises will be interesting to Anglo-Saxons, because they are like something which Anglo-Saxons enjoy. We know also that the Course is short, that it takes up only a small space, that it is cheap (for a light club is the sole implement, and even this is not vitally necessary),

and that it is easy to graduate with respect to pace, extent, and number of times. We feel sure that if it is so graduated it is very healthy, especially as it includes exercises in breathing and relaxing, and plenty of trunk and leg and foot movements. It is a “limbering-up” Course, so to speak, to refresh the person, and to prepare him and train him and keep him in training, rather than an ideal Course to meet all the demands of physical life.

The illustrations show the exercises as performed by the Editor and his little nephew, Crosfield Miles, whom he wishes to thank here for his patience in posing.

We insist that there must be no strain and no exhaustion. Directly you get out of breath and your heart begins to palpitate, stop, breathe calmly, and relax.

Keep relaxed and reposcful those parts which any exercise does not require you to use. The relaxing exercise should make this easier every week. Few people realise the importance of relaxing for gracefulness as well as economy. Mr. C. B. Fry is one of those who do.

There are at least two sensible ways of learning and practising such a Course, of which a more elaborate and thorough kind will be found in Routledge's “Alphabet of Athletics.”

(1) After reading the chapter, do the exercises once, then describe each briefly in your own words on a separate piece of paper. Get a large sheet of cardboard or mill-board, and paste on it, in the top left-hand corner, the first exercise. Do that attentively and well. For the second day, add a second exercise similarly to the first, and so on. Thus, without effort, you will soon be doing the whole Course attentively and well, and will be more likely to continue it than if you tried the whole at once. Though, if you are accustomed to exercises, you will not find the whole difficult.

At first do each slowly, and feel the muscles just stretching, not straining; contracting, not nut-cracking. As Horace Fletcher found that thorough and attentive mastication developed in him not only self-control, but also the instinct to do enough and stop in time, and even the instinct to desire and choose the best for himself, so by full and attentive exercises you can get similar instincts.

It would be well to practise before a very large mirror, in which you can see some muscles, and secure more correctness and attention: Dr. W. G. Anderson, of the Yale University Gymnasium, has found that to look at the muscles which you are using, in a mirror, will send more blood to these muscles to nourish them.

Then gradually increase the pace, and with it the number of times you do each exercise.

Secure the maximum of air and light, the minimum of dust and hampering or deforming clothes. Bare-footed exercise is good for many people.

(2) Similar hints hold good if you adopt the second plan, and, instead of mastering one exercise the first day, and repeating this and mastering a second on the second day, and so on, do the whole Course correctly once the first day, then twice as

soon as it is easy. Different plans suit different natures.

The relation of this Course to the other Course for men is that this is less "scientific" and less for "development," but more interesting (as being more like realities) and more for athletics. It is probable that, from the point of view of health, to enjoy oneself and not to be bored is of nearly as much value to the system as a tonic and stimulant to the blood and nerves, as the routine-exercises are to the system as a builder and a strengthener. The Courses are alike in certain exercises, and each Course has its own functions.



FIG. 1.

I. CROUCHING.

Standing with the body evenly balanced, the chin in, the back reasonably hollow, and the hands on the hips (thumbs behind, fingers in front to support the organs), first rise on your toes as you breathe in, then sink down to a crouching position as you breathe out.

FOR FENCING.

Starting in the position shown in the article on Fencing, the right foot (at right angles to the left foot) having its heel against the left heel, and its toes pointing straight forwards, and with the arms crossed behind the back, bend the knees so that you crouch. Do not yet move the feet. Now take a short step straight

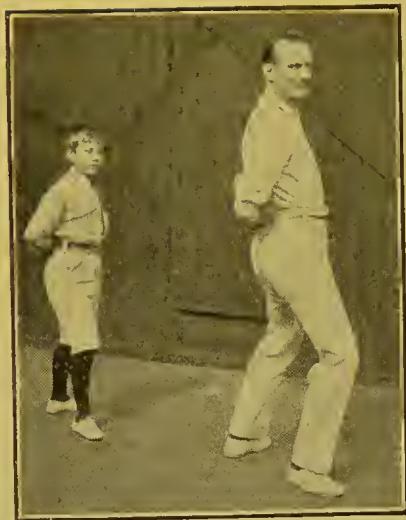


FIG. 2.

forward, keeping the right foot along a line, say a chalked line, on the floor. Keep the left foot firm. The legs are still to be bent, and the crouching position is still to be kept. Settle well down. Next straighten the left leg while you lunge out along that line with the right leg. For detailed instructions see the special article.

For the purpose of an ordinary exercise it will be sufficient to send out the right arm with the palm upwards so that it is



FIG. 3.

on a level with the shoulders, the left arm going backwards till it is about on a level with the thigh. It also has its palm upwards. Now, while you still keep the

head upright, alternately straighten the right leg while you bend the left, and straighten the left leg while you bend the right. Then return to the crouching position with the arms behind the back.

Repeat this with the reversed side—that is to say, lunge forwards with the left foot, not with the right.



FIG. 4.

BREATHINGS.
Three ways of breathing—the lower, the middle, and the upper—have been already described in previous chapters. We content ourselves with outlining the ways here. One of the best positions for most breathing exercises is to lie on the back—either on the floor or on the inclined plank; for thus you keep your organs more nearly in their right places. The illustrations show the standing positions, which are preferable in a London garden!

(i) Putting both hands or one hand on the abdomen, breathe in through the nostrils (with the mouth shut), as you send the abdomen out and the diaphragm down. Breathe out thoroughly through the nostrils.



FIG. 5.

Repeat, but breathe out now through the mouth.

(ii) Putting both hands on the ribs, breathe in through the nostrils (with the mouth shut), as you send the chest-walls out in front, to the sides, and back. In this exercise it is better to hold the abdomen in and the diaphragm up all the time. Breathe out thoroughly through the nostrils.



FIG. 6.

Repeat, but breathe out now through the mouth.

(iii) Putting both hands or one hand on the collar-bone, begin to breathe in (as in i), then, while you are still breathing in, draw the abdomen up, and send the chest-walls out. Now, keeping the abdomen in, bend forward from the hips (but do not strain), and try to draw the chest walls in. This will send the air



FIG. 7.

to the upper part of the lungs. Hold it there, then breathe out quietly through the nostrils. Repeat, but breathe out now through the mouth.

At intervals in the Course practise these breathings in turn.

A WRIST AND FOREARM EXERCISE (MACDONALD SMITH'S).



FIG. 8.

With your elbow against your ribs, hold your right hand with the palm facing you, as if you were going to read your own character by its lines. Now clench your right hand and turn it round as far as it will go with the thumb away towards the right. Then, as you open the hand with a brisk movement, turn your wrist round so that your thumb comes over from the right to the left. You end up with the



FIG. 9.

back of your hand facing you, your elbow still to your side. Repeat this movement briskly, going as far as you can in both directions. Then use the left side.

STARTINGS.

Standing in an alert position, but with the chin in and the back reasonably hollow, start with each foot in turn in various



FIG. 10.

directions, as if you were beginning a race, but only take one step and then come back to the alert position. With your right foot, for example, you can jump out, still keeping your poise, first to the right in front of you, then to the right behind you, then across to the left, then behind to the left. Do not grip your hands.

Afterwards start from the other foot in similar directions.

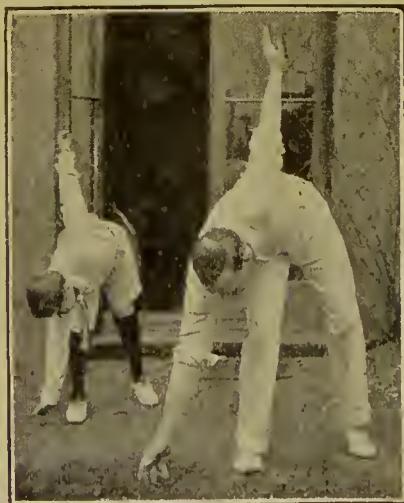


FIG. 11.

Later on you can take two steps at a time.

Try to move with as little loss of poise and as much control of your muscles as possible.

STOOPING AND THROWING.

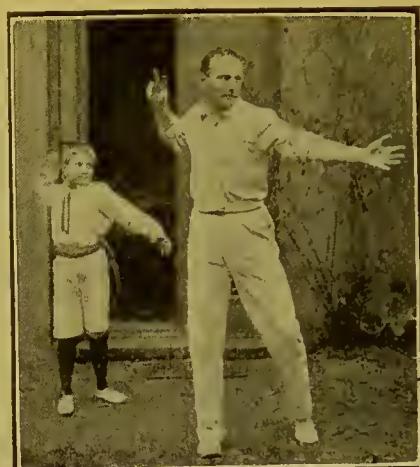


FIG. 12.

Standing in the alert position, stoop down, but bend your legs as little as you can. First stoop down to the right, with your right hand, to a spot not far from your right heel. Pick up an imag-

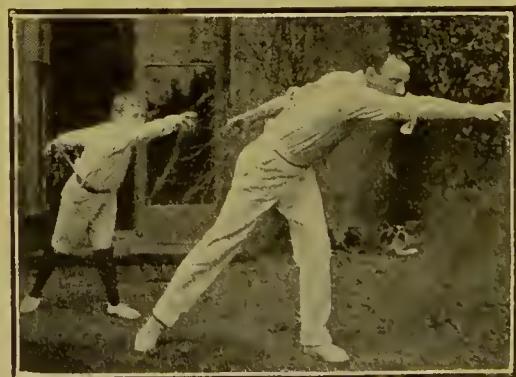


FIG. 13.

inary ball. Bring it back as far as it will go behind your ear, with shoulder and elbow and hand well back. Then throw in the American fashion, bringing your hand in front of your face, and finishing up with your first and middle fingers



FIG. 14.

pointing in the direction of the mark (on the wall) which you wish the ball to hit.

Do this similarly with the left hand.

CATCHING.

After this has become easy, take a ball, say

with the chin in and the small of the back reasonably hollow, draw up your right knee as high as it will comfortably go. If you like, draw it up with your hands, or

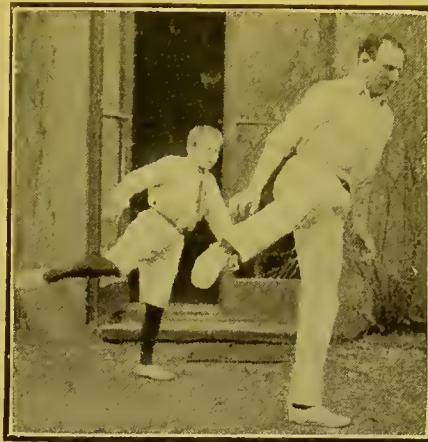


FIG. 17.

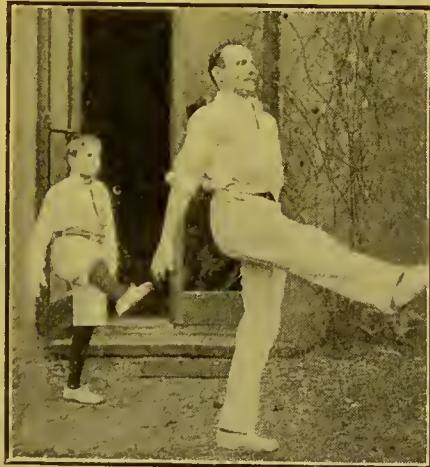


FIG. 15.

a lawn-tennis or ping-pong ball. Look at some mark on the wall. Stoop down as before. Throw at that mark, and afterwards catch the ball. Stoop and throw with the two sides alternately, increasing the distance from the wall by degrees.

LEG-SERIES.

Standing in the usual position,



FIG. 16.



FIG. 18.

Next try to kick yourself behind with your right heel, holding your ankle with one hand, if you like. Then bring your right knee up in front of you again, but further

out to the right side. Next send the right leg out as far as it will go behind you. Then, as you rise on the left foot, swing it straight and not with bent leg as far as it will go in front of you. Never mind if it carries you off your left foot. You want to get a free swing from the hips.

If to this you add a certain number of Macdonald-Smith foot-movements, so much the better.

Now do this, standing on the right foot, and exercise the left leg.

BODY-SWING.

Get some good driver to show you a golf-swing. Then practise it with a stick or with a light club (like the one which we ourselves prefer). Use either a real ball or a piece of paper the size of a ball to fix your attention. Keep your eye on the ball. Swing your implement well back and up to the right. Let your right shoulder and trunk go with it, bringing the body's weight on to the right foot; then swing outwards and down, and well away to the left, which brings the body's weight on to the left foot. It is a good plan to make a white line upon the

floor (we have pasted paper lines on our bedroom floor for that purpose), so that you may be sure that your club follows that line, beginning along that line directly the club falls, following along that line past the ball and well outwards, instead of pulling across.

Then do a similar drive left-handed.

RISING ON THE TOES AND BALLS OF THE FEET.

With chin in, lift up your arms with their palms facing forward, as you rise on your toes and the balls of your feet,



FIG. 21.

and breathe in; then let your arms down, with the palms outwards, as you let your breath out.

SWIMMING : BREAST-STROKE.

In order to keep the head well back and the small of the back hollow, and to bring the shoulders well back, it may be well to begin the practice on the inclined plank, though you can do the practice standing or inclining the body forwards. You can do the counting as One, Two, Three.

One.—Send the arms, with their palms downwards and thumbs touching, straight



FIG. 20.

in front of you but upwards, so that the fingers are above the level of your head.

Two.—Lower the thumbs. Bring the backs of the hands together. Then sweep round and out till your hands come about on a line with your shoulders. Keep your fingers well together.

Three.—Draw your hands up, thumbs together and with their backs against your chin. You are then ready for One again.

The swimming exercise for the legs should be practised similarly, either as one



FIG. 22.

lies down on one's back upon the floor, or the inclined plank, or else as one stands and leans slightly forwards. Keep the chin in, the head up, and the small of the back reasonably hollow. First do the leg-exercise with each leg independently ; then combine it with the arm-exercise, the three counts—One, Two, Three—helping the combination. The exercise, for the two legs together, is described as follows in an American paper :—

“ One.—From the initial position with the leg stretched straight out as far as it will go, draw up the thighs with the knees

widely separated, the legs bent, but the feet still together.

“ Two.—Send the legs outwards at right angles to the thighs, the feet being now at right angles to the legs. Do not lower the thighs.



FIG. 23.

“ Three.—Stretch the legs backwards and together as quickly as you can, so that the thighs and legs and feet regain the first position.”

You can do this, but with each leg in turn. Afterwards to the breast-stroke may be added the side-stroke and others:



FIG. 24.

BOXING-LUNGE.

The boxing-lunge is somewhat different from the fencing-lunge. It is nearer to the left-hand lunge in fencing. Here you



FIG. 25.

do not crouch so much. Neither do you keep your right foot at right angles to your left, but you allow it to face more forward. Neither need you keep it very firm on the ground. But, as in fencing, the lunging foot lunges in a straight

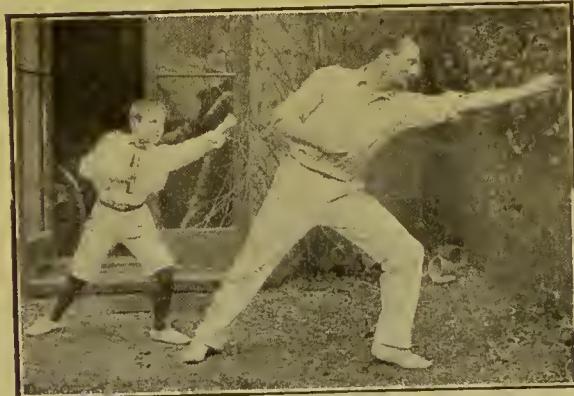


FIG. 26.

forward line; that is most important. As you lunge, shoot out the left hand with a good blow that brings the shoulder forward to add force. Aim at a spot where your opponent's head would be, or use a punch-ball. Keep your right hand about opposite "the mark," as it is

called. Then recover your poise and lunge again (see the previous chapter).

Do this with the sides reversed.

If you have a punch-ball, practise a little with that. Be sure that your feet are in the right position, and especially be sure that when you come forward to strike you put plenty of energy and "shoulder" into the direct stroke, and have your left foot pointing straight forward, not away towards the right. Recover the alert position immediately after the blow. Try various blows, dodgings, etc., if this interests you.

LAWN-TENNIS SERVICE (AFTER R. F. DOHERTY).

Imagine yourself to be serving at lawn-tennis in the way we have described else-



FIG. 27.

where. Holding the imaginary ball in your left hand, bend the whole trunk and the head far backwards towards the right. At the same time send the right shoulder and elbow and right hand far backwards and downwards. Then with the left hand throw up the imaginary ball so that it would drop nearly on your head. Looking up, bring your right hand and arm to their full extent up, and then down across

the body, your trunk moving with it, till your right hand and side end up in the position shown in the illustration.



FIG. 28.

Do this with the left side also.

Other varieties of lawn-tennis strokes are suggested in "An Alphabet of Athletics."

STRETCHING AND RELAXING.

Standing or lying down on the floor, or lying on the inclined plank, first stretch your head up as far as it will go, as if you were on a try-your-height machine. Then stretch down your limbs as far as they will go. Then stretch up your arms above your head as far as they will go without strain, keeping the palms upwards. Then stretch your arms outwards as far as they will go with the palms still upwards. Do not simply make the movements, but hold them for a short time, and, when you have held them for a short time—say while you count five—rotate the joints so that you not only go to that distant land, as it were, but also spend a little time there in having a look round.

TRUNK-CIRCLING.

Standing with feet near or together and with toes turning slightly outwards and with the legs very firm below the hips and with the hands on the hips (thumbs behind and fingers in front to

support the organs), circle round with the upper part of the body, keeping the face turned to the front. Circle first out to



FIG. 29.

the right as far as you can go, without strain; then out and forward and round to the left; then out and behind to the left and back again. Afterwards reverse the direction.



FIG. 30.

SKIPPING.

Imagine yourself to be skipping, or, if you like, use a real rope or skipping-rope. Keeping the chin in and the small of the back reasonably hollow, jump up into the air with the two feet together while you

circle your arms round. Begin by circling them out to the front, then up and out to the back. Vary this by skipping with each foot in turn instead of with the two feet together, and by sending the arms in the opposite direction.

Work out your own varieties of skipping. There are few better exercises for giving activity and control of the poise as well as good movements for the shoulders and chest and neck.

As a change, try skipping with the wrists and forearms, not with the whole arms.

RELAXING.

There are several ways of relaxing. We need only describe the sitting exercise here, repeating what we have said elsewhere.

Sit well forward in a chair which has no arms, or on the edge of a bed. Keep your trunk straight laterally—that is to say, keep your legs even, with the toes turned slightly outwards. Now take a deep and full breath inwards and let it lift up your chest, head, and eyes. Never mind about your shoulders. Let them do as they feel inclined. Hold the breath for a second or two; then, while you let it ooze out, let your head sink forward on your chest and your whole body sink down by degrees. Take another deep inward breath through the nostrils and again relax still further, till you find yourself in a sleepy and reposed position, with your arms hanging down loose and heavy by your side.

Stay thus for a short while, thinking of anything pleasant and breathing deeply and rhythmically, and using each outward breath in order to relax more and more.

Then draw your arms slowly back and you will find that your body will become more upright. First get your spine straight. Then lift your head and open your eyes as you take an invigorating deep and full breath in through the nostrils.

Stay thus for a moment or two, and do not hurry directly afterwards.

A modified form of this exercise may be practised during the day; or you may stretch your arms upwards above your head as you would when you yawn. While you do this, take a deep full breath inwards. Then, as you let your arms flop down again, let your breath ooze out also.

The relaxing exercise you can practise well on the inclined plank, if you take the exercise which we have described in the course on Nerve-training. Or you can do the standing exercise already suggested.

MASSAGE.

In the early morning, after blowing the nose and washing the teeth, lie flat on your back upon the bed or the floor. It is better to do this with the minimum of clothing. Stretch the arms upwards while you inhale through the nostrils. Then let yourself relax as you bring your arms slowly back again to your sides. Keep as limp and easy as possible.

Now draw up your knees towards you, and still keep relaxed, and massage yourself in the way which we have suggested in the Course for Men. Massage round the navel, up your right side, across, and down your left, in increasingly large circles.

INDIVIDUALITY.

Add any special exercises of your own, particularly such as may help your hobbies. There are numbers of good exercises which the Editor finds useful for some ball-games. He does not describe them here, as they might not interest many readers. It would be far better for each reader to devise his own.

Only, among his hobbies let him include an alternate walk and run, a walk during part of which he moves leisurely and notices the scenery, and a swim, and at least one competitive game or form of sport.

CHAPTER XXXIV.

PATRIOTIC PROFESSIONS.

Need to Estimate Pursuits in View of their All-round Advantages—Want of Perspective—Want of Prospective—What the Best Physical Culturists Do—Contrast what the “Respectable” and “Genteel” and “Successful” People Do—Snobbish Contempt for “Professional” Men—Need for “Gentlemen” to take up the Pursuit—Opening for Public School and University Men—What Better Work could They Possibly Choose?

A GREAT philosopher, who was so great that many thought him mad, said that the one need of the age was new evaluations. He himself lacked the power of “evaluing” health. He seems to have been morbid and neurotic. Exactly what his way of living was, we do not know; and the physical side of life he evidently underrated. Yet his theory was right. We do need to look at life all-round, in perspective and prospective. We need to look at individual lives and professions as they tend to the all-round ideal.

We hate abstract terms, yet we must have them once again, and we would ask the reader not to rush over the following words merely because they look philosophical, and merely because this is a “physical” educator. If our physical education does not help *all* these departments of life, it is a mockery. The departments are physical, hygienic and remedial, athletic, æsthetic, intellectual, economical, moral and spiritual, domestic and social and cosmo-

politan, competitive, recreational, and *prospective*. It is because he misses so many parts of the whole, perhaps because he utterly unfits himself for them, that the typical millionaire is frequently a miserable failure. If any reader can think of half a dozen millionaires, let him criticise their life all-round. Perhaps he will find them a failure altogether until he gets down to those two words, “intellectual” and “economical,” and a failure in all the departments after these. These men loom large, in daily papers, as successful men. They have the impudence to write on the art of success. It is not all-round success. Physically speaking, it is almost invariably a miserable failure.

Now suppose that a certain class of workers helped in most of (or in all) these spheres, would this class of necessity be respectable, a glory to the very exclusive drawing-

room? No; we should be thinking about the person’s father, mother, grandfather, grandmother, wife, sister, money, clothing, introductions—not what



FIG. 1.—HARRY ANDREWS,
WHO HAS HELPED TO PRODUCE MANY
FINE ATHLETES.
(Photo: W. S. Campbell, by permission
of Mr. H. Andrews.)



FIG. 2.—IT IS WORTH WHILE TO INDUCE PEOPLE TO TAKE OPEN-AIR EXERCISE.
(Photo by Messrs. Link: by permission of Mr. E. L. Lévy.)

is he, what does he do, what does he teach, what does he radiate; but what is there *outside of himself*?

Take the millionaire once more. What does one praise about him? His character? No. His money? Yes. We do not ask what he can and must take away with him when he dies, but what he must leave behind him. We judge him by externals. Instead of considering the best workers respectable, whom do we consider respectable? Among the Romans the following would have been included: The generals and soldiers, politicians and voters, orators, farmers, and the sons of these. Then, later on, others, such as very rich men, "polite" teachers, and finally even ordinary women! Among us, more and more classes enter the (often paralysing) sphere of respectability every year. Clergymen, schoolmasters, actors, journalists, dentists, women, children,

domestic servants, employees; all are now being cared for. The direction is right, but the advance is slow.

The direction is to honour work. That is good. The Jews honoured work. They went further, and insisted on it. A man who could not work was not respectable. It is true in more senses than one that we owe a great deal to the Jews.

Physical health has been set among the highest of all acquisitions and possessions by the greatest of men—by Buddha and Jesus Christ in ancient times, in modern times by Emerson, Gladstone, Ruskin, and Roosevelt. All these have put health among the first two things necessary for salvation. Yet, in spite of the fact that we pretend to admire these teachers, to have been born rich and to be becoming unhealthy is more respectable than to have been born poor and to be becoming healthy and to be making others healthy.

Let us away with this false standard and give all honour to the helper of health, to the clergyman if he helps the health of the soul, for that will react on the intellect and body; to the teacher if he helps the health of the intellect, for that will react on the soul and body; to the scientist and doctor if they give us more energy of body and so help the health, which reacts on the soul and the intellect.

What are the best physical teachers? We shall try to point out a Physical Educator's true position in an Anglo-Saxon country, leaving the reader to compare the ideal with the actual, just as he will compare the ideal clergyman, teacher, scientist, and doctor with the actual.

The day of the bullying sergeant for little boys and girls is past or passing—at any rate in the best gymnasias; but still the public would appreciate a man with a classical education as well. There is a certain faculty acquired, as Mr. Flynn has said, by Latin verses, however badly one has done them, and also by *mensa* and *dominus*. There is undoubtedly a "tone"

given by Public Schools and Universities, in spite of their many blatant faults. We wish to show that physical education is a profession which would be benefited by people of a classical Public School and University education, and that these people themselves would be benefited. What we have to do is to tell them the glory of the profession.

How do we estimate the father and mother who give the nation healthy children? We are idiots not to bless them and honour them. Surely there is something in the Chinese system of honouring ancestors because the children do well. If a man and a woman gave the nation six healthy children, to start a geometrical progression of healthy children, who would ever vote them honours? Honours go to the man who somehow appropriates a hundred thousand pounds, never mind how many people he ruins on the way.

Conversely, who ever would vote the opposite—hanging and disgrace for the opposite men and women, the consumptives who bequeath a tendency to consumption? About this there can be no doubt: The good physical teacher is no



FIG. 3.—PHYSICAL WORK AT A REFORMATORY INDUSTRIAL SCHOOL, GATESHEAD.
(Photo supplied by Mr. J. G. Legge.)



FIG. 4.—MR. T. E. CHESTERTON,
WHO HAS DONE MUCH TO PROMOTE PHYSICAL EDUCATION.
(Photo: H. G. Chase, Southsea.)

less important than the good father and mother. A man or a woman in ten years may train a thousand people to better health, greater fitness for all-round life, enjoyment, self-control, self-expression, self-respect. How many of the people honoured in society or politics can claim so important a service to the Commonwealth and to humanity? Truly we have no perspective, no prospective.

In this profession there is that element which so many professions lack—hero-worship. Think of Sandow! He has been an inspiration for physical culture all the world over.

He, like other teachers of physical culture, does the things himself, perhaps many times in a day; or at any rate he did them some time ago. He did not merely say, "Practise this and that."

So also of the qualities which the physical teacher needs—this applies equally to women, but we find it convenient to use the male gender. The teacher deals with large classes, and he deals with various subjects, including anatomy, physiology, hygiene, mechanics, and—human nature! He must sympathise with the workers. He must have tact—he cannot have too much of it. He must interest the pupils in their work and in themselves. He must move them to self-activity.

He must give them self-respect, respect for their bodies as well as their "souls." He must train the muscles for better breathing, better digestion, better excretion. He must train the individual for a healthy outlet of his energy, for physical recreation, as distinct from stimulants and narcotics, to which most people fly for their leisure.

He must train the senses, especially of sight, touch, and the muscular sense. He should train the eye and the poise. He should train the nerves also for poise and self-control.

Above all, he should train the character



FIG. 5.—MR. ALEX. STURROCK'S SCOTTISH LADS AT WORK.
(Photo by permission of Mr. Sturrock.)

in pluck, promptitude, perseverance, accuracy, fair play, co-operation, and many other virtues.

Now contrast him with the city-clerk, who perhaps looks down on the physical teacher. The city-clerk is earning his fifty to a hundred pounds a year in bad air without much exercise. That same clerk

ness, no monotony. There can and should be perpetual variety.

What, then, are the objections to physical education as a profession?

The man or woman receives pay.

If he or she went round the country doing good for nothing, encouraging physical patriotism, so to speak, we should



FIG. 6.—MR. VARDON WITH HIS GIRLS' CLASS AT ST. BRIDE INSTITUTE.

(Photo by permission of Mr. Vardon.)

might very likely be earning some hundreds a year in good air and with healthy exercise, and might thus be doing a hundred times better work and a hundred times more original work. Few things could be less original, more hampering, than the life in an average office. It is not the amount of work which the clerk does, but the crampedness and the monotony of it which makes him prematurely old. In physical culture there need be no cramped-

respect him and say, "What a philanthropist!" Directly he begins to work for his due, we call him a "professional," and refuse him social equality. The limp Piccadilly lounger and smoker and tippler turns up his nose—it is among the few physical exercises he takes. Look around you, however, and you will see that *most workers receive pay*, if they have not already money from some inheritance—or from some fraud. Now about the physical

culturist there need be no fraud ; there should be none. His work is all open in the sight of God and of man. *In it there is nothing to make him blush.* If you saw the inside of the office-work and the managing-work of some of our largest businesses, you could not say the same. There are comparatively few business-men who would dare to introduce into their games the principles that they allow in their business.

The second objection is that hitherto comparatively few gentlemen have taken up the pursuit. Personally we think that many *gentlemen* have already taken it up ; certainly many ladies have. Why they have taken it up we do not trouble to suggest, except that they have tact, and that the exercises improve and show off their figures ; but usually there are nobler reasons as well.

More gentlemen and ladies are needed in this profession. There are better openings for gentlefolk here than in *any* other profession. Take the corresponding business of athletic apparatus. While most

other businesses seem dead, that is thriving as never before. We want to be practical and concrete. We therefore cite the case of a Cambridge undergraduate. We ourselves coached about two hundred Honours pupils in a single year. What were these men going to become ? They hoped to appear afterwards in Government-offices, in the Civil Service, at the Bar, in the Church, as teachers at school or college, as business-men.

But what were they suited for ? Clearly for friendship, for some social life, for honourable work, for simple work, for athletic work. They were fairly healthy. But they were ignorant, even about their own subjects, wh ch had not taught them the relation of cause and effect, had not taught them to observe, to compare, to contrast, to draw inferences ; had taught them to be square, not all-round.

Now let us suppose that, instead of entering the above professions, many undergraduates had decided to take up physical education as a profession,



FIG. 7.—FRAÜLEIN WILKE DOES AS GOOD WORK IN PHYSICAL, AS MANY OTHERS DO IN INTELLECTUAL, CULTURE.

(Photo : Percy Goggin, Chelsea.)



FIG. 8.—USEFUL WORK WITH REFORMATORY BOYS.

(Photo: Henry Irving, Horley, Surrey.)

perhaps after a year of some other study, let us say of the classics.

What would be their chances afterwards with regard to money-making? We know how many are now seeking positions, and will probably drop to a "hundred-a-year-or-so" mastership or clerkship. Trace them as trained teachers of physical culture.

They have good connections, and might start with a fair *clientèle* from the sons and daughters of their friends, who would prefer to have a gentleman teacher, other things being equal.

We say *trained* teachers, for the training would have to be very severe. There are many Courses which they could go through, and on which they could satisfy examiners after a few months' practice, if they went to an expert trainer. That side of it should be no great difficulty to them.

On the theoretical side they must study the theories and facts of material science. What better place to do this than Cambridge? Here are the leading authorities, courteous and ready to give information, as Mr. Horace Fletcher found when he was making researches about slow eating. Here a man could study anatomy, surgery, physiology, pathology, hygiene. Here he could study games, athletics, and gym-

nastics, which are full of useful lessons, and he would have the magnificent libraries and museums. He would live in an atmosphere of research and work. He would find a few teachers of physical education in the town, and a few schools; and he could easily get introductions to others, and to the leading authorities in all countries. Once let the idea take root, and there would be clubs for practice and discussion.

Add to this that his own personal experiences in games and athletics and gymnastics as well as in physical culture, his opportunities would be unlimited, and his personal fitness a great advantage.

These are not the only subjects, however, which he would have to study. If he wishes to teach, he must study psychology, to say nothing of that new study with the awful name psycho-physiology. It is one of the most interesting of all studies, showing us the effects of the body upon the mind and of the mind upon the body.

Above all, in his researches he would have an enormous scope for his *originality* —the field is still almost fresh. Contrast with this the classical, mathematical, law, history, and theology, and other examinations. There it is a matter of repro-

ductions of someone else's views. Here it would be a matter of originality and common-sense. Think of the many problems waiting to be tackled. Here are the first few that occur to us out of hundreds :

What are the effects on the body and on the mind of various positions and movements ? What are the effects on the muscles, organs, senses, nerves, character, intellect, enjoyment, health, and energy ?

What is the importance of full movements, first slow, then fast ?

What is the importance of relaxation and repose of the muscles ?

What is the effect of the development of the left side, either together with the right side or as an independent agent ?

What are the effects of various kinds of apparatus ?

We refer readers to one of the best publications of the age, the *American Physical Education Review*, where these and other problems are being tackled by the committee and by the superintendents of the American Gymnasia.

Then, again, what are the best foods for training ? An experiment is being made at Yale University in America. We have not heard the results, but twenty students from the Hospital Corps are going through a course of training with a different diet.

From Cambridge, work on physical education would come with authority. Mr. Horace Fletcher himself told us that this was one reason why it was at Cambridge that he conducted his experiments in mastication. With such men as Sir Michael Foster interested in him, he knew that his words would come with weight.

The work, then, would be original, authoritative, and creditable. The American experts of physical culture hold a high rank in the scientific world there. Such names as Gulich, Anderson, Mussey,

Sargent, Hitchcock, Mulliner, Seaver, are all well-known.

The work is pure, healthy, and valuable from every point of view. It is patriotic work. It is more patriotic for men of leisure than the present work of a Member of Parliament or a country squire.

Our plea, then, to thousands of healthy and honourable athletes throughout England is to take up this profession as the one for which they are suited ; to take a high view yet a sensible view of what they can do by entering it, of what they can do for themselves and their children, for the nation, and for the profession.

A word in conclusion about the professionals. We may divide them roughly into two classes, the teachers and the "players." Now few can find much fault with the teachers. It is the players who are abused. The fault lies largely with the lookers-on and the payers. Yet even these lookers-on and payers might be worse. After all, when we read a fairy-story or a novel—for example, Stanley Weyman's "Gentleman of France," or Conan Doyle's or Max Pemberton's anything—what are we but payers and lookers-on ourselves ? Does it hurt us so much to look on sometimes and to act in imagination, and therefore in a sort of reality, with the actors ? No, if only we see the fine side of it and turn the mind afterwards into action, there is no harm in this looking-on.

We believe that if Cambridge alone (we speak of that University not in order to slight other Universities and institutions, but because we know it best) could send out a hundred trained physical educators every year, men trained in theories and systems, not in one system only, and especially men of independent means who chose this profession by preference, Cambridge would incredibly raise the health and happiness, the morals and intellect,

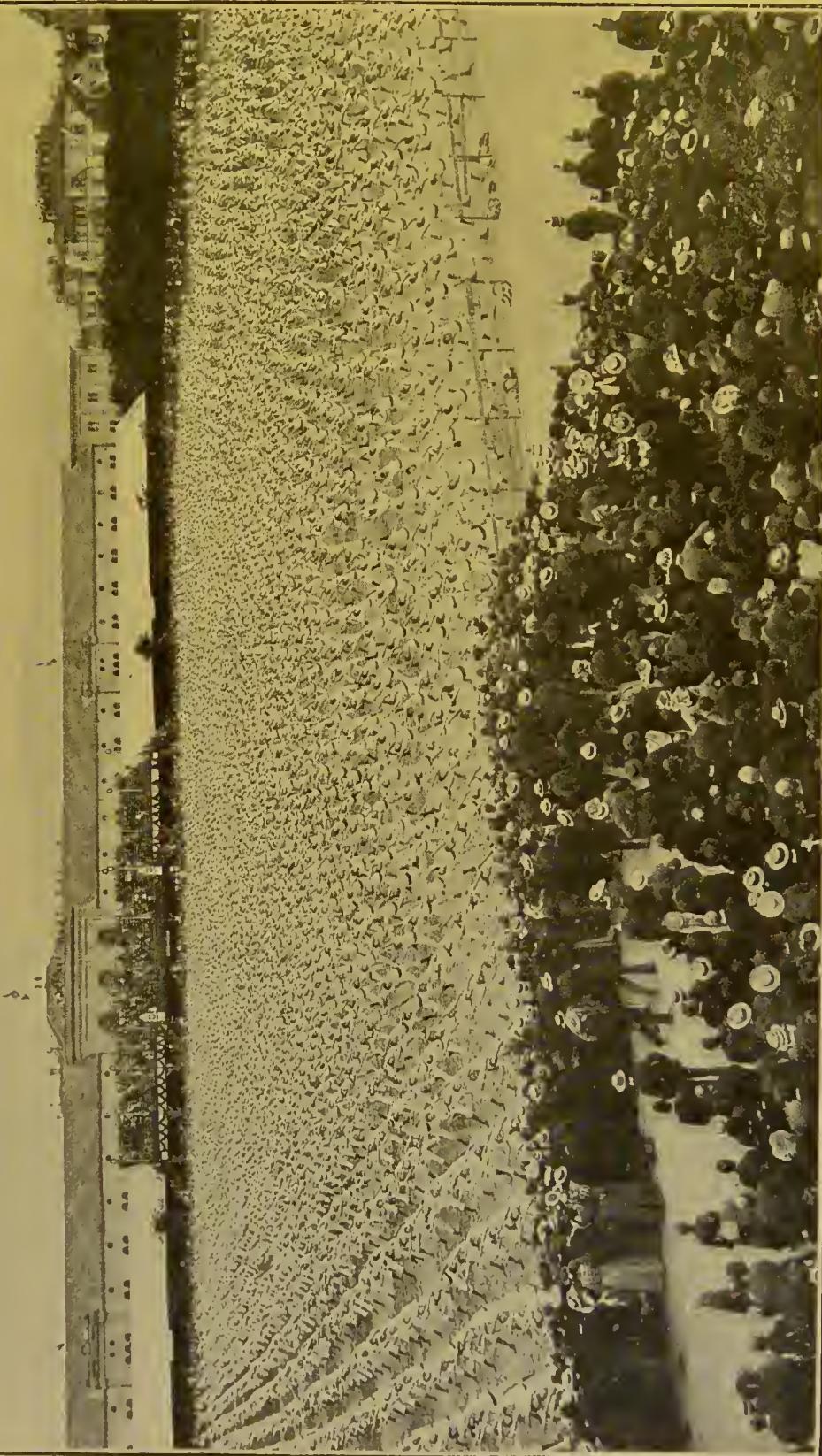


FIG. 9.—THE MEN WHO TRAINED THIS MASS TO A BETTER PHYSICAL LIFE DESERVE WELL OF THEIR COUNTRY.

(Photo: Ph. and E. Link, Zürich. By permission of Messrs. Link and Mr. E. L. Levy.)

of the masses and classes. Hitherto it has done remarkably little in this direction.

For the people will listen to such men, knowing that at least those who have independent means are not physical teachers of necessity, and because they could find nothing else to do, but because *they could find nothing better to do*. We honestly believe that half the men at Cambridge now could find *nothing* better to do, nothing for which they are better suited or—may we say it?—less unsuited.

Not till then will the profession receive proper recognition. At present, to be perfectly candid, it lacks something. It is full of advocates of only one system. We have been told in a letter from a correspondent that the Ling system is the only rational one. We have been told by other correspondents that other systems have this claim. Now these writers are not educated. They are not educated either in the narrower or in the wider sense of education. Many of them are close-minded—even in proportion to their earnestness. Perhaps they are not alto-

gether commendable in respect of healthy appearance, freedom from colds or headaches or excesses, poise and repose, breathing, voice-production. They need also recreational athletics.

So it is with the simpler foods. Already reform has begun among various classes. We ourselves are trying to spread it among the rich and popular in particular, just as in this article we are trying to get these men to take up physical education as a profession. For the millions will then say, If this man and woman, Lord or Lady Dash, can afford a ten-shilling dinner but prefers a shilling dinner, we (who really can afford only a shilling dinner) will give it a fair trial.

It is the professionals who have started the profession. It remains for those who have hitherto been amateurs to raise the profession by becoming professionals. If any reader can suggest a more suitable or a more noble profession for the typical Cambridge undergraduate, we should be glad to hear of it—in fact, we would not mind offering a prize for any such suggestion.

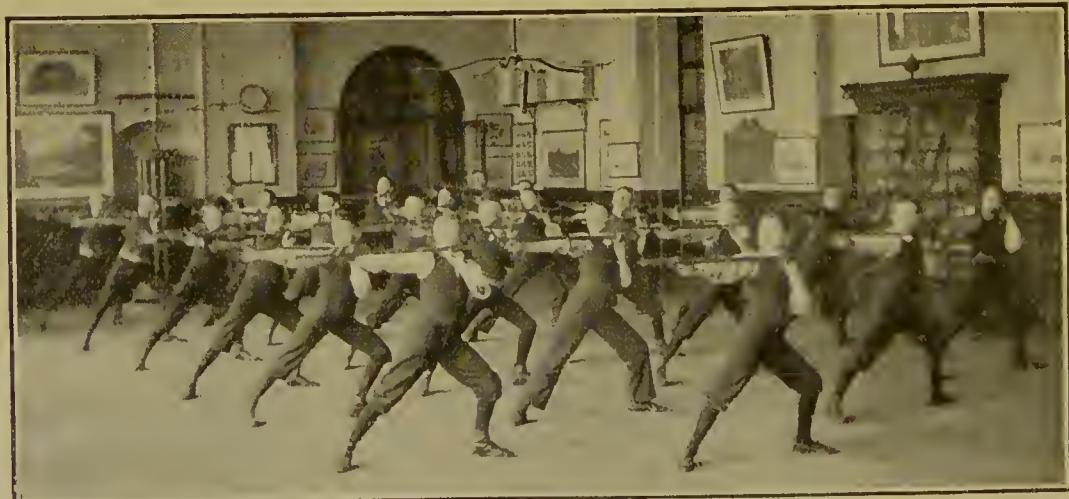


FIG. 10.—DISCIPLINE FOR BOARD SCHOOL BOYS AT WANDSWORTH.

(Photo: C. I. Mann, Ealing.)

CHAPTER XXXV.

PHYSICAL EDUCATION IN THE EAST.

The illustrations of Jujitsu exercises are adapted from Hancock's "Japanese Physical Training" (Putnam)

Two Contrasted Features are Selected from Systems Found in India and Japan—Repose in India—Agility in Japan—Good Temper in Both—The Religion of the Body—Training of Certain Yogis—Professor James' Tests of True Education—The Art of not Moving—Various Kinds of Yoga—Aim to be Free from the Tyranny of the Senses—We need it—James on Hindu Relaxation and American Tension—Some Yoga rules—Need of a Personal Teacher at First—Care about External Conditions at First—Food—Cleanliness—Ventilation—Continence—Postures of the Body (or Āsana)—To Remove Diseases—Sample Exercises—Breathing-exercises—Holding the Breath—Inhaling Water—Cleansing the Passages—The Spiritual is the only Goal—Are our Religious Teachers Right to Ignore the Results of these Specialists?—Japanese Jujitsu alike in some Respects—Adds Agility—Sample Exercises—Naturheil System to be Compared—But Japanese Competitive—Good Features—No Shame in the Body—Hancock's Work—Japanese Tests of Fitness—Body and Mind Together—Cheerfulness—Self-respect—Membership of a Great Nation—An Example—Part of the Secret—Massage—Rest—Abstinence—Leisurely Eating—The Diet not Solely Rice—Water—Ventilation—Light—Fine Results—People used as Apparatus—Competition—Power in Reserve—Graduation—No Injury—Strengthening of Weak Points—Adaptation—Foundations—Moderation—Supplementation—Results—A Lesson or Two.

AS another chapter will deal with Physical Education in ancient times, and show how massage, water-treatments, exercises, breathing-exercises, etc., were known to the Chinese as well as to the Greeks and Romans, in this chapter we can confine ourselves to the health-practices of certain Hindus and Japanese. To say that we are going to describe the *régime* of India and Japan would be unfair. We intend merely to suggest two contrasts with Anglo-Saxon habits of life: first, the Hindu Yogi who attends religiously to his body, with a view to mental repose and spiritual fitness, not to physical or commercial feats; secondly, the Japanese Jujitsu-er who attends scrupulously to his body, with a view to mental happiness and physical fitness, not to the detriment of religious ceremonies or commercial prosperity—first, the type that appears to the casual observer most sleepy; secondly, the type

that appears to the casual or the careful observer least sleepy, most agile in every way.

Let us first consider the ways of the man who would become a Hindu Yogi, remembering that the religion of the Hindu Yogi is not a sort of Sunday speciality, but the very life and soul, without which existence itself has no centre, no starting-point, no goal, no criterion of right proportion.

THE TRAINING OF CERTAIN YOGIS.

Professor William James tries to define education thus:—"In the last analysis it consists in the organisation of resources in the human being, of powers of conduct which shall fit him to his social and physical work. The uneducated person is one who is nonplussed by all but the most habitual situations. Education cannot be better described than as the organisation of acquired habits of conduct and ten-

dencies to behaviour. We take behaviour not in the narrow sense of manners, but in the very widest possible sense, including every possible sort of natural reaction on the circumstances into which the pupil may find himself brought by the vicissitudes of life.

"The reaction may, indeed, often be a negative reaction. *Not to speak, not to move, is one of the most important of our duties in certain practical emergencies.* 'Thou shalt refrain, renounce, abstain.' This often requires great effort of will-power, and, physiologically considered, is just as positive a nerve-function as is motor-discharge."

Now even if the Hindu Yogî may be accused of neglecting to prepare himself for physical and intellectual and commercial action, at least he prepares himself for non-action, for *contented* renunciation of what he considers useless or harmful. He does this by various kinds of Yoga-practices, known as Hatha-Yoga, Jñâna-Yoga, Bhakti-Yoga, Râja-Yoga. On the latter kind, the late Swâmi Vivekânanda wrote a most interesting treatise, published by Longmans. We wish we had space to tell of the mental and other exercises that have the highest possible life in view. But here we must confine ourselves to a few of the physical exercises by which the Yogî gains such a control over his body that he can do things that an orthodox physician pronounces impossible.

First, as we have seen in another article, the Hindu will learn to sit in a good posture, to sit still and calm, to control his breathing, making it full and rhythmical, and to control his mind.

As a help to this control, this freedom from the tyranny of the senses, this power to withdraw into the inmost citadel of the Being and thence give orders to the self, he is careful with his food and drink, cutting off most of the stimulant (lentils

or dhâl are not unstimulating), and especially flesh-foods, and cutting off excessive amounts, and probably under-feeding himself more often than not. Perhaps he will confine himself to a meal or two each day of well-cooked dhâl (lentils) and rice, of ghî (clarified butter), of cakes made of some grain-food, of fruits of the earth, and so on.

How much we need at any rate a little of such physical education no one can realise who has not been able to contrast the placidity and courtesy and gentleman-like consideration of the Hindu with the hustle and harshness and selfishness of the extreme type of American in New York city. It may be urged that the Hindu is lacking in strength, in activity, in adaptation, as well as in ambition; but in these respects the Japanese would do much to supplement the void.

We are not urging that Anglo-Saxons should give up what physical education and recreation they possess, and slavishly adopt a Hindu system or a Jujitsu system. We are urging, rather, that our authorities should be less insular, or less continental, perhaps, and ask themselves candidly whether our game-players, our "Model Syllabus" experts, our gymnasts, our "athletes," our loafers, have not failed to learn two very valuable lessons from the Hindus and from the Japanese—two lessons that may be learnt largely through physical exercises; namely, from the Hindus, repose, and the art of not doing unnecessary or harmful things; from the Japanese, agility and the art of doing useful and interesting things remarkably well; from both, the art of contented good temper and freedom from wasteful hurry and worry.

As we look round us, we see many Anglo-Saxon virtues; we all know them by name, and need not enumerate them here. But we also see in the country districts

too much sluggish stupidity; in the city districts too much feverish stupidity. It is the latter which the Hindu system might help to remove. And the most popular of all living writers on Psychology, the successful teacher at Harvard University (the American Cambridge) has expressed his views about his fellow-countrymen in words which will apply to many English city-dwellers as well.

Professor James says: "According as a function receives daily exercise or not, the man becomes a different being in later life. We have lately had a number of accomplished Hindu visitors at Cambridge, who talked freely of life and philosophy. More than one of them has confided to me that the sight of our faces, all contracted as they are, with the habitual American over-intensity and anxiety of expression, and our ungraceful and distorted attitudes when sitting, made on him a very painful impression. 'I do not see,' said one, 'how it is possible for you to live as you do, without a single minute in your day deliberately given to tranquillity and meditation. It is an invariable part of our Hindu life to retire for at least half an hour daily into silence, to relax our muscles, govern our breathing, and meditate on eternal things. Every Hindu child is trained to this from a very early age.' The good fruits of such a discipline were obvious in the physical repose and lack of tension, and the wonderful smoothness and calmness of facial expression, and imperturbability of manner of these Orientals. I felt that my countrymen were depriving themselves of an essential grace of character. How many American children ever heard it said by parent or



FIG. I.—HINDU EXERCISE I.

teacher that they should moderate their piercing voices, that they should relax their unused [? not wanted] muscles, and as far as possible, when sitting, sit quite still? Not one in a thousand; not one in five thousand. Yet from its reflex action on the inner mental states, this ceaseless over-tension, over-emotion, and over-expression, are working on us a grievous national harm."

Let us see a few of the ways in which a student of Hatha-Yoga (the Yoga-system which aims especially at control of the body) will be advised to proceed, by one who has himself gone through the course and who now quietly imparts his know-

ledge and experience and influence to some of the most intelligent people in New York, where the work is really necessary.

This charming personality, Swâmi Abhedânanda, says: "He who wishes to practise Hatha Yoga should first of all

find a Hatha Yogi teacher who has perfect control over his physical body, and, having found him, he should lead a life in perfect concord with his instructions."

It is astonishing how we always find this piece of advice among the Hindus, in spite of the elaborateness of their physical system—to choose a personal teacher and to obey him. These people who, more than others in the world, try to be independent of all things outside themselves, insist upon complete dependence on certain conditions at the start. The goal, however, is to be independence.

"He should live in a secluded spot, where the changes of weather are neither sudden nor extreme. He should be very careful in his diet. He should never fill the stomach with a large quantity of food. Food which having been once cooked, has

grown cold and been re-warmed should be avoided, as should also excess of salt or acidity, or that which is hard to digest. Anything which is sharp, sour, pungent, or hot, like mustard, liquors, fish, flesh of animals, curd, butter-milk, oil-cakes, carrots, onions, and garlic, beer, wine, and coffee, should not be consumed. Rice, barley, wheat, milk, sugar, honey, and butter are good for a Hatha Yogi's diet. He should abstain from all kinds of drinks that stimulate the system.



FIG. 2.
HINDU EXERCISE II.

"He should observe all the laws of hygiene regarding cleanliness of the body, fresh air, and pure water. He should not live in over-heated houses. He should observe the moral laws, and practise absolute continence. He should learn to control his senses and purify his mind by arousing feelings of kindness towards all living creatures.

"The beginner should gradually conquer the different postures of the body and limbs. These postures are called in Sanskrit 'Asana.' There are altogether eighty-four of them described in the science of Hatha Yoga. Each of these,

effects of cold, catarrh, phlegm, rheumatism, and many other diseases. Some exercises increase the action of the stomach and liver, while others regulate the activities of the other organs. Tremor of the body, and restlessness of the limbs, which are such frequent obstacles to gaining control over the mind, may easily be removed by the practice of 'Asana.' "

Here are some of the exercises cited in Abhedananda's "How to be a Yogi":—

"I. Sit cross-legged on the floor. Put the left foot on the right thigh, and the right foot on the left thigh, keeping the body, neck, and head in a straight line—that is to say, not letting the spine curve laterally. After sitting in this posture, hold the right big toe with the right hand, and the left big toe with the left hand, the hands coming from behind the back, and crossing each other.

"II. Sitting cross-legged on the floor, as in No. I, put the hands between the thighs and the calves, and then, planting the palms of the hands firmly on the ground, lift up the body.

"III. Sit straight on a level place and firmly insert both insteps between the thighs and the calves of the legs. Then stretch the legs straight in front, holding



FIG. 3.—HINDU EXERCISE III.

when practised with special breathing exercises, develops certain powers latent in the nerve-centres, and the different organs of the system. Another object in practising 'Asana' is to remove the element which causes heaviness of the body, and to free the system from the

the big toes with the hands, but not bending the knees. Next, touch the knees with the forehead. This makes the loins lean, and helps to remove many diseases. Afterwards, holding the toes as before, keep one arm extended, and, with the other, draw the toe towards your ear as

you would do with the string of a bow.

" IV. Plant the hands firmly on the ground. Support the weight of the body upon the elbows, pressing them against the sides of the loins. Then raise the feet above the ground, keeping them stiff and straight on a level with the head. This helps to cure diseases of the stomach, spleen, and liver, and all disorders caused by an excess of wind, bile, or phlegm. It also increases the power of digestion.

" V. Lie upon the back on the floor at full length like a corpse, keeping the head on a level with the body. This helps to remove fatigue, and brings rest and calmness of mind.

" The student of Hatha Yoga having perfected himself in controlling some of these postures, should next take up the breathing-exercises. He should carefully study the science of breathing in all its aspects. The first posture is one of the easiest and best for him who wishes to control the breathing. It favours a quiet circulation and slow respiration.

" The beginner should first practise abdominal breathing through both nostrils, keeping a measured time for inspiration and expiration. Gradually he should be directed by his master to hold the breath in and out. After practising this internal and external suspension of breath for a few weeks, he should next take up alternate breathing. He may expire through the left nostril for four seconds, and inspire through the right for four seconds, then reverse the order, breathing out through the right and in through the left. The alternate breathing-exercises will purify the nerves, and will fit the student for higher breathing-exercises. The student should then breathe in through one nostril for four seconds, hold the breath, counting sixteen seconds, and breathe out

through the other nostril, counting eight seconds.

" The drinking of cold water through the nose removes headache or chronic cold in the head. A Hatha Yogi cleanses the passage between the nose and the mouth by passing cords of soft black thread through the nostrils and bringing them out at the mouth. He can pass the cord through one nostril and bring it out through the other. This purifies the head and makes the eyesight keen."

Then follows a description of how the Hatha Yogi cleanses the alimentary canal by swallowing a long piece of fine muslin three inches wide; and how he purges the intestines by drawing up water into them by the help of breathing-exercises, and without using any instrument; and so forth.

He treats insomnia by assuming the special position of lying upon the back, at the same time taking a few deep breaths and holding them after each inspiration.

In the above selections there are certain practices which few Anglo-Saxons will attempt. It is so much easier to appeal to people by "Up and be doing" than by "Down and be sitting or lying." But the Hindus have certainly much to teach us—and they teach it very quietly—about better breathing and more sensible repose. For the culture of physical activity we must seek other lands, remembering what the supreme object of the Yoga practice is.

These physical exercises are thus estimated by the writer:—"To the real seeker after absolute truth they have small value, except as they become a means of helping special conscious realisation. If a



FIG. 4.
HINDU EXERCISE IV.

man lives five hundred years, and yet in that time does not reach the state of God-consciousness, he is little better than an oaktree, which may outlast many generations, and grow to great size, but is in the end only an oak-tree."

It is the spiritual that the learner sees as his ultimate goal, as we Anglo-Saxons have been accused of seeing the financial or the athletic or the aesthetic (the attractive appearance) as our ultimate goal. And the results speak for themselves, if we are to believe most of those who have lived among these Hindus. The marvel of it is that these Hindus have been specialists in religion for thousands of years, have set it first, have set it far before commerce, politics, empire, athletics, social



FIG. 5.—HINDU EXERCISE V. RELAXING.

success—they have made it the test and touchstone of all their practices—they have said to themselves, "I will do this, not if it pays monetarily, but if it pays spiritually," and yet, and yet, we Christians, who profess to set religion as the supreme end and aim of living, at least on Sundays, practically never are told by our clergy from year's end to year's end one single word about better posture or better breathing, even on Sundays and in churches where the specialist-minister has an audience bound to listen to him for many minutes. We ask whether the almost utter neglect of such advice by our ministers is due to superior wisdom (which can only be the result of painstaking research and fair experimentation), or to short-sighted ignorance; whether the unswerving insistence on such advice by Hindu Gurus is really due to inferior knowledge?

THE TRAINING OF JAPANESE:

Like the Hindu Yogis, the Japanese Jujitsu-practisers pay attention to breathing through the nostrils and to repose of the mind and good temper, not neglecting the body (and especially its food), and, on the other hand, not aiming at sheer size of muscle and a certain type of strength.

But, with respect to agility, the Japanese are far in advance of the Hindus, and it will give a good idea of some of the training, in contrast with the above exercises, if we cite a few exercises here.

I. Leap forward, as if to grapple an opponent in front of you. Then leap sideways, as if with the same object.

II. Vault over a breast-high obstacle as if to meet an opponent on the other side of it.

III. Rise as quickly as you can from a sitting posture, or from certain other postures at which you might have arrived after a fall. Throw yourself forward on your knees, your hands not touching the floor; then rise at once.

IV. While you hop forward with one leg, kick backward with the other, and while you hop on one foot, send the other now far back, now high up, now well to the side.

V. Rush at full speed towards a swinging object, and grasp it securely without diminishing your speed.

VI. Practise feinting. Pretend to spring at the knees of an opponent, then change suddenly, and spring higher up or to the side.

Such exercises are unknown in the Hindu Yoga system, nor indeed are they typical of Oriental nations, which, however, have certain points of similarity, such as the attention to breathing and massage—arts cultivated by the Chinese many thousands of years ago.

With regard to a great deal of the

Japanese training, we should rather compare not other Eastern nations, but the practisers of the German Naturheil-methods (as described in an earlier article). The Japanese system differs because its

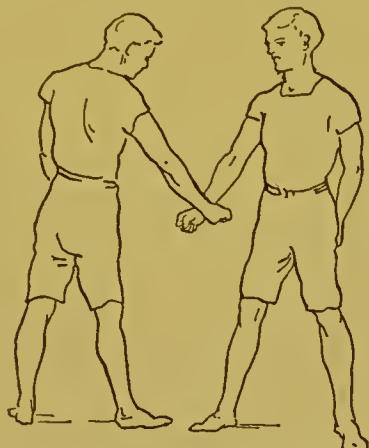


FIG. 6.—*JUJITSU INURES THE WRISTS TO STRAINS BY CONSTANT PRACTICE.*

exercises are more interesting and more competitive, whereas the German Naturheil-exercises have scarcely any interest beyond their hygiene. We may also compare this German system in so far as it pays attention to women with regard to their health; but the Japanese system is superior, because it also considers their beauty or attractiveness, their power to protect themselves, their spirit of fair play, and their politeness, while it does not sacrifice accurate and instantaneous obedience to orders and routine.

The Japanese system is alien from the English in encouraging, or taking for granted, a pride in the body and an absence of shame about it; and their ideas of competition are different from the English, as we shall show directly.

Hancock's book, published by Putnam's, is the most popular work on Jujitsu (or, as he spells it, Jiu-jitsu), and it is deservedly so, though in one or two respects it is singularly inaccurate and apt to be fatally misleading. We must refer to Mr. Hancock for details, and

especially for the details about the physical training of women. Here we cite a few general impressions from the book.

The Japanese upset our usual tests for fitness, which, as we have pointed out elsewhere, are simply ridiculous. Size, they say, is not the thing to seek for; not height, not size of biceps, not even size of chest; nor yet weight; but a fit body and a fit mind (the latter to a great extent through the care and use of the body). The body is to be strong and quick, to work economically and under the control of the mind. The subjects of the various chapters in that book will show the scope of the training. We cannot do better than introduce the book and the Japanese methods by citing them:—A healthy stomach—exercises for heart, lungs, arms, legs—even temper and some feats that require it—water—air—few stimulants and narcotics—not too fat nor too thin—preparation for attack and defence—advanced tricks—self-teaching—agility. And, throughout the work, the mind together with the body.

The training of the mind is wonderfully sensible. There is developed a polite contempt for the weak mind, including the petty and irritable mind. There is developed concentration and patience. There is developed cheerfulness and good nature.

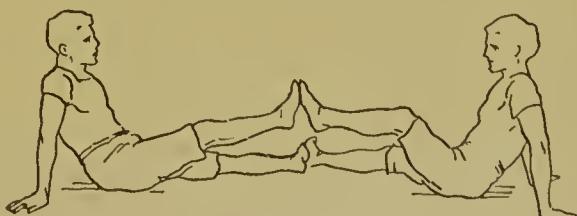


FIG. 7.—*A JAPANESE EXERCISE FOR THE LEGS.*

There is developed a true spirit of competition by imitation-competition. There is developed self-respect. There is developed a sense of membership of a great nation, the individual becoming obedient,

yet resourceful. This self-respect is partly due to the sense that the individual can defend himself and others.

As an example of this, a Cambridge Football Blue was once asked by a small man who had trained himself in the Japanese way to knock him over or hurt him. A room was got ready and well padded with cushions, etc., and the big man was told to "make for" the little man and try to kill him. He began carefully, but afterwards warmed to his work, and tried hard to get the better of the small opponent, but after each attempt found himself worsted, and pretty frequently on the floor.

Part of the secret is that the expert uses his opponent's attack, his opponent's weight and force, his opponent's clothing. All is fair. There is no rule, except to win and to do your opponent no permanent injury, and to do yourself and your all-round fitness no permanent injury.

Now much of the good result of the training—the all-round fitness which the Japanese do possess—is through their exercise. But let us first consider other factors in their method—all-round helps valuable (in Japan at least) for all people. We need only quote them here, as there is no space to enter into details.

First, there is massage, with which wonders can be worked, as every doctor of repute is well aware.

Then there is rest. Rest is used for remedial purposes, and a special branch of it is the habit of breathing at intervals directly fatigue is felt, as the exponents of the Ling system advise.

Then there is abstinence, except from tea and tobacco; but apparently not so

much abstinence now as there used to be. Then there is leisurely eating, which most representatives of Anglo-Saxon nations have despised.

The diet itself is simple, and free from excess. Mr. Hancock is quite wrong in telling us that the Japanese live to a great extent upon rice. Dr. James Cantlie ably criticises the whole book in the *Daily Express*. As he says, the Japanese are not the only people who have attained to a high state of physical perfection. He instances the Ghoorka soldiers and the Turks and the Sikhs. It is true that the Japanese exclude beef and mutton, but in this again they are not unique, and the

Japanese consume fish twice daily at meals, unless they are starving; and, Dr. Cantlie says, eggs and cheese are seldom absent from the food at some portion of the day. "Man cannot live on rice alone, nor is there any race of man who attempts to do so. In China, fish or pork is served at every meal, even to the coolie class. Vegetables and fruit are liberally partaken of by all rice-eating—as distinct from

bread-eating—peoples, so that the oft-repeated assertion that Oriental people can live and do hard work on a handful of rice thrown into water is misleading and untrue."

Water is an important item in the diet, not at meals, but especially late at night. Water is used freely for purposes of washing, after exercise (when it is a matter of course), and also on other occasions. The Japanese use hot water far more often than we do. They have their bath-tub out of doors, and are not ashamed to be seen naked—why should they be, unless their bodies are deformed?



FIG. 8.—A JUJITSU EXERCISE FOR THE ABDOMINAL MUSCLES.

Then their ventilation is more sensible than ours. Air-tight compartments are against their rule. Their partitions are thin, and plenty of fresh air gets in.

Plenty of light gets in also. They are lovers of light, and their clothing is far less sombre, far less hampering than ours.

The result of these conditions is hardihood, contentment with a little, and fitness in all sorts of circumstances. They are not a pampered people—at any rate, not yet, though the city-folk are apt to yield to luxury.

Besides, the system is extremely economical in every sense of the word economy—economy of money, of time, of energy; of money, partly because they use the healing forces of nature so sensibly.

Then, again, there is scarcely any apparatus. There is no need of a large space for practice. Many of us depend upon our cricket- and football-fields. The Japanese find a little bit of a room sufficient.

This or that part of a man's self serves as his apparatus, making him thus independent of outside paraphernalia. His hands he turns into a kind of stick by hardening their edges. With that human weapon he can strike a deadly blow. Or he uses one wrist with which to resist the pressure of the other wrist.

Not that he despises co-operation. He will use another person to give resistance, somewhat as we would use an elastic exerciser.

Competition lends to the exercises an attraction which is absent from most hygienic exercises. It is interesting to note that those exer-

cises which are least useful for the important organs of the body may be most attractive to the individual. Why should he over-develop his biceps? That does little good to his body, but it attracts him. With competition, however, we can render almost any exercise attractive. The Japanese compete not in order that they may win easily, but in order that now and then they may avoid winning easily and may only just win, somewhat as the professional coaches the beginner, altering the standard of his play at will, and restraining himself.

This power in reserve is a most striking feature of the Japanese art. The expert can break the spine of an opponent by a blow with the edge of his wrist. He has many ways of incapacitating his opponent for life. He abstains from these ways, however, and is content to put his opponent *hors de combat* for the time being.

He reminds one of the proposal made sometime ago to render war less dangerous. Instead of explosives which kill people there were to be explosives which served as an anaesthetic. Two ships meet, and one ship manages to send into the other ship explosives which put the crew into a deep sleep. It is to be an understood thing that this crew, or the part of it that has been affected, shall treat itself as dead people, and not fight again during the conflict. The Japanese have the supreme art, in their system of attack and defence, of making their opponent unable to fight for several minutes; afterwards he recovers completely. The Japanese



FIG. 10.—A JUJITSU EXERCISE FOR MANY IMPORTANT MUSCLES.

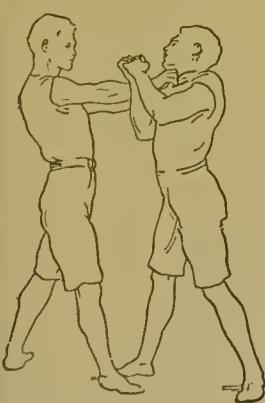


FIG. 9.—THROWING OFF A THROAT-GRIP BY A JUJITSU STROKE WITH CLASPED HANDS.

could kill, but they will not. They are able to regulate their enormous power, and turn it on in small quantities.

Graduation is one of the keynotes of the system, so that by slow steps, imperceptible almost, the learner is able to do what at first would be very dangerous. Gradually the pace is increased. Two men stand opposite one another, and one brings down a pole, as if he would strike the other on the head; but he brings it down slowly at first, and faster and faster as the opponent learns to defend himself.

The opponent learns not only to defend himself, but also not to hurt himself. He learns how to fall so as to avoid jars and wrenches. Beginning on a padded floor, eventually he can fall without harm on the hardest floor. His system must not be stiff; it must be agile.

It is part of the plan to strengthen the weak points *par excellence*, by individual practice. If your wrists are weak, you give up time to strengthening them. Nearly all people find that their abdomen and solar plexus will not stand a severe blow. The art of training them by gradually increasing the severity of the blow may make these places almost invulnerable. Another example would be the hardening of the throat against the deadly throat-grip. After training, the expert can let three people hold down a bamboo upon his Adam's apple without being strangled.

And he learns the counters and answers to the various attacks. After the case of the attempt to throttle you by the throat-

grip, you bring off, perhaps, the arm-pinch, or, tightly closing your hands, you strike your opponent's arm with them. You learn to adapt yourself to new conditions—that is part of the Japanese training in which most gymnastic training is singularly deficient. It is not all set work; you have to be ready with an answer to new experiments.

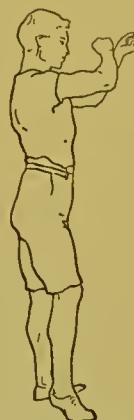


FIG. 11.—SOLITARY EXERCISE.

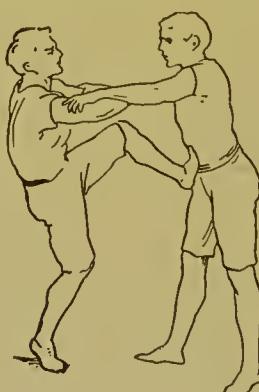


FIG. 12.—SELF-DEFENCE.
—THE MAN ON THE LEFT SITS DOWN AND THUS SENDS HIS OPPONENT OVER HIS HEAD.

food, etc. For instance, in case of fatigue, he will not rest for a month or two; he will take rather less, yet rather more sensible, exercise. In case of obesity he will not starve, but he will eat less food, less fattening food, and

You master it not by attempting a hundred tasks the first day, but by acquiring one task, one accomplishment, at a time, and adding another to it; then repeating these two, and adding a third on what we have called the *résumé*-system.

Thus, though the sum-total of work done and ground covered is immense, throughout there is moderation. Every learner knows that test of excess and fatigue—the palpitating of the heart and the panting of the lungs. He then learns, not so much to abstain altogether, as gradually to reduce his exercise and

will drink more water at the right times; will take more exercise of the right kinds, and will sleep less. In fact, he will live a moderate, thoroughly sensible life.

Besides this attention to the various *-ations*, if we may call them so, such as co-operation, graduation, adaptation, foundation, and moderation, there is a care also for supplementation. Thus rowing is becoming popular. It is realised that nothing of value or interest is worth neglecting.

The results speak for themselves. In the Russo-Japanese war, see how carefully the preparations were made, how wonderful was the organisation, how unswerving the patriotism, yet how unfailing the versatility—all this together with a marvellous endurance and cheerfulness. And these same qualities will be found throughout all spheres of Japanese life, in commerce as well as in physical culture, in all spheres except religion. But the

religion of the body is with the Japanese of as much importance apparently as the religion of the soul. The idea of being ill and bringing forward as your excuse that you are spiritual would be ridiculous in the eyes of the Japanese. They are singularly healthy. The complaints which—if we may judge by advertisements—we as a nation excel in, they as a nation scarcely know. The hosts of heart-diseases, for example, are rare in Japan. Neither is consumption rampant, nor constipation, nor worry.

There are many lessons which we can learn from their system, not the least of which is that sensible training cannot begin too early in youth, cannot attend too much to details, cannot extend to too many classes and to too many individuals, should be brief and cheap, and feasible anywhere, and graduated and supervised, but *must* be interesting in view of personal and national ambitions.

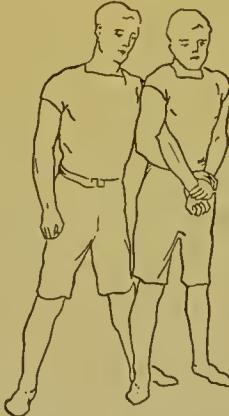


FIG. 13.—A NEAT JAPANESE HANDCUFF-GRIP.

CHAPTER XXXVI.

WALKING, RUNNING, AND CYCLING.

WALKING: The Attractiveness of a Good Walker and Runner, especially a Female One—Interest Given by Various Races—and by Individual Feats—Walking as an Antidote in this Age of Sitting—Leisurely Walking a Great Art—Walking with Bent Legs—Pros and Cons—For Armies Marching Long Distances—Testimonials as to Walking—Exceptions—Worry, Wrong Breathing, Wrong Clothing, Boots—Straight Line of Legs—Hundred-Up Again—Good General Position—Gradual Increase—Rhythm—Not Violent after Hearty Meal—Personal Tips from an Ordinary Person—Get an Object—Experiment—Diet—Going Uphill—Bare Head—Change of Clothing—Plaster—Wash—Fresh Clothes—Mems—Leisureliness Again—Good Effects Generally Over-estimated—Sir Lauder Brunton—“Every Muscle of the Body?”—Full Movements also Needed—Demerits of Rhythm—? Refreshing for all—Long and Dull Walks Bad for the Young—British Scenery—Climbing. **RUNNING:** Why Less Popular—A Cowardly Confession—Harry Andrews—Individuality—Moderation and Graduation—Good Rules—Massage—Self-massage—Final Tips. **CYCLING:** Gives a Motive—Its Charm One of Mastery, such a Sense as a Golf-club may Give—Introduces us to England—to the Open Air—to Social Intercourse—Competitions—Is Cycling Good?—It Depends Partly on the Cycle, the Position, the Clothing—Its Rhythm, Pros and Cons—Must be Supplemented by Other Exercises—A Note on the History—In the Direction of Comfort—Some Hints—Choice and Care of a Machine—How often should One Ride?—Objections: May be against Games, etc.—Exercises Suggested—Advantages of Cycling—Know Your Own Land—How to Use a Friend.

WALKING.

NOT long ago a friend of ours gave a description of a woman who was not pretty, but who, he said, always struck him as pretty until he looked at her face. The reason was that she had a nice voice, a good figure and carriage, and a good walk and run—the last is a great rarity in the female sex. To the credit of our systems—British, and Ling, and a few others—they do attend to the walk and the run, not to the stiff Continental gymnast-strut, but to a sensible walk with a free swing from the hips; and so long as people wish to be attractive in as healthy and harmless a way as possible, good walking will be of importance.

In 1903 the exercise was given a fresh interest by the Stock Exchange race, which, with other races of a similar kind, showed how endurance can be kept up, even during a city-life. Karl Mann, the German, and C. G. Allen, the Englishman, have shown how endurance can be

kept up on fleshless foods if they are properly chosen. “Dr.” Deighton has shown how endurance can be kept up even in old age. We must remember, however, that large numbers of these people were walkers by nature. There is a certain walking figure which one knows well. Karl Mann has it, so has J. Butler.

Walking is needed as an antidote to the sitting-habit of modern days. In our houses, in our trains and 'buses, in our offices, we sit. On our cycles we sit also. What we need is more often to walk to our work, more often to walk at intervals during our work, and particularly during part of the (light) luncheon interval.

Here, however, we wish to insist on another kind of walking, besides the walking with a view to improved appearance and carriage, the walking with a view to victory or success in a competition, the walking with a view to mere exercise, if there is such a thing. We wish to insist on walking as a more leisurely habit, not



FIG. 1.—J. BUTLER FINISHING THE RECORD WALK FROM LONDON TO BRIGHTON.

(Photo: *The Camera Mart, Clapham Junction*, by permission of Mr. Harry Andrews.)

as an athletic feat to win a race or beat a record, though that motive has its value. We wish to urge the importance of walking at a reasonable pace, so that the walker may have time and the mind to look at the scenery, and, if we may use the phrase, to "live" the scenery, rather than to look at his opponent and to strain himself.

Yet for every kind of walking there is need of comfort and of observance of certain rules; otherwise the walk will not give you its full value.

A second kind of interest in recent years, besides the interest in walking-matches and races, has been aroused by the experimentation in walking with bent legs. This does not mean walking with the chin forward and the shoulders forward and the back rounded and bent.

You hold your chin in, you hold your chest forward; but you bend your trunk forward from the hips, and you bend your legs more noticeably at the knees.

Against the theory that this is the right way of walking is the fact that it is not customary nor orthodox, and that it gives

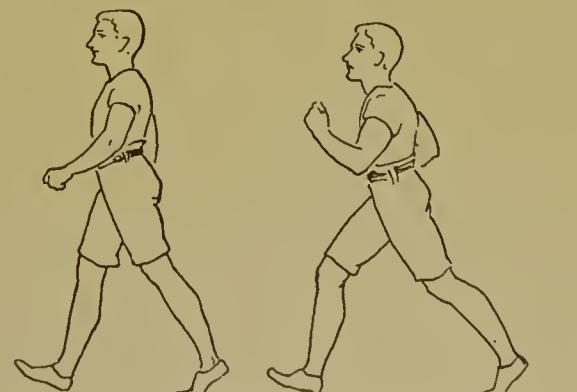


FIG. 2.—STRAIGHT LEG *versus* BENT LEG.

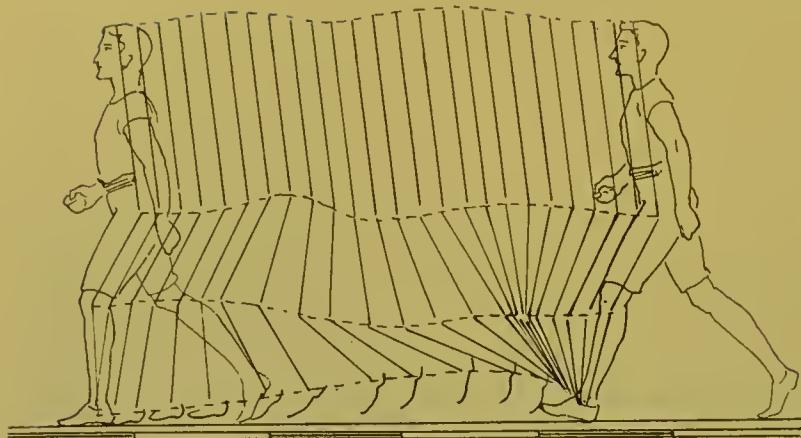


FIG. 3.—STRAIGHT LEGS MEAN MORE LIFTING OF THE BODY THAN—

an ugly and slouching effect. That may be so, but it is as well to consider what can be said on the other side, and to cite a few of the tests which have been made. They are given in more detail in "The Training of the Body." Among the most important are these:—

The centre of gravity is nearer to the front. Your own weight helps to pull you forward; it has not to be dragged forward at every step.

Every step is kept nearer to the ground. A great deal of the exertion of walking is an exertion in lifting the body. The less you lift the body the less exertion you use. Of course, if you wish to get as much exercise as possible in a short time, then you will not try this walk.

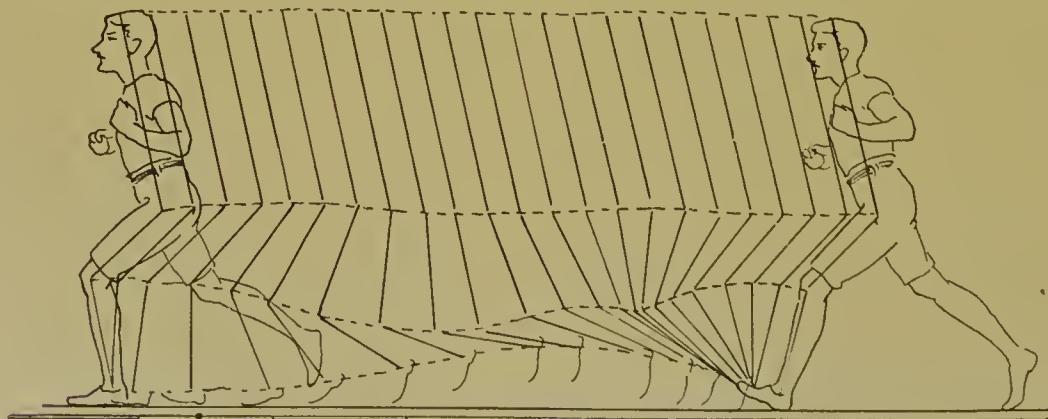
A small point is that there is less

resistance offered to a wind which is against you. You expose less height to it.

We see the difference somewhat more clearly perhaps if we contrast the exertion of the two kinds of Run, the bent-leg type being a type for long-distance and uphill work *par excellence*.

<i>Ordinary Bent-Leg Run.</i>	<i>Run.</i>
Length of step ..	1.295
Rise at each step ..	.07
Steps per kilometre ..	786
Total raising of the body during the kilometre ..	55.02
Force used in raising a body of 75 kg. ..	4,126.5
	2,707.5
	metres

Raoul made French soldiers run twelve kilometres at a stretch, after thirty-six lessons. At first we ourselves found the plan of no advantage, except uphill. It was only after practice that the mind and the muscles became used to the new position and movement. Then it seemed far less exertion. At the beginning of

FIG. 4.—BENT LEGS.
(Illustrations adapted from "The Training of the Body.")

the training the soldiers did the first kilometre in 10 minutes, the third in $7\frac{3}{4}$ minutes; at the end of the training they did the first in $7\frac{3}{4}$ minutes, the third in under $5\frac{3}{4}$ minutes!

For, as the Table will show, though the bent-leg plan gives fewer steps, yet it gives longer steps and less exertion in lifting the body and pulling it forwards.

The decision is still to be made with regard to the advisability of this walk—let us say for a marching army when it has a long distance to cover. Certainly I think our army should *experiment* in this, as indeed in a hundred other directions. But our army is not enterprising. It is one of the last bodies to move in a sensible direction. Yet it is one of the most valuable bodies as evidence for the purpose of teaching the masses, since soldiers can easily be treated in large quantities, and made to do precisely what they are told. Such an experiment as this has no danger in it, and may be of great service to the nation. As we say, the matter is undecided. That music helps walking is usually admitted, but that bent legs help long-distance walking is not yet quite certain.

For all walking, however, practically everyone is agreed on certain points.

First of all, as to the value of walking, we can quote a number of opinions not only from busy men, but also from athletes in various departments. If you asked an athlete what he found useful in training, among other helps he would be almost certain to mention walking. We cite a few cases here from W. G. George's book on Training.

Besides George himself, the following athletes include walking in their *régime* :—Montague Billimore, S. H. Baker, A. E. Relf, W. J. Cummings, Charles Bennett, John J. Mullen, James Kibblewhite, S. Dixon, C. Cattlin, E. A. Dawson, H. A.

Munro, W. W. Alexander, J. Daffern, W. J. Sturgess, C. M. Callow, Matthew Drake, Montague A. Holbein, Montague Scott Turner, Ernest Needham, Harry Wood, W. G. East, H. T. Blackstaffe, F. W. Warre, W. J. Oakley, and Daniel Bulger. These represent most branches of athletic sport.

An exception, however, would be where the walking tends to thought on the same lines as the business or the worry. Many find that a walk is no recreation; it simply starts them thinking, perhaps rather more rapidly and anxiously than before. In this case it might be as well to alternate the walking with running, on the principle already suggested—namely, the runs of about thirty to thirty-five yards with intervals of walking until the breath is thoroughly recovered.

Good breathing through the nostrils is a second requisite. Instead of keeping the mouth open, one must keep the mouth shut—as a general rule—and inhale through the nostrils, and have the chest well up and forward.

The next requisite is comfortable clothing. We deal with clothing in another chapter, but we may mention here that if there is a tight corset or belt, its effects will be worse when extra work is thrown upon the lungs. When there are misshapen stockings or socks, boots or shoes, that distort the big toe from its direct forward line, the distortion will be more harmful when exercise is taken.

One reason is that the distorted toe, being moved out of the direct forward line, is no longer as good a lever as it might be. Or, if you turn in your toes and so make the big toe face directly forwards as a strong lever, then you distort the direction of your legs; you do not use the muscles to the best advantage. A straight line is important in the free swing of the legs from the hips; in the direction of the

body also, which should not "rollick" about from side to side.

To walk directly, to make the feet move straight to the front rather than in curves, is not an easy task for all of us. Practice, therefore, is of importance. A good practice, as well as a healthy general exercise, has been alluded to already. W. G. George calls it the Hundred-Up.

It is particularly useful as a preparation and training, and when the walking itself is for some reason or other—perhaps because a change of clothing and wash afterwards would be hard to get—not desirable or feasible. With it you can imitate even the alternate walk and run.

A good general position of the body is of equal importance. The chin should be in, the chest, once again, well up and forward, the trunk inclined slightly forward from the hips; the hands, for ordinary purposes, should hang comfortably down by the sides, unless you carry a stick now in one and now in the other.

All are agreed that a walk in a bad position, with rounded shoulders, open, dust-drinking mouth, and so on, is bad.

Most are agreed also that there should be gradual increase. In the first place you ought to get the correct action before you walk long distances, lest you should establish a wrong habit. The knees—see the Hundred-Up exercise—should not go too far up in front of you, nor should the legs make too long a stride.

Then there should be rhythm. The muscles that work with least effort are the large muscles that work rhythmically, each movement being a preparation for the next. The rhythm may be helped by the humming of a tune aloud or to one's self.

Then there should not be violent or prolonged exertion after a big meal; that is an obvious bit of advice.

We may add a few tips from our own

personal experience—not as a good walker but as an occasional walker, whose words for that very reason may appeal to a large public. Too many books on walking have been written by experts who take it up as a speciality, if not as a profession. What the man in the street or in the office wants to know is how to enjoy and profit by an ordinary walk occasionally, when he gets the chance. (We will give him tips for severer training later on.)

First he should have an object in view, and therefore a destination worth arriving at. Take as an example a walk from Scarborough. You fix on Robin Hood's Bay, one of the most beautiful spots in the whole of England. That is worth walking to. Remove Robin Hood's Bay—simply walk sixteen miles—and probably it is dull work.

Sometimes we have walked in order to experiment as to the effects of various plans—for instance, we walked from Scarborough to Robin Hood's Bay several times, taking an ordinary breakfast one day, then no breakfast at all the next day. We wanted to test the effects on endurance. At that time we found no difference in the effects. Later, we found that the no breakfast plan gave better results in speed, enjoyment, and endurance as well.

A word as to diet. England is one of the finest countries in the world, except for eating-places along its roads. For our own part we prefer bread and cheese to almost any other food which a roadside public-house at present provides. Sometimes we take cheese alone; on that we have done one or two of our longest walks. A convenient "outfit" might be some dried food and nuts and a certain amount of Plasmon (we prefer it in the form of home-made biscuits or cake), or, as an alternative, and one well worth trying, a glass of very hot milk could be sipped after two or three teaspoonfuls of Plasmon

powder were added to it. Of all the lunches which we have ever had, for athletic purposes, this has given the best result up to date.

But, to return, in going up hill bend the legs purposely. We have found that by doing this we scarcely notice that there is a hill at all. Just at first the bent-leg walking is apt to be trying, till the muscles become practised. Such walking is never likely to be graceful or fashionable. But it may be extremely useful if you wish to cover a long distance comfortably.

Do not be ashamed to take off your cap or hat and let your head get some air, and let your hair grow.

Do not be ashamed, either, to look round you and be with nature.

It may be a good plan to change your vest half way, and to see to any discomfort owing to pressure of clothing. An excellent hint is to take with you a small piece of adhesive plaster in case of blisters or sorenesses. If the blister is one which you should prick, prick it and wrap the adhesive plaster over the place; this prevents friction and pain.

After the walk, of course, take a wash with warm water and rubbing; then sponge yourself with cool or cold water; then change your clothes. It is scarcely worth while to walk if you do not get the pleasure and the cleanliness of the wash and fresh things afterwards. What is more

delightful than to lie for a few minutes in a warm bath, feeling that you have done your duty?—a feeling which one scarcely ever gets, except after hard exercise or hard work.

Once again, do not start too violently. Gradually increase the pace as you proceed, letting the fastest walking, like the loudest production of the voice, come

near the middle, not at the beginning nor at the end. Taper off gradually, and gradually increase your distance from day to day, as the muscles become trained and work with less waste.

Take paper or cards on which to make mems, in case ideas suggest themselves during your walk. For the walk may start your brain working nicely. You need not walk with a view to brain-work; but, if the ideas occur, it is a pity to reject them.

We would ask you whether you can walk without hurrying. We do not ask you merely

if you can walk correctly; we ask you if you can walk slowly, or, rather, leisurely. Walking in a leisurely manner, when once you have mastered the art, is a wonderful help for city-life. We have described elsewhere how a friend of ours, a busy man, takes his rest and restores his mental poise when he feels that he has become too hurried. He starts from a country town in a typical countryman's waggon, paying him a shilling a day for the ride. At first the pace is



FIG. 5.—J. BUTLER'S CORRECT ACTION FOR LONG-DISTANCE WALKING.

(Photo: W. S. Campbell, by permission of Mr. H. Andrews)

fearfully slow. He says to himself, " Why does he stop to pass the time of day with everyone ? Who cares a rap about Mrs. Jones' black cat ? Why can't the man get on ? " But nothing will induce the man to get on. The man drives leisurely. By degrees our friend finds the leisurely habit of mind coming upon him. After a few hours he tolerates the slow pace ; at the beginning of the second day he likes it ; at the end of the second day he feels at peace with the world and ready for sensible work again. In these days of motoring and gobbling and other fastnesses, such antidotes we need. Few would have the courage to venture on the waggon-trip, even for two days. In that case walk slowly. You may feel that you will look conspicuous, but there are plenty of people, especially in a city, who cannot help walking slowly.

If you do not believe us, try to walk rapidly down Fleet Street ; you will fail. It is much easier to run almost as

if you were dodging through the forwards and backs at Rugby football. That is itself good exercise, but here we advocate another exercise for the sake of another habit of mind. You have tried, let us suppose, to walk quickly along Fleet Street, and you are annoyed that everyone is in your way. You say, " Has not the Anglo-Saxon public learnt yet that one should keep to the right side of the path ? Why does it seem a rule of the path that one should walk on the shop-side ? " You are thoroughly annoyed, and your annoyance and hurry do no good to you or anyone. Now walk leisurely. Notice the people. Some are really funny. Notice the shops ; notice anything except that you are in a hustle to get by these people. This will be training in self-control.

For the enthusiasts have nearly all insisted on rapid walking, neglecting the equally important art of restraint.

Besides this, the enthusiasts have overestimated the good effects of walking, rapid or ordinary. Sir Lauder Brunton gives a much-needed reminder when he says that an ordinary walk, as distinct from rowing, hopping, skipping, jumping, mountaineering, and so on, does not fully squeeze out the contents of and exercise the liver. To exercise the liver, bring the right knee well up in front of you, and repeat this exercise, or take a step or two upstairs. Now walk a step. You will at once see the difference.

It is generally asserted also, by enthusiasts, that walking exercises every muscle of the body. Now it is one thing to exercise every muscle of the body (which walking does not), and it is another thing to exercise every muscle rightly. There are many kinds of right exercise. Among them is the full movement, as we have pointed out in a special chapter. This full movement in both directions massages both sets of muscles, empties them of their



FIG. 6.—GUS. CHERRY, WORLD'S CHAMPION FOR 100 KILOMETRES (62 MILES).

(Photo: W. S. Campbell, by permission of Mr. H. Andrews.)

waste, and allows fresh blood to flow in and nourish them. Now, even those muscles which walking exercises, it does not necessarily exercise fully. If instead of walking you skate, or imitate the movements of skating, you will see that you get far fuller movements for certain muscles. The full movements may actually be a great relief after walking. On more than one occasion we have felt slightly stiff as well as slightly bored by a walk, and have practised some full movements of the legs and arms (when no one was looking !), and the result has been not tiredness but freshness. That was because there were many muscles which the walk had not exercised fully ; and it is the absence of this full contraction that tells against the system of walking with bent legs.

Another reason why walking is not complete exercise is that it is rhythmical. Like cycling, it gets through an enormous amount of work with comparatively little waste of energy, because it is rhythmical, and uses large muscles. The amount of work done has been estimated as something so huge that the mere figures must have driven many in sheer panic to eat a large meal in order to restore the waste.

Walking of the ordinary kind is not an exercise in prompt adaptation to new conditions. Rapid walking or running along any crowded street is a different matter. But we are speaking here rather of the walk in the open country.

Neither is walking a refreshment for all people alike, as so many cranks maintain. " Go for a good brisk walk," they say, as if that were bound to be a pleasure. It may be one of the most depressing things that you can suggest for the individual. Tell him to swim, and he may enjoy himself ; tell him to play a game, and he may enjoy himself ; but do not assume that he must enjoy a walk because you and many other people are clever enough to do so.



FIG. 7.

CONSTANTINE STARTING WITH HANDSPRING START.

(Photo: W. S. Campbell, by permission of Mr. H. Andrews.)

Certainly a long dull walk is not good for the young. No long and dull exercises are. Even older people require motives. Comparatively few walk for the enjoyment of the thing, or, indeed, walk at all if they can find any quicker or lazier thing to do.

Yet walking is important for various reasons, including the chance of war, in which it is vital to cover vast distances with the greatest rapidity. It is this that helps nations to win their victories. Walking is important for all physical training, and for education with regard to our land ; we can see it and feel it so much better when we walk. But what is going to induce us to walk more ?

Competition helps enormously, as we have said ; but might there not be more of the Continental idea of competition, the idea not of beating several opponents so much as of reaching a certain standard, qualifying not as a very fast walker, but as a reasonably fast walker and a reasonably correct walker of a reasonable distance, and not only that, but over a reasonable area of country ?

We have in England alone—to say

nothing of Great Britain—varieties of scenery and air and people that few of us guess. It is a pity that part of our education is not how to walk and where to walk and where to stay for a while, and how to stay there instead of hustling off elsewhere immediately. We seem to oscillate between the laziness of staying at home (or in hotels or lodgings), and fidgeting away from home.

We ought at least once in our lives to do a little climbing. The change of air, the change of exercise (affecting the lungs, heart, liver, legs, and mind), are usually sought abroad. But we should also sample our home-wares. We cannot here give statistics as to the amount of work done by the body with little effort during a climb ; we may refer to "The Training of the Body." Nor should we recommend prolonged climbs—any more than prolonged runs—for the young. But some climbing is essential for the all-round development of ordinary people.

RUNNING.

A great deal of what we have said about walking—especially level walking—applies with equal force to running. Only, running is seldom social at the time. Personally, we look back to some most interesting conversations during our early-morning alternate walks and runs at Cambridge, with Dr. Hubert Higgins. But the conversations were during the walking times.

Another respect in which running is less popular than walking is this. After a run we should change our clothes, and we can scarcely fail to do so ; after a brisk walk we should, but often we do not. Before a brisk run we should also change into more sensible clothes.

Even then we are half-ashamed to run while people are looking on. We recently saw a runner in racing "togs" near Victoria, sensibly sprinting to the Park.

The passers-by—or, rather, the passed-by—stared with a rude and superior look !

We confess to a certain cowardice ourselves. The nearest we can do when we want to run along in the streets, as we often do, is—we confess to it with some shame—to pull out our watch every now and then, as if we had a train to catch. Hypocrite ! We have no train, but we do not wish to be conspicuous. After the run—the alternate walk and meanly-apologised-for run in London—we have a bath and a change, and feel better ; but still we feel mean ! Why cannot people have a one-o'clock run and then a change in London ? The early morning and late evening exercise—as of the Liver Brigade and the swimmers in the Park and Serpentine—is fine. But surely midday is just as good or even better as an opportunity.

If, however, you will not, then do join a club—if possible, a club with such a trainer as Harry Andrews, of the Crystal Palace track—and see what can be done for men by walking and running. A consideration of the training for these exercises will, we hope, do something to inspire our more sedentary—and, we add, some of the narrower "athletic" or "gymnastic" cranks, fortunately a diminishing class—with the truth that in this self-discipline in the fresh air, in this care for the body and its expression, there is true praise and glory. Such a trainer makes one feel that the walk and run done well, but not to excess, are an art that is—unlike most so-called arts (literary, dramatic, artistic, poetic)—healthy for the body and good for its appearance. We wish we could put the prince of athletic trainers himself before you. The best we can do is to give you tips from his book and from an interview which Mr. Flynn had with him at the Crystal Palace.

In his younger days Andrews was a jumper, runner, and cricketer ; now,

however, he is *par excellence* a trainer—which (if you read the writings of great “athletes” and their dogmatic and silly dicta) you will know to be an utterly different business. Many, if they followed the commands of a certain performer, would soon knock up, whereas Andrews seems to know how to “get the last kick” out of his men. And the chief reason is that he *individualises*; he does not train men by the yard—a wooden-

giant’s training, averaging twenty miles a day, with massage three or four times a day; then, before the race, fifty to sixty miles of cycling each day, with twenty extra once a week. With strong heart, strong appetite, strong food, this was quite right.

In the case of an ordinary boy, or even man, this would be ridiculous forcing and strain, as distinct from development. Not every boy or man is built for the long



FIG. 8.—INGRAM AND JANSEN, TANDEM CHAMPIONS.

TRAINED BY HARRY ANDREWS.

(Photo: Campbell, Creed Lane, by permission of Mr. Harry Andrews.)

headed plan, apt to result in the pupil being muscle-bound or strained for life. Andrews asks himself what the individual has, what he lacks, what he can stand, what he can’t stand.

As an instance, here is a young pupil—smart and keen and anxious for “trials” against the watch. Andrews refuses to give him his head, to let him force himself, wear himself out against the watch. He insists on technique first, then gradual work built on sound foundations. On the other hand, he gave Holbein, that giant of strength, just what he wanted—a

distance. It is not the distance that is to blame so much as the inappropriateness of it for the individual; it is this that strains the heart and makes the boy “no good” afterwards.

The pupil taught by the trainer or by himself should get his leg action straight and not too high. He should let *his right arm swing well back and in sympathy with his left leg*, but, as he finishes the step, he should bring up his closed fist across his chest; during the next step he does this with the other arm. As to the foot, he should plant it firmly on the ground, heel

first, after a stride that is not too long, especially at first. A good time for practice is the walk to the station or tram, or, better still, to and from the office. Get the action right before the "training" begins.

Increase the distance gradually each week.

Practise starting. Study and practise *massage*. Andrews gives it to all his pupils daily. It is not mere glove-rubbing (before which, by the way, the man should be well dried). It is massage such as American athletes insist on, with what results we all know too well. Massage loosens the muscles, and makes a man quick. It has helped to make Hackenschmidt quick.

To begin *self-massage*, Andrews says in his book, rub your own chest with one hand and your back with the other, in an upward circular motion—*the right hand rubbing the left side of the chest, the left hand rubbing the right shoulder-blade, and vice versa*. In this way you can work over both sides of the body, back and front, from the neck to the top of the thighs. Do not miss a spot. *Rub briskly, but softly.*

Between the rubbings catch hold of pieces of your flesh and muscle *between the first finger and thumb and lightly squeeze them*. It is this pinching that Andrews considers the chief part of his system. It gets rid of bad flesh, softens the muscle, and lets it develop as it should. With each hand pinch all over the opposite arm, giving the biceps a particularly lively time. Next pinch the thighs all over, from the knees to the groin. Take each thigh with one hand, and work downwards from the calves to the ankles and all over the feet.

While you touch a muscle, relax that muscle. Elsewhere in the PHYSICAL EDUCATOR we have shown how the outward

breath is the time for relaxing more and more.

Here are a few of Andrews' more general "tips" for training:—

"Avoid tobacco" [he has not known a champion to smoke] "pastry, strong tea, as poisons; avoid white meat (veal and pork). Eat mutton the last few days before a race." [The Editor would rather not!] "To increase the weight, take more liquid.

"Prefer tepid to cold baths.

"To harden the feet, soak them well in brine such as butchers use for salt beef.

"To prevent blisters, rub Russian tallow or pure yellow soap inside and outside the socks.

"On the track wear shoes; for long distances, boots, wide, especially at the toes.

"Place the feet in direct line with each other.

"Do not let the hands droop. This makes them swell.

"Use spring dumb-bells, developers, and punch-ball.

"Skip; run up the steps of the grand stand.

"To prevent colds and chills, pour a little spirit embrocation into the boots.

"If you can, avoid being over six feet in height."

CYCLING.

The motive which is too often lacking for the walk or run may be furnished by the cycle, one of the greatest inventions of all ages. The reasons need not be given fully here; most of them are now commonplace. Among them is the satisfaction of mastering something—of mastering the balance, and of mastering the speed. It is not unlike the satisfaction given by the golf club. That golf ball you cannot throw very far. Take the club, and you can hit it 250 yards. In cycling there is a part of the satisfaction which the



FIG. 9.—FAIRLY GOOD POSITION FOR ORDINARY CYCLING.



FIG. 9a.—WRONG POSITION.

dreamer has who dreams that he can fly—this is one of the dreams best worth dreaming; and, of course, there is also the convenience and the economy and the appeal to both sexes alike, and the social value; for it is easier to get people to ride together than to walk together; then there are the people to be visited at the other end, and perhaps a game of Lawn-tennis.

Equally important is the increased knowledge of one's own country and people, and the country and people of other lands also. Imagine, for example, riding 70,000 miles in different lands on a single cycle, as Mr. E. Walton did!

The cycle impels or incites to some exercise in the open air, after which nearly every city-dweller feels better. It is an antidote to the perpetual driving and sitting habits to which we have alluded, even if occasionally the cycle interferes with a healthy walk and healthy games. It has dealt a severe blow to Cricket and Lawn-tennis and other forms of amusement; but, on the whole, its influence has been certainly for the good, especially with the female sex. For it has led people out of cities quickly and cheaply into the country, where there is fresh air and nature and change.

But here also another motive comes in,

as with walking—the competitive motive; and we have to ask ourselves several distinct questions about cycling. Is ordinary cycling good for ordinary people? Is racing cycling good for the racers and for those who watch the races? There is little doubt that ordinary walking is good for people of all ages, but there is much discussion with regard to the value of ordinary cycling in its all-round effects.

Much depends on the cycle. If you buy a wrong kind, or if you buy a wrong size, you may seriously injure yourself by strain and by distortion of the organs. Much depends also on the clothing. One of the Figs. shows the difference which a wrong kind of corset or a tight belt may make in the shape of the organs, and therefore in their capacity for good work. To cycle in the wrong clothing may do vast harm to the health. Much also depends, as in walking, upon the position. The typical scorcher, who never looks at the scenery, who opens not his eyes to the scenery, but his mouth to the dust, who pokes his head and rounds his back and looks a hideous object, that person gets little benefit from his ride. Whereas, if he studied the right position and practised the muscles that would keep that position easily, he would benefit enormously from the same amount of exercise, or even from a quarter of it.



FIG. 10.—FAIRLY GOOD POSITION FOR FASTER CYCLING.



FIG. 10a.—NOT A HEALTHY POSITION.

Cycling, like walking, is rhythmical, and therefore gets through much work with comparatively little effort. By getting through work it promotes the metabolism of the body, to express the effect in technical terms—that is to say, it tends greatly to quicken the changes that go on in the body. More oxygen is inhaled. The heart and lungs and the vital processes in general have exercise and are strengthened. More waste-matter is removed through the mouth and nose and skin; and there is a good deal of "metabolism" in the mind also.

But, like walking, cycling may tend to lessen the promptitude on foot by the mere fact that it is rhythmical, as well as by the over-development of certain muscles. The more rhythmical you make it, the faster and the more easily you can go. Yet it is just this rhythm which takes away from the value of cycling, rowing, and even ordinary swimming.

The objection is easy to answer. Such exercises should be supplemented by prompt exercises like boxing, fives, cricket, and football—that is to say, if you are not so prompt and quick by nature that cycling is unlikely to harm you.

In poise and a certain power of adaptation, cycling is undoubtedly useful, but it is not complete exercise, especially for the arms. Too many are apt to be content with a vague phrase, "exercise," and instead of the whole to take only a part—namely, cycling. Cycling is, to use the neater French idiom, *de l'exercice*, but not *l'exercise*.

Cycling itself has its varieties—from the early velocipede such as Michael Faraday used—a sort of body-skate to which you gave an impetus with the feet on the ground, and on which you then sat, through the bone-shaker and high bicycle and clumsy type of tricycle, to the modern pneumatic-tyred single bi-

cycle, tandem, fore-carriage, motor, and so forth. The Editor has not been through the mill himself, and need not describe the mill when for a few pence the reader can get the information from experts in some athletic series, or cyclopædia, or weekly cycling news, or daily paper. It is all done so well already—the history or "evolution," and the advice or advertisement.

For it is not the least valuable part of our information that comes from advertisements—if only we have the skill to sift.

As to the history, like all history it moves in the direction of comfort. How glorious "the Greeks" were! Yes; but what if you were a woman, a slave, or even a subject-ally of the violet-crowned Athenian? The chances were ten to one that you were uncomfortable. So it was in the early days of cycling, from the velocipede, through the wooden bone-shaker, and then the high front wheel, to the pneumatic tyre. To-day anyone—woman, clerk or servant, Kaffir, as well as the billycock-crowned Cockney—can ride, *sans peur et sans reproche*.

Passing lightly over the history, we assume that people want to know whether it is good for them to cycle, and, if so, how, how often, how far, and after what preparation and training, in order that they may enjoy themselves, make themselves fit, and—look nice.

We have already tried to answer the first question, whether it is good to cycle. If your machine fits you and your natural body considerably better than most people's boots, and if you adopt a good position, as suggested in the diagrams, and train and ride sensibly, then—yes. Certainly for convenience in getting rapidly from place to place, and for cheapness too when once the initial expense is over; and for air and light and

distraction of thought from business worries—yes.

If, besides, you are fortunate in getting a free-wheel machine of precisely the right weight (a writer in *C. B. Fry's Magazine* says about 33 lbs., including pump, mudguards, tyres, spring-pillared saddle, and tool-bag), perhaps a $7\frac{1}{2}$ -inch crank, possibly a two- or three-speed gear to alter according to road and wind and object in view and other conditions ; and if you are going to treat your cycle as a cricket bat that has made its centuries (and what dearer friend is there ?) —a thousand times yes.

But as to the ill-adapted, ill-equipped machine, without sound brake and other necessities, decidedly no, except as sheer penny-economy and for lack of a more sensible exercise.

Get an expert to help you choose your machine, and buy books and take in papers that will keep you up-to-date about devices, roads, etc. These will tell you to select a saddle that does not press uncomfortably and so to adjust it that you can put your heel on the pedals when the legs are at full stretch ; to get a good tyre with corrugated tread ; to pump it hard ; to get handles an inch above or below the seat-level, according to the length of your arms ; to see that the ball of your foot rests on the centre of the pedal ; to take proud care of your cycle, and especially of its cleanliness ; to see to all pieces and screws and fastenings ; to stop all surface-punctures in time by plugging with cotton-wool and solution ; to use vaseline over the machine in wet weather ; to purchase a good lamp, a good bell, a good cyclo-meter, a good spanner, a good mud-guard, and so on.

The expert will tell you now how to sit and how to move. For instance, do not merely " plug " with your legs, but as

Mr. Flynn recommends—we owe to him many hints in these two paragraphs—do not check the upward movement of the pedal. Rather " turn the handle with your foot." and do not let the heel get too low down. Keep your chest forward and the small of your back reasonably hollow—much depends on the saddle and handles. Do not begin a ride too fast. Keep perfect control of your machine in traffic. In climbing up-hill, do not strain ; vary your position, now sitting up and pulling at the handle, now bending forward and ankleing.

How often ? Perhaps as often as cycling will save you from the 'bus or tram or train ; as often as it induces you to get out of your room and your narrow self ; but not—for goodness' sake—when otherwise you have plenty of time to walk in fine air or to run or to row or to ride or to play games. Please do not sacrifice these Anglo-Saxon glories for the sake of what is, on such occasions, really a laziness. If the cycle is the only friend that will carry you out, then cycle ; but if you can walk or run or play, then weigh the pros and cons fairly.

We wish never to dictate. Least of all can we wish to do so in this sphere. We only wish to offer to your impartial mind a reasonable view of the merits and demerits of cycling. We may begin with the demerits.

The initial expense is a trifle. Proportional economy, the up-to-date mathematician that tells us how a penny saved is *not* a penny gained if it is sixpence spent in the course of the year, cancels the initial expense.

A far more solid objection is the danger that cycling will keep you from these Anglo-Saxon exercises which we should love—walking, running, and games.

Indeed, it may seriously interfere with quickness at games, partly because it

over-develops some leg muscles, and partly because, as we have seen, it is rhythmical.

Then again, there is always the chance of the wrong saddle or handles, so that there may result discomfort, if not actual injury.

And there is more than the chance of the wrong attitude and action. If most of us lie and stand and sit and walk and breathe wrongly, as we do, we are likely to cycle still more wrongly, especially if we try to go fast. Rounded back and open mouth—they are neither beautiful nor healthful.

The last objection we shall cite is that the cyclist is too apt to imagine himself an athlete, or at least a man who takes sufficient exercise; whereas, in nine cases out of ten, he is likely to need considerable supplementation and correction before he can be called a reasonable mover.

The merits of cycling, then, will be enhanced if cycling is set in its true proportion, not as the sole exercise, but, to repeat an old phrase, as a limb of complete training for muscle, nerve, sense, intellect, and character; and if, therefore, it be supplemented.

Here are several supplementary exercises. We advise the use of the inclined plank, which anyone can buy for himself and, when he is not using it, set against the wall of the room. The special kind, with cork-lino covering, balance-plank, neck and waist supports, elastic exerciser, and book of exercises, can be had from

the Sports Manufacturing Company, through any athletic outfitter.

Lying flat on the back, with support under the hollow of the back, send the shoulders well down, going through the

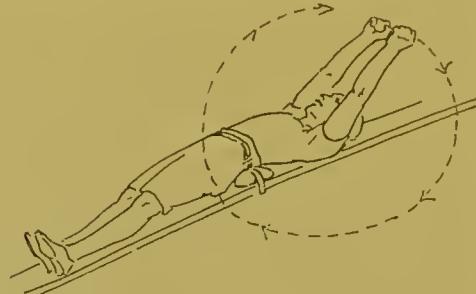


FIG. 11.

action first of the breast-stroke at swimming (Fig. 11), then of skipping with the whole arms moved up and backwards (Fig. 12).

Next walk up the plank on tip-toe, and, without turning, walk down it on tip-toe carefully, all the time keeping the chin in and back hollow. Then walk up the plank backwards and come down (Fig. 13) without turning.

Then, if your heart is sound and strong, hop, skip, and jump.

Rest the plank (not inclined but straight) on the rungs of two chairs and between the two chairs. Let it be parallel to, and close to, your bed or sofa. Lie flat on your back, so that the plank holds you comfortably while your feet are firmly kept down by the bed. Then bend your trunk and head and arms well back, without straining, and lift yourself up again. Hold your hands behind your neck.



FIG. 13.

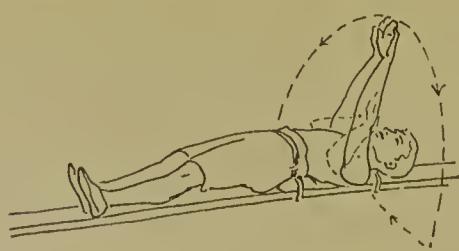


FIG. 12.

Go in for some such active exercise as boxing (or at least punch-ball practice), Fives, Lawn-tennis, Badminton, Football, etc. You want training in alertness and in the

independent use of the two sides of the body *without rhythm*.

But of course, if you are a natural athlete, cycling is not likely to harm you. It will have the following advantages for you, especially if you precede it by a series of neck-movements as in the Courses for men and women, and by the

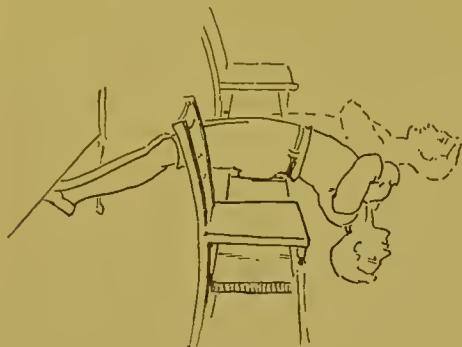


FIG. 14.

foot and leg movements of the fast full movement system.

By good cycling you will save money, time, energy; in a short while you will promote your body-changes, your metabolism, to a most surprising extent, as the statistics in "The Training of the Body" will show.

You will excrete more carbonic acid and other waste, and—if you breathe and feed and think rightly—will profit by the death of the weak old cells and the creation of the strong young cells.

You will develop (how commonplace it sounds, yet how much it means!) many large muscles, much nerve, much balance, much self-respect; you may develop the nature-seeking, the social, and the competitive sides of your character, as well as—never let it atrophy—the creative.

And, once again, you may get to know

our dear, quiet England, if not as leisurely as you could on foot, yet better in outline. Your cycling may take you to parts which you never would have known otherwise—parts which are utterly different from your own home, yet are to some part of you the true home, the true food for the eye and ear and other senses which have long been craving for just that very stretch of purple moor, that red-roofed village alien from city strife, that ozone-breathing shore, that interesting acquaintance, to which the cycle has given you an introduction.

Or was it the cycle that first suggested to you that the body was a thing worth training? Your feet and legs—you dared not appear in them in public! You must develop them into respectability. You hated to ride along open-mouthed and panting: you must learn to breathe with closed mouth. You were ashamed to sit down in those dripping clothes: you must bathe and change. You were too proud to give in before you had reached your fifty-mile-off village: you must pay more attention to sensible diet, and must drink less. On Sundays you used to over-eat and over-drink so disgustingly: now you know better. The cycle gave you the hint.

In a word, then, we would say of the cycle, as of any great friend, Choose it carefully, so that it may supply a real need. Get a good one, and train so as to be a worthy user. Go to it when you are in need; but do not be a slave to it. Learn—however hard it may be—to be fairly happy and fit even without it. Make it an extra limb of your life; but do not let it usurp the place of your natural limbs.

CHAPTER XXXVII.

ADVANTAGES OF BETTER BREATHING (*concluded*).

Will People Practise?—That Depends on Whether we Touch their Interests and Desires—Variety of Motives—All Useful—A Hindu Parable—We are Speaking of Motives Not for One Way of Breathing, but for Each in its Place—Attractiveness of the Subject as a Study—Charm of Appearance and Voice—A Yogi's Testimony as to the Effects of an Easy Lesson—Athletic Success—Endurance—Less Dependence on Regular Exercise—Better Digestion—Prevention or Cure of Ailments—Consumption—Worry—Nervousness—Sea-sickness—Value in Diagnosis—Satisfaction—Effects of Expression upon Emotion—Dr. Maudsley—Æsthetic and Artistic Effects—Economy and Money-making—Moral and Spiritual Effects—Influence on Others—Long Life—National Importance—Why Practice may be Worth While—Frequency of Breathing—Ease of Practice—Unostentatiousness—Yet Most Neglected as an Art—Overdeveloped Athletes—Some Fallacies—That it is a Trivial Matter—That the "Natural" Way is Best—That there is only One Way—Fallacious Tests—Confusion between Breathing-exercises and Exercises to Help the Breathing Muscles—Fallacy that Ordinary Exercise Suffices as Breathing-exercise—That the Mind's Attitude is the only thing that Matters—Need for Right Thought as well as Right Breathing—Wrong Dress—A Few Theories and Notes—Miscellaneous Hints—Positions—Diaphragm should often be Held Up—Need to Strengthen Muscles that Hold it Up—Exercises—Breathing through each Nostril in Turn—A Hindu Practice—The Left Nostril—Water-breathing—M and N Sounds—Lengths of Breaths—Holding In—Holding Out—Against Strain—Final Words of Proviso—Judge by All-round Results after Fair Trial.

IN these hurried days people read as fast as they eat or write or think, or, indeed, do anything that requires deliberateness, except change their way of living. We have offered them some exercises in breathing and voice-production. In the present chapter we shall illustrate many of the exercises in breathing. But whether any given reader will practise them or not will depend largely on whether we can "touch the spot," put our finger on *his* or *her* motive, and show that it is to his or her interest to practise. No one can object that the exercises are hard, or that they involve much expense of time and energy, or any expense of money. The only real objection will be, "It isn't worth my while." So we devote many pages to showing that it *is* worth your while, whatever your ambitions are—health, happiness, helpfulness, self-control, self-

activity, success, fame, fitness, graceful figure—any good things, and the more of them the better. "Let 'em all come," so long as they move us and keep us moving. It is motive that we all need. It is not virtuous asceticisms, but sane appetisers without reactions. The right object and goal once found, and afterwards constantly recalled to mind, and inevitably the exercises will be tried and persevered in—if they are really good for you.

Let us try, then, to appeal to the right motives. A Hindu parable is to the point here:—

"There was once a minister to a great king. He fell into disgrace, and the king, as a punishment, ordered him to be shut up in the top of a very high tower. This was done, and the minister was left there to perish. He had a faithful wife, how-

ever ; and at night she came to the tower and called to her husband at the top to know what she could do to help him. He told her to return to the tower the following night and bring with her a long rope, a stout twine, a pack-thread, a silken thread, a beetle, and a little honey. Wondering much, the good wife obeyed her husband, and brought him the desired articles. The husband directed her to attach the silken thread firmly to the beetle, then to smear his horns with a drop of honey, and to set him free on the wall of the tower, with his head pointing upwards. She obeyed all these instructions, and the beetle started on his long journey, smelling the honey before he slowly crept onwards and onwards, in the hope of reaching it, until at last he reached the top of the tower, when the minister grasped the beetle, and got possession of the silken thread. He told his wife to tie the other end to the pack-thread, and after he had drawn up the pack-thread, he repeated the process with the stout twine, and, lastly, with the rope. Then the rest was easy. The minister descended from the tower by means of the rope, and made his escape. In this body of ours the breath-motion is the 'silken-thread,' and laying hold of that and learning to control it, we grasp the pack-thread of the nerve-current [? emotions, etc.], and from these the stout twine of our thoughts. . . ."

In this parable what is meant by the honey ? What is the sweet thing that made that little beetle move upwards and forwards in the direction in which it was pointed ? What is the attraction ? We cannot possibly tell, since people are swayed by motives so very different. In order that we may catch a large number of people, let us appeal to a large number of motives. Let us consider the all-round values of better breathing.

It must be understood that we are speaking of the values not of one kind of breathing alone, as if there were only one, but of different kinds used appropriately and helped by certain exercises such as

those already offered. We are going to mention not only the physical values, such as the improvement in the appearance and the greater energy and endurance, but the all-round values, including greater self-confidence and self-respect. We do not advertise correct breathing as the sole path to health ; we advertise it as one path—a simple one.

It seems an interesting subject in itself. Merely to look at the illustrations of the mechanism of the vast muscles, controlled

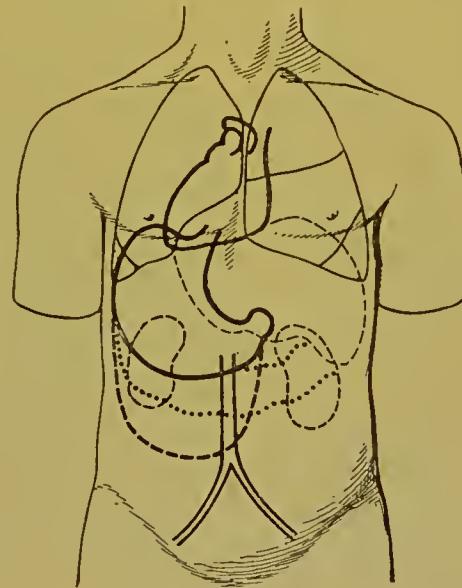


FIG. 1.

WHEN THE STOMACH IS OVERFULL IT SAGS DOWN, AND ITS CONTENTS ARE A GREAT WEIGHT TO LIFT AND EJECT THROUGH THE PYLORUS. IN SUCH CASES IT WILL HELP DIGESTION TO LIE DOWN AND SO BRING THE STOMACH NEARER TO ITS PROPER POSITION, AND THEN TO BREATHE DEEPLY FIRST AND AFTERWARDS TO HOLD UP THE DIAPHRAGM.

(Diagram adapted from Sir Lauder Brunton's "Disorders of Digestion.")

by the intangibly tiny will-impulse ; to think of the gigantic work done, the regularity of the process ; to wonder how many thousands of cell-minds are doing it for us ; to practise the different breathings and notice their effects on the emotions and on the power to think and act ; to register our progress ; to make our own alterations ; to invent something better than any outsider can offer—all this seems likely to be fascinating to many.

Even if a person only aimed at greater attractiveness, or greater attractiveness of a special kind, let us say of voice, even then the art might be sufficiently interesting to be examined and cultivated. Here are some words by a Yogi who had practised and proved in his own person that about which he wrote. Perhaps merely this one single incentive may be enough to convince or conquer you, if you keep it, like the beetle's honey, constantly ahead of you to lead you on.

"Until you can get a firm seat, you cannot practise the breathing exercises. The seat being firm means that you do not feel the body at all; then alone it has become firm. . . . Sit upright; the body must be kept straight [that is, laterally straight; but the trunk should be inclined slightly forward from the hips]. The spinal cord, although it is inside the vertebral column, is not attached to it. If you sit crookedly, you disturb this spinal cord, so let it be free. Any time that you sit crookedly and try to meditate, you are doing yourself an injury. The three parts of the body must be always held straight—the chest, the neck, and the head, in one line. You will find that by a little practice this will come to you quite as easily as breathing. . . .

"The first lesson is just to breathe in a measured way, in [through the nostrils] and out. That will harmonise the system. When you have practised this for some

time, you will do well to join the repetition of some word to it . . . and let the word flow in and out with the breath, rhythmically, harmoniously, and you will find the whole body is becoming rhythmical. Then you will learn what rest is. Sleep is not rest, comparatively. Once this rest has come, the most tired nerves will be calmed down, and *you will find that you have never before really rested*. . . .

"The first effect of this practice will

be that *the face will change; harsh lines will disappear*; with this calm thought, calmness will come over the face. Next, beautiful voice will come. I never knew a Yogi with a croaking voice. These signs will come after a few months' practice."

A foreigner once told us that the only thing which seemed to appeal to an English woman was an improvement in her personal appearance and attractive-

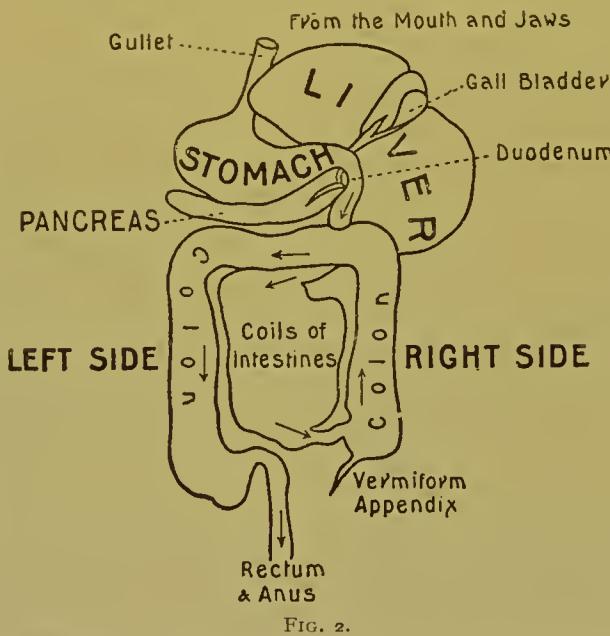


FIG. 2.
ORGANS BELOW THE DIAPHRAGM RELIEVED WHEN IT IS LIFTED, MASSAGED
WHEN IT IS SENT DOWN.

(From "Good Digestion," by permission of Messrs. Routledge and Sons.)

ness; that the only thing which seemed to appeal to an English boy or man was success in games and athletics. Having touched on the supposed female-motive, let us consider what we may call the *athletic* effects of better breathing. It will help to remove obesity by using up the excess and waste-products of work done. It will bring general cleanliness by getting rid of carbonic acid, constipation, and fermentation. It will bring endurance, enabling us to use more food because we take in more oxygen and massage our digestive organs.

The relaxed breathing will tend to economy by repose of the parts which we want to rest. Calmness and a clear head may be another result of deep inhaling; another, the clear eye which a person so frequently loses when he is puffed and blown; another, alertness; and so on. These may be brought about partly by better breathing. The exercises connected with breathing are useful for many reasons. And general athletic success may be increased by the effects of better breathing upon the mind.

In a wider sense of the word athletic, the person will be more ready and fit for all sorts of exercise if he has command of his breathing-apparatus. He will enjoy all sorts of exercise more—at least, that is our experience—but he will not be so dependent on them for his health. They will be his kind and welcome helpers, not his tyrannical and compelling masters; he will be able to get along even without them.

It may not be very interesting to certain readers to know that with better breathing might come a more pleasing voice, and greater athletic fitness. Many may perhaps desire rather to be generally comfortable and healthy. Such a one may know that a large number of the evils

under which Carlyle, De Quincey, Darwin, Spencer suffered were due to bad digestion. He may hinge everything upon this one physical process. In that case he will ask, How does better breathing help the digestion? In the first place, he who breathes deeply and slowly tends to eat slowly and carefully also. The Editor noticed in New York that those who ate

fastest breathed fastest also. If a man could control his diaphragm, he could certainly aid his digestion, both by holding his diaphragm up and so relieving the stomach and liver below it, and by sending the diaphragm down and up and so massaging these organs.

Other readers may believe not in dyspepsia but in some other mischief as the cause of their unfitness. They may not know

precisely what is the matter with them. They may suspect that they have every disease, or they may suspect that they have some special disease. If they thought that better breathing would cure it, better breathing they would practise. Such people would like to hear Dr. Hoffman's opinion, as expressed in the "Therapeutische Monatshefte," and quoted in "The Hospital." He says:—

"The abdominal viscera are affected in an important manner by deep respirations, due

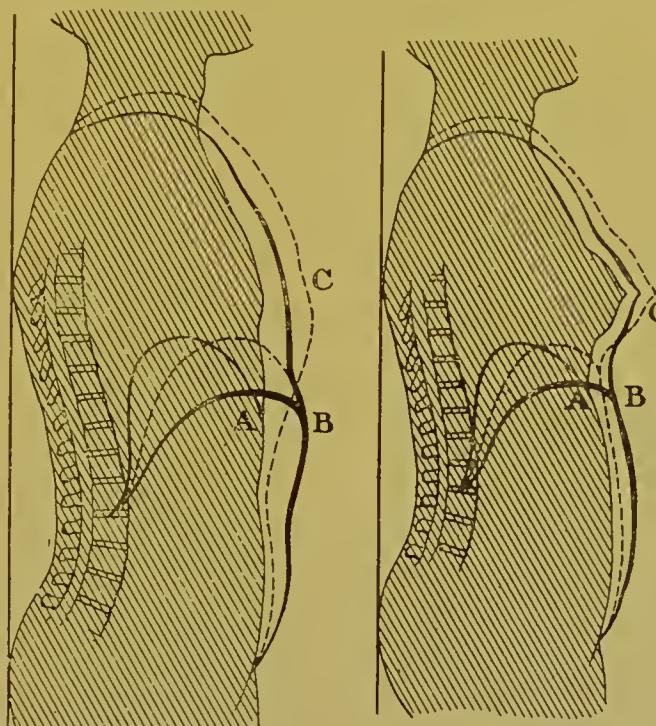


FIG. 3.
DIFFERENT WAYS OF BREATHING.

AS THE LUNGS ARE INFLATED SO THE CHEST CAPACITY VARIES. CONSUMPTION
MAY BE PREVENTED BY LARGER DOSES OF FRESH AIR.

(Adapted from Lennox Browne's "Medical Hints on the Production
and Management of the Singing Voice.")

to the movement of the diaphragm and the abdominal muscles; it affects the liver and, to a less degree, the other movable organs, subjecting them as it were to an internal massage. The resulting pressure also acts on the veins, promoting venous return. The intestines are also activated; thus deep breathing is of value to those suffering from habitual constipation. In cases of syncope it is an excellent remedy. In threatening sea-sickness it improves the cerebral circulation; it also facilitates the return flow of blood from the abdominal organs, and has a marked psychic effect on the patient."

Many die of consumption (*vide* the diagram in a previous chapter). It is said to be responsible for the largest number of deaths. At any rate, we have seen that in America, according to the census of 1900, consumption and pneumonia caused well over 300,000 out of just over a million. There must be hundreds of physicians and amateurs to-day who have found that deep breathing of pure air is a preventive or cure for consumption.

But there is another disease which may be responsible for even more deaths, and that disease is worry, and especially worry about money. You think that the Americans are successful because they are flooding the world with their goods. They are not all successful; many are too hurried and too tense and too nervous. Better breathing would make them more and more truly successful. Such breathing as we have suggested might be one of the best treatments—for we prefer not to use the word "cures"—for poverty, as we shall show directly, and for the worry which springs from poverty; it might be one of the best treatments for worry, neurasthenia and sleeplessness; for hurry and irritability; for over-fatigue of mind or body; for obesity, as well as for excessive thinness (since he who breathes well is less nervous and uses more food—the nervous person does not digest his food properly); for anaemia; for constipation; for colds and coughs; for dipsy-

mania and other signs of want of self-control; for headache and giddiness, and—as Professor Schweninger has often proved—for sea-sickness (partly by sending the blood to circulate in the extremities, and by aiding the digestion).

We may mention incidentally that doctors should certainly diagnose diseases by examining the breathing. There are certain breathings that are signs and warnings of certain diseases as well as of certain characters and nervous dispositions. We hear of character being told by a study of handwriting, of lines on the hand, and so on. It can also be told by a study of the breathing.

Have these reasons been sufficient to make the various readers of this PHYSICAL EDUCATOR determine to practise better breathing? If not, let us mention a point which must appeal to everyone. What we are all seeking for is satisfaction. We want to have as many pleasant emotions as possible, not only because we like them, but also because they affect the blood throughout our body, and so make us fitter for all our work and play and rest.

Now we can alter our emotions by altering our breathing. Dr. Maudsley has said: "Special muscular action [this includes the breathing action] is not merely an expression of a passion, but truly an essential part of it. If we try, while the features are fixed in the expression of one passion, to call up in the mind a different one, we shall find it impossible to do so."

What he has said about expression, as well as about muscular action, applies especially to breathing. If we try, while our breathing is expressing calmness, to call up in the mind worry and hurry, we may find it impossible to do so. We should like every reader to read that sentence a dozen times, for it gives one of the simplest antidotes to one of the greatest evils or sins of modern life. It

may even put him within reach of his heart's desire, for perhaps what we all never cease to desire is to feel as happy or comfortable as possible ; to feel as little



FIG. 4.



FIG. 5.

AS YOU BREATHE IN THROUGH THE
NOSTRILS, BRING THE HEAD
BACK AND UP AND STRETCH
THE TRUNK BACK FROM THE
HIPS.

AS YOU BREATHE OUT THROUGH
THE MOUTH, BEND THE HEAD
FORWARDS AND DOWN AND
BEND THE TRUNK FORWARDS
FROM THE HIPS.

(This and the following Figs. are drawn according to the
instructions in "Training of the Body.")

as possible of disease or pain. We may think that we want to help others, but that is partly, if not chiefly, because this will give us a sense of *real* satisfaction. It is satisfaction that we desire, and few have any idea of the amount of satisfaction which can come from breathing correctly, if not by nature, then by art.

There may be some readers who are still unattracted to the practice of better breathing. They may be of the æsthetic and artistic kind. They may have an objection to anything that is ugly, and that may be their chief reason for practising this or the other movement. Now the open mouth is ugly ; so is the harsh and overloud voice ; so is the narrow chest ; so are the pale face and the red nose. These things are not entirely due to wrong breathing, but they are largely due to it.

The appearance has its economical value as well as its artistic value. Many owe much of their money and success to their

appearance. There are plenty of people whom we should not admire and help so much if they breathed wrongly. They would then produce an unpleasant effect upon us. Besides, this correct breathing, and therefore the regular practice of it till it becomes easy and natural, is a direct economy. It entails no expense of money or time, for it can be practised without apparatus and at odd moments when otherwise we should be waiting or worrying or both. It may save money by helping us to use a little food thoroughly, and be amply nourished with that ; by preventing illness and premature fatigue ; by giving greater endurance ; by helping us to do more work and quicker work. He who breathes correctly needs less energy to digest his food or to do his work or exercise, for his body now works rhythmically and freer from rust and clogging, and therefore more economically and easily. The value of correct breathings in the learning



FIG. 6.



FIG. 7.

AS YOU BREATHE OUT THROUGH
THE MOUTH, SEND THE SHOUL-
DERS DOWN AND FORWARDS.
RELAX THE HANDS AND ONLY
JUST CLOSE THEM.

AS YOU BREATHE IN THROUGH THE
NOSTRILS, BRING THE SHOUL-
DERS UP AND BACK AND
CLENCH THE HANDS TIGHTLY.

of foreign languages, in singing, in public speaking, in teaching, in persuading, is a factor much neglected in modern education. Ruskin said : Breathe correctly and you will sing beautifully. We say more ; we say, Breathe correctly and you will

listen beautifully, which is more than nine people out of ten do ; and listening is a very popular art.

Still, there are some readers who are unmoved. For them, the only life worth living is the moral and spiritual. Self-control and guidance by the highest self is their aim and end in life. For this aim and end there is no better physical practice than deep breathing and the muscular relaxation and repose which it can help to bring. If a man wants to become conscious of his best self, less conscious of his worst self ; if he wants to pray, let him practise breathing as the Hindus have done for generations.

Another moral value is the advantage which comes with every regular habit that we now possess, and that we have acquired by concentration. The process of acquiring the habit benefits us. This is especially the case here, because correct breathing tends to calmness, to self-mastery, to poise, and then to self-direction. It does away with fluster and a silly haste.

Our influence on others is not to be omitted. It is pleasanter for you, and after practice it is easier for you to breathe correctly. Certainly the effect on those who are with you is pleasanter.



FIG. 8.



FIG. 9.

AS YOU BREATHE IN THROUGH THE NOSTRILS, WITH THE ARMS AKIMBO, DRAW THE ELBOWS BACK.

AS YOU BREATHE OUT THROUGH THE MOUTH, WITH THE ARMS AKIMBO, SEND THE ELBOWS FORWARDS.

Indeed, a regulated breathing has a radiating power ; it is as contagious as hurry. The Editor has a friend who can start people fidgeting by walking about in the house with a hat and a great-coat on. He gives the general impression that he must be off in a moment. One who yawns may start others yawning. And a man who breathes hastily and shallowly spreads a hurrying tendency. He shortens his own life and theirs.

Most of us are reluctant to die ; good breathing tends to long life, and the man who breathes well is likely to hand down greater health to his descendants.

Hence the art of better breathing—for the art of perfect breathing can only come with the perfect mind—is all-reaching in its effects.

It is a matter of national importance. Whatever else we may disagree about, we agree about this. Three things at least the nation needs. One of these is *purity*, not merely physical purity, which comes with more oxygen and more complete excretion, but purity in its widest sense. Another of these is *power*. Here, again, not merely the power which comes with more oxygen, with more satisfactory digestion and with greater repose, but power in a general sense. The third is *poise*. He who is incapable of controlling his muscles (to quote Dr. Maudsley again) is incapable of controlling his mind. This applies to the diaphragm in particular, even if a person does not know that he has a diaphragm. Professor James, of Harvard University, has put forth very clearly the theory that whatever we express externally we tend also to feel internally. Express calmness, and you will soon feel calm. Breathe deeply, and you will be likely to feel not only calm, but also energetic and powerful, and poised.

Now whether all these advantages will

come from the practice that we suggest, every reader must find out for himself. If they do not come, it will probably be because the practices are wrong. Nevertheless, reluctant as we are to lay down a definite set of laws, we genuinely think that it will be worth while for the reader to practise the exercises we offer. We will give a few reasons why such a practice might be worth while.

SOME REASONS WHY WE SHOULD PRACTISE.

In favour of the practice of breathing as a regular part of physical and mental training, besides the fact that it is the easiest starting-point, is the fact that it is the commonest act of life. Wherever we are, we must breathe. We may do without sleep and food and other things for a far longer period than we can do without breathing. Unless we become like certain Hindu Yogis, we can never escape from the necessity of breathing ; and in modern life it is very hard to escape from the necessity of breathing foul air. If we have lost our adaptive instincts, we are perpetually faced with that problem ; and, as distinct from other writers and teachers, we maintain that one of the most important accomplishments is to be able to breathe as little as possible when the air is foul. In most rooms, trains, 'buses, offices, churches, restaurants, the deeper and fuller our breaths of air, the more poison we inhale. Breathing is a more frequent act than eating, and it produces a more immediate effect than most eating. Almost at once the air interpenetrates the system ; almost at once the rhythm of breathing affects the mind. Yet whether in fresh air or foul, most civilised people—as distinct from little children, savages, and animals in fresh air—breathe wrongly.

Slow breathing is very easily mastered—more easily than slow eating, and far more easily than the emotions themselves.

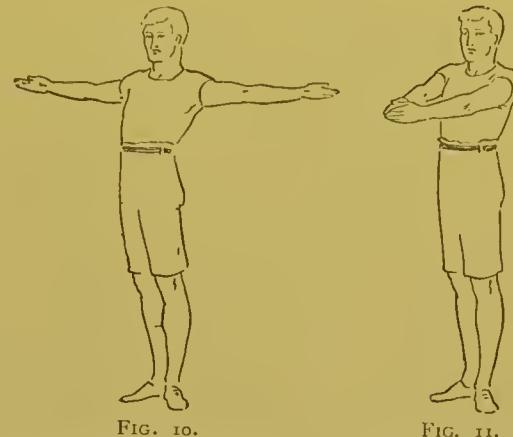


FIG. 10.

FIG. 11.

AS YOU BREATHE IN THROUGH THE
NOSTRILS, STRETCH THE ARMS
OUT SIDEOWAYS WITH THE
PALMS UPWARDS.

AS YOU BREATHE OUT THROUGH
THE MOUTH, STRETCH THE
ARMS OUT FORWARDS WITH
THE PALMS TOGETHER.

In its turn, it helps to give mastery over these. There is no occasion when the right kind of breathing—which should soon become instinctive—will not be of great assistance.

Moreover, the breathing is controlled without any ostentation. No one is conspicuous by his correct breathing, as he might be by his correct eating. He merely becomes a more satisfactory person, and not one in a hundred could tell you why.

Again, the breathing is very easily registered, if you get the right kind of instrument. The effects, however, on the life all-round are the best test of the correctness or the incorrectness of the practice. The tape is at the best a partial criterion. The power to work well and long—that is our test.

In spite of all this, breathing is still the most neglected art of life. Not only is it neglected, but many teachers of physical culture deny that it has any place in their art ; or, if they give it a place, they mean not correct ways of breathing, but one way, correct for certain purposes. Whereas the Hindus train their children to breathe fully and deeply through their nostrils, as a practice no less regular than washing, eating, sleeping, and praying,

we as a nation do not trouble about such a fundamental habit. We let children go about with open mouths. We let athletes over-develop their chest by exercise, and then pass at once into a sedentary life in which the over-developed part of the chest becomes a lumber-room, so that not a few gymnasts, even while they are continuing their exercise, are frequently suffering from colds, and, as we have seen, a large number of them are said to have died of consumption. Among these was Professor Dowd, a strong man and an authority (on paper) on Physical Culture of the Muscles, who yet apparently did not know how to use his own chest-muscles.

An American writer claims to have a list of over two hundred athletes—of course, less prominent than these—who succumbed to this disease. This writer says that the death was not due to over-exertion or dissipation so much as to the fact that the external was developed at the expense of the internal. They had developed a large breathing-box, which became a mere rubbish-basket, because they did not know how to fill it with fresh air.

SOME FALLACIES.

More faults are due to ignorance than to wilful negligence after convincing knowledge. For example, many imagine that the art of breathing is like some art of carpentering or brass-work or leather-work, a new fad; not realising that it is as old as the Hindus and Chinese, and that a fair estimate of its importance is as old as the Bible, and older.

Nevertheless, many believe that it is unimportant, a trivial matter which does not concern us. When a man commits suicide with a rope or a knife or a pistol, he is considered mad; when he commits slow suicide by poisoning himself with foul air or by throttling his lungs, he is considered normal. Yet the two kinds of

suicide differ in degree rather than in kind. It is no answer to say that the man does not die at once. Does a man die at once who takes arsenic in ever-increasing doses, so that after a year or two he can swallow, without altering his condition appreciably, an amount that would be enough to kill ten uninfected people? Can we maintain that it does not matter whether he takes arsenic or not?

Expressed in another way, the fallacy is that the natural way of breathing is best. This generally means that some one kind of breathing is best. Naturally, as healthy and exercising animals in the country, we breathe rightly. Naturally, as unhealthy and sedentary and wrongly fed people in cities, we breathe wrongly. The "natural" breathing of most of us is inadequate.

But it is almost as great a fallacy to imagine that some one way of breathing is to be dictated by law and then adopted by all readers indiscriminately—indeed, it is a fallacy to suppose that anyone can map out or do your breathing for you. You must work out the theory and modify it, and then put it into practice.

You must test it also—not by the fallacious tests which are too often applied. For example, some tell you to measure the size of your chest. It may be almost as if you judged of the contents of a box by the size of the box. A well-known strong man has a trick already mentioned which proves that chest-expansion itself is not a certain test. For instance, take a full breath and hold it in. You will find that you can alter your chest-measurement while you hold it in, by the use of muscles which are not muscles of breathing. On the other hand, you may have a splendid capacity for air chiefly by moving your diaphragm down, without moving your ribs very remark-

ably. The measurement of chest-size and even of chest-expansion may almost leave out of account this diaphragmatic breathing which so many authorities consider to be the most important.

Here another fallacy is to confuse breathing with exercises that help breathing, such as those which we are offering in this article. It is like confusing moral purity with the conditions (such as family-life, games, publicity, cleanliness) which help moral purity. Breathing itself is not to be confused with assisting-movements of the neighbouring muscles. For instance, send out your abdomen ; that is not breathing. You can send it out without letting in any more oxygen or letting out any more. Nevertheless, it may help you to breathe if you send your diaphragm further down and out. It is an exercise that may assist the breathing.

There are many who imagine that ordinary exercise and exercises, especially when the mouth is closed, are quite sufficient *per se* to develop the lungs. They say, swim, dive, row, do gymnastics, walk, run, play games. And they point to the undoubted increase of breathing capacity through these means. But remove these means, and what will happen to the lungs and the chest then ? Impose a sedentary life, deprive the 'Varsity or college oar of his exercise, and how will

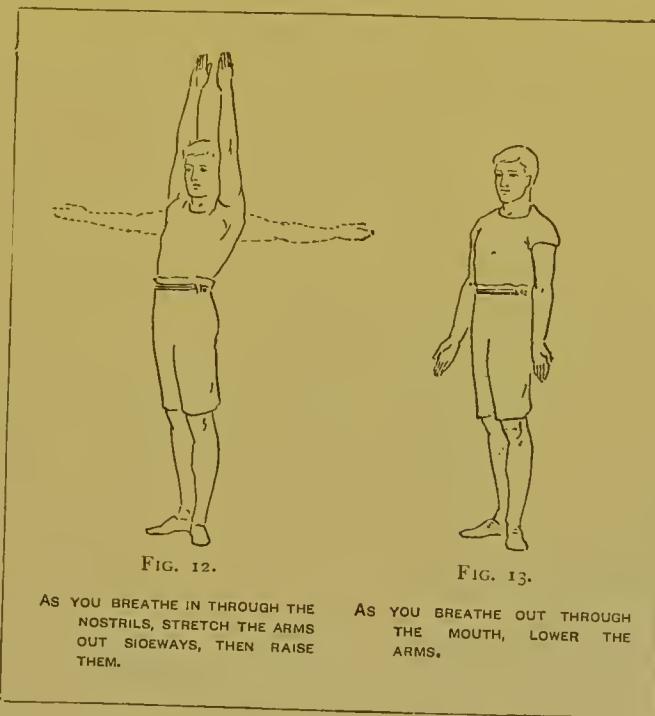
the lungs bear the want of it ? Are not these exercises rather to be compared with a stimulant ? They excite our breathing, but do not necessarily encourage us to breathe regularly and as a habit without them. Hence one reason of the deaths of so many ex-athletes through consumption.

Right at the other extreme is the theory that breathing practice is useless. Regulate the mind, and the breathing will regulate itself. That is possibly true of

the whole of physical life. Only the difficulty is to regulate the mind ! The theorists say, You can only get correct breathing by correct thinking, and the natural results of correct thinking will be correct breathing. In practice this does not work out. By careful training in the art of breathing as a physical process

we can apparently alter the mind and the body as well. We should not neglect the mental, but we should help it by the physical, which, after all, is mental also. Mentally we decide to breathe more sensibly ; mentally we search for better ways ; mentally we experiment and observe.

For breathing is not a physical act only ; that is to say, it is not merely a muscular act. It is not a matter of moving certain muscles in certain ways, and its effects are not purely physical. It is also mental in method and mental in



results ; or, to express this truth differently, it is not only a cause ; it is also a result. Think rightly, and you will tend to breathe rightly. Breathe rightly, and you will tend to think rightly.

But neither right thinking, in the narrower sense of the word, nor right breathing, are all-sufficient for health. Other helps must be called in, such as better exercise, diet, washing, and dress.

The last fallacy which we shall expose

likes, she can do without her corset altogether. One well-known woman teacher has trained a number of ladies so that their figure without the corset is not that of the oft-cited Venus of Milo, but is a fashionable modern figure ; is not the healthiest possible, but yet is not nearly so unsightly as the type of figure which is so often called hygienic, and which looks like a clumsy sack tied in the middle, or even untied altogether.



FIG. 15.



FIG. 14.

LOWEST BREATHING.—LIE DOWN FLAT AND KEEP THE HAND ON THE ABDOMEN TO HELP THE LOWEST BREATHING. SEND THE ABDOMEN OUT AND THE DIAPHRAGM DOWN AS YOU BREATHE IN THROUGH THE NOSTRILS. DRAW THE ABDOMEN WELL IN AND THE DIAPHRAGM WELL UP AS YOU BREATHE OUT THROUGH THE MOUTH. KEEP THE OTHER HAND AND ARM RELAXED.



FIG. 16.

MIDDLE BREATHING.—KEEP THE HAND ON THE RIBS TO HELP THE MIDDLE BREATHING. SEND THE CHEST WALLS OUT AS YOU BREATHE IN THROUGH THE NOSTRILS. DRAW THE CHEST WALLS WELL IN AS YOU BREATHE OUT THROUGH THE MOUTH.

UPPER BREATHING.—KEEP THE HAND AS IN THE FIG. TO HELP THE UPPER BREATHING. FIRST BREATHE IN WITH THE LOWEST AND MIDDLE BREATHINGS, THEN DRAW IN THE ABDOMEN, DRAW IN THE CHEST WALLS, AND TRY TO SEND THE AIR UP TO THE TOP (APEX) OF THE LUNGS.

here is that incorrect breathing is entirely due to incorrect dress, and especially to the corset. Most of the abuse of the corset is the abuse of the old-fashioned type of corset, which constricted both the abdomen and the chest. The best type of corset can take the place of some of the muscles which should hold the body in a good position. It should not constrict the lower or the middle breathing. Meanwhile, however, the woman should develop these muscles themselves, as well as her breathing capacity, so that, if she

A FEW THEORIES AND NOTES.

It is interesting to observe that to-day there are being revived in America and brought forward as original inventions by money-seekers, theories which were thoroughly believed in and practised in the East thousands of years ago. Read the ancient literature of India ; study the doctrine of "Prâna," and you will find that the importance of breath and the breathing was realised, if not exaggerated. Read about the physical culture of the Chinese (we shall treat of this matter in

a later chapter), how they combined breathing, massage, and exercise. Study the Old Testament: that is full of allusions to breath and breathing and spirit, the Latin word *spiritus* originally meaning "breath," and the "ghost" (in "Holy Ghost") being in the Greek a word with the same original sense. In the New Testament we read, in John xx. 22, how Jesus breathed in and said to the disciples, "Receive ye the Holy Spirit." It was this spirit which "inspired" them.

Indeed, our language bears witness that breath and life and vigour and spirit are terms sometimes used synonymously. The word "expire," which once meant "breathe out," has now the sense of "die." To have no more breath is to have no more life. When we wish to relax and sleep, and have a temporary death, as it were, by the Delsartean system of relaxing, we take advantage of the outward breath. Breathe deeply in, and lift up your chest and your head—and your mind. Then let the breath go slowly out. You find at once a tendency to repose and rest.

Breathing, in its widest sense, is not a breathing only of air through the nostrils and mouth; it is a breathing also of air and light and moisture through the whole skin. This is how plants breathe; this is how animals breathe also. It is very important that for part of our day, if possible, we should inhale not only much oxygen with our nostrils, but also much air and light, and some pure water with the whole surface of our skin. This is why we shall devote several pages to the important topic of air and light baths.

For many of us have lost our best animal-habits owing to our so-called civilisation. Delsarte has a theory that the lowest breathing—in which many women are so weak—is the most essentially

animal, whereas the higher breathing is more mental and spiritual. There is something to be said for this view, though carried to an extreme it is cranky.

The fact of it is that each nation has its own especial ways of breathing, corresponding to its own special character and characteristics. We might imagine the typical Boeotians as abdominal breathers. One of the reasons why we sympathise so little with Continental or foreign people is that we breathe so differently from them. Next time you speak French (in private), give yourself up to it; gesticulate as the French do; breathe as the French do. Then you will find yourself much more in sympathy with the French.

For there is not the slightest doubt that if you breathe in a certain way you are likely to get the corresponding emotion. We look upon an emotion—pleasure, pain, fear, courage—as changing the breathing, forgetting that the breathing can change the emotion, as Professor James has pointed out. Indeed, it is true that every expression of an emotion, a smile as an expression of pleasure, can be made to produce the emotion itself; we can work from the result back to the cause.

It may be objected that actors who express emotions do not feel them. Certain actors do not feel them, but the reason is that they have acquired a separate art. What happens—so it seems—is that their extremities express the emotion—their faces and hands and surfaces, and also the position of their body; but they appear to have the art of stopping the expression there, and not letting it reach their organs. They do not let themselves go; hence the movement never reaches their feelings, except in broken wavelets—mere ripples. If you want to get an emotion by means of an expression, and especially by means of breathing, then cultivate the expression and the breathing

and let yourself go. Breathe rhythmically, reasonably fully, without muscular tension, and with an approach to a smile on the face, and you will find yourself much more comfortable than before.

Yet the mind is never absent. It is the mind that decides that you shall try this practice, and, if it helps, continue it. It is the mind that feels and observes the effects. It is to your mind, readers, that we appeal when we offer these suggestions, and, above all, when we advise you to work the subject out for yourself.

MISCELLANEOUS HINTS.

The question of breathing still teems with unsolved problems ; that is the interest of it. Now, after the outline and exercises, and reasons for practising them, and a theory or two, we proceed to give a few miscellaneous hints.

The right position for ordinary breathing is, as we have seen, with the body laterally

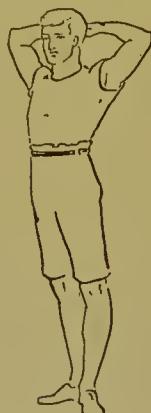


FIG. 17.

AS YOU BREATHE IN THROUGH THE NOSTRILS, RAISE THE ARMS AND BRING THEM BEHIND THE HEAD WITH THE PALMS UPWARDS.



FIG. 18.

AS YOU BREATHE OUT THROUGH THE MOUTH, LOWER THE ARMS IN FRONT AND PRESS THEM TO THE CHEST, BENDING THE TRUNK SLIGHTLY.

straight, with the chin in, shoulders down and back, and chest forward. But let there be no uncomfortable strain. The position is most easily kept as one lies on the floor. You should not frown ; you should keep the mouth shut—at any rate,

during most of the inhaling—and, before the inhaling itself, you should blow the nose and perhaps wash it.

You should practise the lower and middle breathings separately, unless you already find each easy and well-developed by itself. Women usually need to develop the lower breathing most, unless they are either well-trained or else naturally correct breathers.

The lower breathing is helped by the exercise of sending the abdomen out. Gradually there should come a sense of where the diaphragm is, and a better control of it. It is important to force the diaphragm right up as well as to force it right down. Habitually, most of us let it "flop" too far down ; we should learn to hold it far up as well. The effects of this moving up and down and holding up of the diaphragm have been already mentioned, but they will bear repetition. To move the diaphragm up and down massages the organs above (namely, the heart and lungs), and the organs below (namely, the stomach, liver, and spleen). To hold the diaphragm up relieves these latter organs of pressure ; to hold it down helps to relieve the heart and lungs of pressure, and to squeeze the lower organs and empty them of their contents.

If it is hard to hold the diaphragm up, then strengthen the muscles that are concerned in holding it up. Some of these have been shown in previous illustrations. To strengthen them, try some of the exercises in the Course for Women, especially those on the floor and those with a wand, or use the inclined plank—e.g. lifting yourself up with your hands behind your head, keeping your feet firm and still.

As a variety, practise the Doherty service (*see the Courses for Men and for Women*) after picking up an imaginary ball. As you raise yourself, breathe in.

As you bend forwards and down, breathe out, holding the diaphragm up all the time.

Or practise the action of skipping. The arm-action can be done as you lie on the inclined plank. The action of swimming, for the breast-stroke, is also good, and can be practised on the same apparatus. Besides, you can go through such movements as the imitation of going upstairs and kicking up with the legs.

Another useful art is to breathe through each nostril in turn. The process is described thus by a Hindu Yogi (we need not attend to the details as to "sending the nerve-current in imagination down the spinal column"; but the general practice is decidedly useful):—

"Slowly fill the lungs with breath through the left nostril, and at the same time concentrate your mind and imagine yourself to be sending a nerve-current down the spinal column, so that it strikes on the lowest plexus of the column. Then imagine yourself to be holding the current there for some time. Then imagine that you are slowly drawing that nerve-current with the breath through the other side; then slowly send it out through the right nostril. The easiest way is to stop the right nostril with the thumb, and slowly draw in the breath through the left; then close both nostrils with thumb and forefinger, and imagine that you are sending that current down; then take the thumb off, and let the breath out through the right nostril. Afterwards reverse the process."

You will probably find that your left nostril is not so wide as your right. If this is the case, then remember to use your handkerchief in the reverse way. Draw it not from left to right, but from right to left, and practise the breathing through the left nostril more frequently than through the right. Look in the glass,

and you will probably find that your nose is not straight. Such practices, as well as massage of the right kind, will help to remedy this.

Another kind of breathing, already alluded to, is water-breathing. Some add



FIG. 19.



FIG. 20.

AS YOU BREATHE IN THROUGH THE
NOSTRILS, LIFT A STICK HIGH
WITH BOTH HANDS AND BRING
IT DOWN (BACKWARDS) BE-
TWEEN THE SHOULDER BLADES.

AS YOU BREATHE OUT THROUGH
THE MOUTH, LIFT THE STICK
HIGH WITH BOTH HANDS AND
BRING IT DOWN IN FRONT.

a little salt to the water. Anyhow, the water should be soft. You put some water in a basin, and then inhale it, either through both nostrils or through each nostril in turn. This tends to cleanse as well as to cool the nostrils. Think of what your nose has to breathe in and filter during a day in London! We notice in modern hygiene an increasing attention to this internal washing as well as to external washing. We cannot decide what we shall breathe in as we decide what we shall eat. The next best thing is to wash out the undesirable elements afterwards.

The above practices, if begun early and turned into habits as regular as the cleaning of the teeth or the opening of the bowels, may save operations for adenoids and various ailments as well.

Another help is the practice of certain sounds in particular. The *m* and *n* sounds

are good. If you have not the courage or the selfishness to practise them out loud in your own house, then remember that a similar effect may be produced by silent singing. Breathe in, and then, as you breathe out, imagine yourself to be saying words like "Monday morning." While you go through the action of saying "Monday morning," you are actually practising a certain kind of breathing and voice-production.

Recreations, however, will appeal to a larger number of people than the above exercises, and among the best of these, of course, are swimming and diving, blowing bubbles, singing and shouting. Here, once more, to imagine yourself shouting to a person in a distant field is the next best thing to shouting itself.

So far we have said little as to the lengths of the breaths, which you will find will gradually increase themselves with practice, so that you will find yourself breathing just twice as well and half as often as before. Keep records for the first three months of training, and you will notice that your breathing will become rhythmical, and your endurance and calmness and clearness of body and mind will have improved considerably.

We think it bad to strain by holding the breath for a very long time, yet some exercises are useful. During the hundred yards' sprint, the effort in holding the breath is tremendous. Right at the other

extreme is the practice of taking many short breaths; one authority advises as many as possible in a minute. Other authorities advise a long time spent in inhaling, followed by a short and sharp exhaling. Fitzsimmons gives exercises as severe as the hundred yards' sprint in keeping the breath in; they are represented in a previous chapter. Or, again, you can breathe in quickly, but not less thoroughly for that, and spend a long time while you are exhaling; rather as if

you were to put a dry sponge into the water, draw it out immediately, then slowly squeeze it dry again.

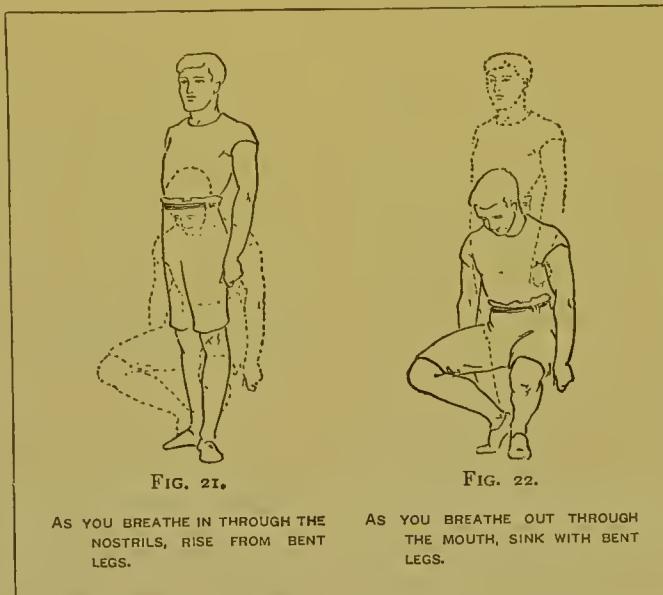
The last exercise, which we should not advise beginners to practise, is to spend a long time in keeping the lungs empty after the exhaling. The Yogi, quoted above,

says that the breathing in which you hold the breath in the lungs must not be practised too much. This applies still more to the breathing in which you hold the breath out of the lungs.

Certainly such exercises tend to a more patient mind, which is sadly needed to-day. The will to practise them may be helped by a knowledge of the good results and by a fair trial of such suggestions as we have offered.

A SUMMARY.

The advantages of correct breathing should rapidly show themselves in the body, the intellect, the character, and



the influence upon others ; also upon the lasting power and nerve and "eye" and success during athletics ; they should show themselves during singing and speaking ; and in preventing disease and dis-ease. The practice of breathing is one of the simplest, and one of the safest, if the air is fresh and if you do not strain. It is never too late to practise, and perhaps never too early. The earlier the habit is acquired, like the habit of slow eating, the more sure and sound is the foundation for health and happiness.

For breathing is the most frequent act of life, and one of the most important. The oxygen interpenetrates everywhere. Breathing, however, at present, is one of the things which we do most execrably badly ; and perhaps, if started early, it is one of the things which we might do most excellently well.

It should certainly be a part of national physical education—not one way of breathing only, but various ways, each right for its proper circumstance.

It is because of the importance and the simplicity of the art that some general rules have been offered here almost as dogmatic laws, and some general exercises offered, many of them from "The Training of the Body." But we have not meant to exhaust the subject, we have rather meant to arouse thought in our readers' minds. In every case it is true of what we suggest, as of all systems and pieces of advice : "By their fruits ye shall know them."

Try them sensibly, and, if you like, with an occasional sense of humour, and see if they do not make you more successful all round. If they do not, then you can easily give them up ; they will have done you little or no harm. Until you have tried them sensibly, you ought not to have a comfortable conscience, unless, of course, you happen to be one who breathes beautifully by nature or by art—one who is, in this sphere, a true genius.

But a true genius is not common in this or in any other sphere.

CHAPTER XXXVIII.

PHYSICAL EDUCATION IN AMERICA.

America a Heterogeneous Country—Some Common Characteristics of Americans—Open-mindedness, Irreverent of Tradition—An Example—The Quest for what Pays—The Land of Exaggerations—The Land of Contradictions—A Magnificent Piece of Work—W. J. Travis—Loss of *Abandon* in Athletics—Small Sense of Humour in Many Things—Extension of Education to More Classes—to Women—Women's Colleges and Physical Education—City-folk Cared for—Work of Individuals, Clubs, and Government—Free Pamphlets—Food-values—Professor Atwater—Professor Gates—An Interesting Experiment—Experimentation—Dr. Dewey—Dr. Kellogg—A Different Type of American where Pay is Assured—Dr. W. G. Anderson of Yale—Some of His Fine Ideas—Researches by University Students—Desire to “Go One Better”—Apparatus—Repose—Wholesomeness—Advertising—Teaching Physical Culture “Individually” by Correspondence—A Word about Professionals—A Nation's Games—Good Features of American Players—Conspicuous Items—Medical Supervision—Education for All—Reasons Why—Patriotism, Local and National—Contrasts.

AN article on this subject to be useful and truthful must be *miscellaneous* in character. It is easy enough to describe physical education among the Hindus, among the Japanese, among the Swedes, and so on ; but in America we find nearly all systems altered *ad lib.*, and added to, as well as some original systems. Perhaps, if we could search thoroughly, we should find most systems in their clearest form in America, because in their exaggerated form ; so that if we were asked to say what is the American system, corresponding to the German system or the British system, we should refuse ; we should have to ask, at any rate, To which State in America do you allude ? It is as if one were asked, What is the characteristic dialect of England ? Indeed, the differences between States in America may be compared with the differences between county-dialects in England.

It is the same when we consider the general character of the Americans. We might say of them that they are ready to change if they find the chance of something better, though they are not always ready to stick to the better when

they have found it. They are of all people in the world most open-minded not only to listen, but also to experiment. They are patriotic about local and national as well as individual welfare, success, and reputation, though the success and reputation are not always of the highest kinds. They are not conspicuously averse from making money. They are a people of exaggerations. Even their organisation and their division of labour they carry to an extreme. Yet with all their organisation they have much local and individual freedom, and little respect for authority.

Has it ever occurred to you—it must have occurred again and again, surely—that the so-called “correct” position for most “Courses” is almost never used by anyone anywhen anywhere of his or her own free will ? Outside orthodox “Courses” it is practically unknown.

Consider the best exponents of games, club-swinging, standing : how often do you

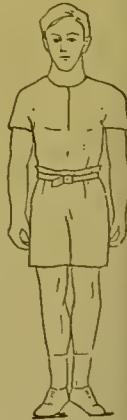


FIG. I.
“IS THIS THE
BEST POSI-
TION?”

find them with heels together and toes out? For a long while the Editor suspected the accuracy of the "correct" position. But to attack it—that seemed sacrilege. The pose appeared to lie near at the root of the Army, British, German, Ling, and most of the mixed systems.

In America there is to be found no such scruple about Physical Education. Without a shred of respect for a tradition with so much misty halo around it, up get several Americans and knock the hampering attitude into the middle of last week—and in America that means into the distant past.

Absolutely a free hand to search for and publish the best *pro tem.*, to criticise and demolish the not-quite-so-good orthodox, that is what first strikes us when we study Physical Education in America. The old order suddenly collapseth, giving place to new. Indeed, every now and then one thinks these people have no traditions whatsoever. Regardless of what exists and is established, they search always for the best, which generally means the most paying.

Yet if America is a land of anything besides exaggeration, it is a land of contradictions. We have scarcely made this statement about search for the paying when our eye is caught by a pamphlet of Dr. Luther Gulick, of the Y.M.C.A. The pamphlet is called "Psychological, Pedagogical, and Religious Aspects of Group Games." "Pedagogical" is a thoroughly American word. From beginning to end, the pamphlet is on the

noblest note and in the very best American line of thought.

First, Gulick is categorical and classifies; then he is historical and suggests origins for games; then he draws useful lessons. Throughout, his thought is absolutely free. One of the most conspicuous helpers of the Y.M.C.A., he attacks the faults of orthodox Christianity with penetrating fearlessness.

Here is his category and classification of important plays of Anglo-Saxon boys.

"These activities," he says, "in the early times are individualistic; they are not games. A little child does not play games. Plays may be distinguished from games readily; games have definite programme and conclusion. Plays include games; games do not include all plays. The religion of this early period should be the ac-

quirement of the reflexes upon which the righteousness of later life must be built.

"In the second group the centre of sight is one's self in relation to others.

"In the third major division we find still more surely organised plays and games. These begin approximately at twelve, when Flechsig has shown that perhaps the association-areas in the brain are developed. The plays of the period are usually done in gangs or groups. Team-work is the key-note of the third division. There are two elements: accurateness and self-sacrifice. Savages who have reached the stage of co-operation under a chief, of fighting in groups, are doing that which the



FIG. 2.—A SERIOUS AND OFTEN DANGEROUS GAME IN AMERICA.

(From a photo in "Collier's Weekly.")

Anglo-Saxon boy commences to do soon after he is twelve. The play of the civilised boy to-day is the work of the uncivilised or civilised man in the past. That is a most fertile suggestion. These qualities appear to me to be a great starting-point of beginning altruism, of self-sacrifice, of that capacity upon which Christianity is based. Is it not an extraordinary fact that among such highly civilised people as the Germans, French, Italians, and Spaniards, we find no such allegiance to group-games among the boys as we find in England and America?

"When these group-activities become allied with wickedness, we have the most perilous forces of civilisation at work.

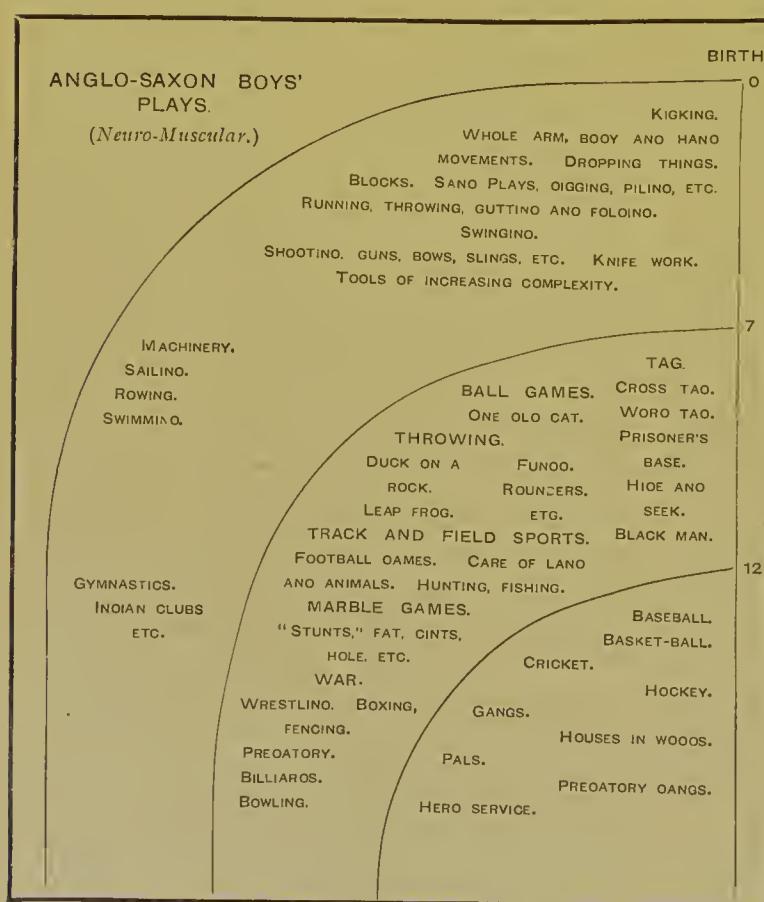
"The religious life at this period must not be regarded as out of relation to the spontaneous life and development

of the individual; the daily habits of righteousness, courtesy, honesty, obedience, etc., are referred to. Just so these later instincts for co-operation, even when it involves a sacrifice, seem to form the natural basis upon which the love of service to others is most naturally built. These games show the capacity and indicate one method for the development of this capacity.

"The first thing that naturally strikes one about these activities is that they are tremendous; they involve every bit of energy that the individual can put forth; they are heroic; they are savage. The Anglo-Saxon boy's religious life must demand these same qualities that we have seen to be demanded by the plays of the period. The religious life must be energetic and enthusiastic and exacting. The boy must do things. He must do hard, heroic things.

"The second characteristic of these group-activities is their objectiveness. These plays all have some definite end and some immediate programme, but they are all tremendously objective. The boy must control his temper, but for the sake of winning the game. The boy loves to master things.

"The third characteristic is their exhibition of the gang-instinct—the instinct of the boy for co-operation, for obedience to a leader, for the subordination of self to the programme for the whole. They exhibit loyalty to one's fellows, standing by one's comrades. Fourth, I would suggest that these activities bear a definite relation to



hero-worship. A part, then, of the problem of the religious life of Anglo-Saxon boys is to find that which shall be predominantly catabolic (energetic), objective, organised, and which will involve this principle of hero-worship. We find here that but 7 per cent. of young men are in the churches. There is no questioning the fact that the bulk and flower of American young men stand outside and not inside of the church, while the

ingenious wriggle, so that each part of the body in turn only just passes over the line. Compare also the jockeying of Sloan. Or look at American football—how they have developed their tactics.

Indeed, while they have gained in organisation and methodisation, they have lost something: they have lost most of the spirit of free *abandon*; they have borrowed; that could not fail



FIG. 3.—FOOTBALL PRACTICE IN AN AMERICAN GYMNASIUM.
(From a photo in "Collier's Weekly.")

great bulk of our church members and Christian workers are women; the qualities demanded by her are chiefly anabolic (unenergetic), subjective; these are feminine not masculine characteristics; so our churches are feminine not masculine in composition."

Truly the American writer at his best is as good as we can wish, at any rate in subject-matter, even if the style is not always all we could desire.

Take the cases of W. J. Travis, training and doing nothing but train systematically for many months before the Golf Championship; and of the American high jump. It was the Americans who invented, or at least systematised, the

to be the characteristic of such a notion-gathering and immigrant-gathering country. Thus, at a club where we stayed for a year in America, there was a collection of many forms of games and sports, including one of the oldest games—Tennis. Everything was tried in turn—and a good many things were quickly abandoned.

But, with all the open-mindedness to try new things, and with all the quickness to abandon them if they do not suit precisely, during the culture of them there is seriousness and grimness, if not tension. The gripped or tense hand is typically American. Everything is taken in desperate earnest, and with far less sense

of humour than the number of American comic papers would give one any idea of.

Look, for instance, at this figure (5), from what is called "The Thomas School of Psycho-Physical Culture." Behind it is a good idea, the imitation of something interesting. But the authors seem to have no conception how grotesque the illustration is ; with a little humour the exercise would have been no less valuable.

So it is in education also. There is small veneration for tradition ; there seems merely a search for what pays.



FIG. 4.—THE TENSE HAND IS TYPICALLY AMERICAN.

We find manual training commonly adopted in schools, not merely because it is good training for the senses, but because it pays as regards money-making.

But England has manual training in this or that school, we hear the Englishman answer. Yes, but it is only for a select few. In America such training is extended to all people of both sexes.

In attention to women the Americans excel all other people. We are not sure that the type of woman too often produced or evolved is a desirable type altogether, but at least out of the exaggeration we can learn a lesson or two.

In this chapter, for instance, are illustrations of some sports at a ladies' college—not very "ladylike," perhaps, to look at, yet remember that these girls have first undergone careful medical examination, and that, throughout, the exercises have been led up to carefully. Then, again, the students are interested in research-work ; they are always inclined to original investigation.

America has also cared for its city-

folk and their exercise ; indeed, American conditions have compelled that. These conditions all seem to lead inevitably to the city-club. For a great part of the year it is far too cold or snowy to take much outdoor exercise, except skating and ice-sports ; hence the city-club.

It is not always a serious club for educational gymnastics indoors. Thus in Boston we found magnificent open-air gymnasias and playgrounds. We found games provided indoors. As we have



FIG. 5.—AN AMERICAN DRAWING THAT SHOWS WANT OF THE SENSE OF HUMOUR.

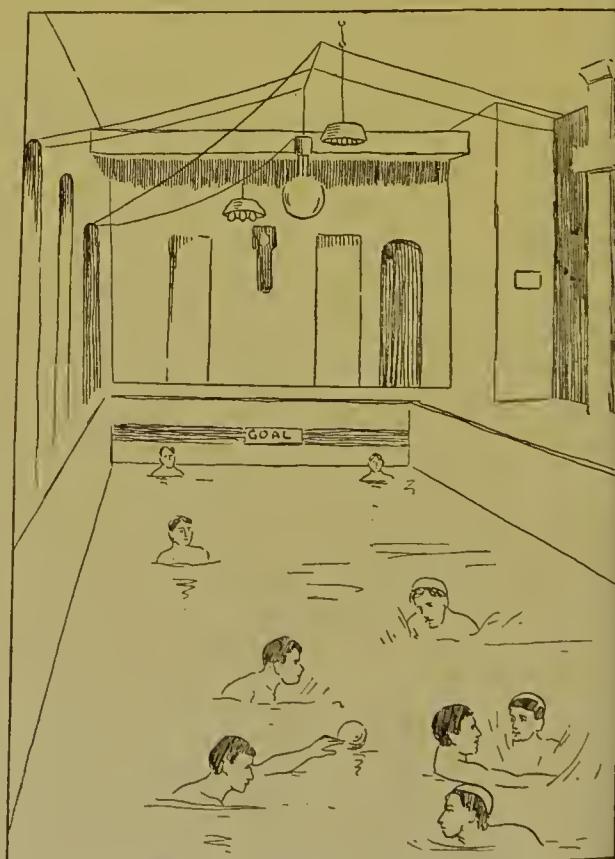


FIG. 6.—WATER-POLO AT THE NEW YORK ATHLETIC CLUB.

said in a previous chapter, the Boston Athletic Association has not only a swimming-tank in its basement, but also a racquet and tennis court on its top floor.

Such institutions are the work of individuals or private clubs. But a great deal is done also by general or local government.

Perhaps the most magnificent feature in American Physical Education is that the Government distributes wonderful pamphlets free to all who apply for them at Washington. Professor Atwater is the Editor of a number of these, dealing with food—the value of milk as a food, the value of fruits and nuts as foods,

gations he has carried out admirably, without any prejudice. Having a fixed salary, is he not compelled to "puff" anyone's articles.

The Government pays; the individual organises. Under him individuals and groups work out, collect, and arrange statistics. Experiments are now being made at various universities; these will be recorded each in its own Government-pamphlet—not a large and dull blue-book of statistics, but a short book with statistics and theories and practical lessons as well.

Or consider Professor Gates, a chemical investigator at Washington. He also has a Government post, though we believe that he was subsidised by private subscription. Among his published theories or facts are those in connection with concentration, and the effects of emotions upon the blood and other secretions and excretions of the body. Here are two of his experiments; we do not vouch for their accuracy; we merely cite them as extremely interesting.

Sitting evenly balanced, dip your two

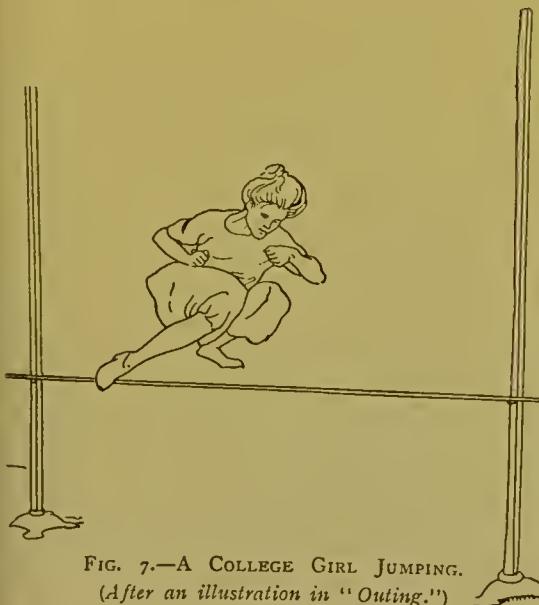


FIG. 7.—A COLLEGE GIRL JUMPING.
(After an illustration in "Outing.")

the effect of cooking, the costs of foods in proportion to their nutritive value, the different diets of different classes, and so on—all gratuitous.

Professor Atwater himself serves as a good instance of what is done in America. A tireless worker at statistics, an inventor of the calorimeter (an apparatus for measuring how much heat the body gives off), he is employed at a fixed salary by the Government to carry out food-investigations, and these investi-



FIG. 8.—AMERICAN COLLEGE GIRL PUTTING THE SHOT.

(After an illustration in "Outing.")



FIG. 9.—COLLEGE GIRLS STARTING FOR A SPRINT.

(After an illustration in "Outing.")

hands into two vessels quite full of water of the same temperature. Now, keeping still, send your whole thought and attention into your right hand ; that, says Gates, will warm the water and make it overflow, because it will send more blood to your hand and increase the temperature of it. Now withdraw your thought from that hand to the other ; after a time the water will cool and subside ; the water in the other vessel will become warm and will overflow. Again, Professor Gates says that he has taken people under the influence of different emotions—sorrow, anger, fear, joy—and has put them in isolated chambers. He has collected their breath in separate tubes ; to this breath he has applied a chemical reagent ; and the result has been in each case the appearance of a different colour, the result of sorrow being grey, the result of anger being red, and so on, when the re-agent was rhodopsin.

He has invented also several kinds of apparatus. Among them he claims the double and treble microscope, and the machine for cutting thin sections or slices of physical cells.

Another name is that of Professor Loeb, of Chicago, whose researches into the origins of life have amazed the scientific world. Both Gates and Loeb have been most strongly disbelieved and scoffed at by many orthodox Anglo-Saxons here, but what we wish to emphasise is that in their researches, however wild these researches may seem, they are encouraged to perfectly free thought by the support of Government or private individuals ; this in England is the very greatest rarity.

A case of some certain results, results

verified by leading English scientists and experimenters, is that of Mr. Horace Fletcher, alluded to in another article. He has experimented with results of thorough mastication ; anyone can test these results on his own person.

Experimentation—that is a key-note of American Physical Education. We are reminded of a certain American colonel whom we met in New Zealand : he was told that the ground beneath him was volcanic, and that it was unsafe to walk off the beaten track. The result

was that he walked off the beaten track. He was far too inquisitive to be cautious ; he wanted to *know* whether he would fall through.

Another experimenter is Dr. Dewey. He, like most of the leading teachers of practical Physical Culture in America, has been through the orthodox medical course. His results have led him to dogmatise and to say that no one should eat breakfast, that no one should eat at all when he is ill. That is typical of America, the exaggeration, which has the merit, it is true, of great clearness, but has the demerit of not being war-

ranted by statistics.

Dr. Kellogg, who has over twenty-five "Sanitarium" or Nature-Cure Establishments in different parts of the world, is another example of private enterprise. He also is a qualified medical man, not supported by the Government. His idea is in every case to go one better ; that is typically American. In his apparatus he is not content with Mosso's ergograph ; he has invented a dynamometer, an improvement on Dr. Savage's. With it he has made various researches, as of the different strength of the different

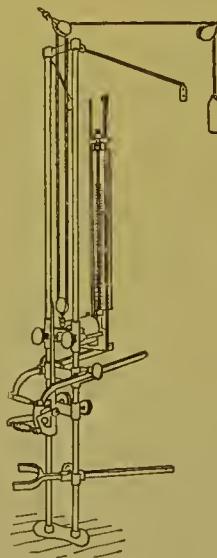
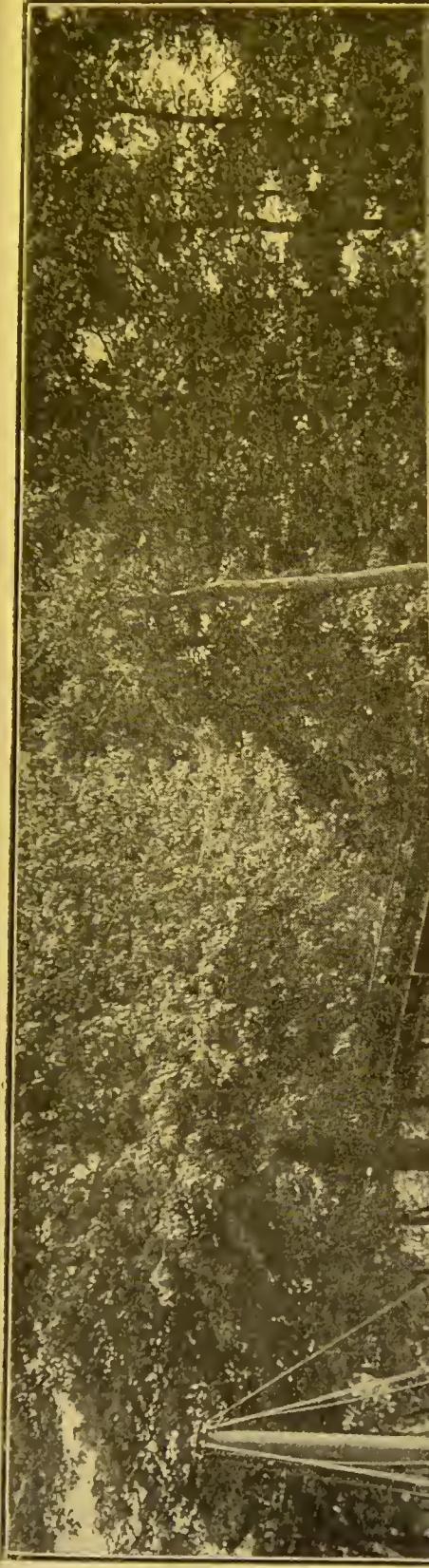
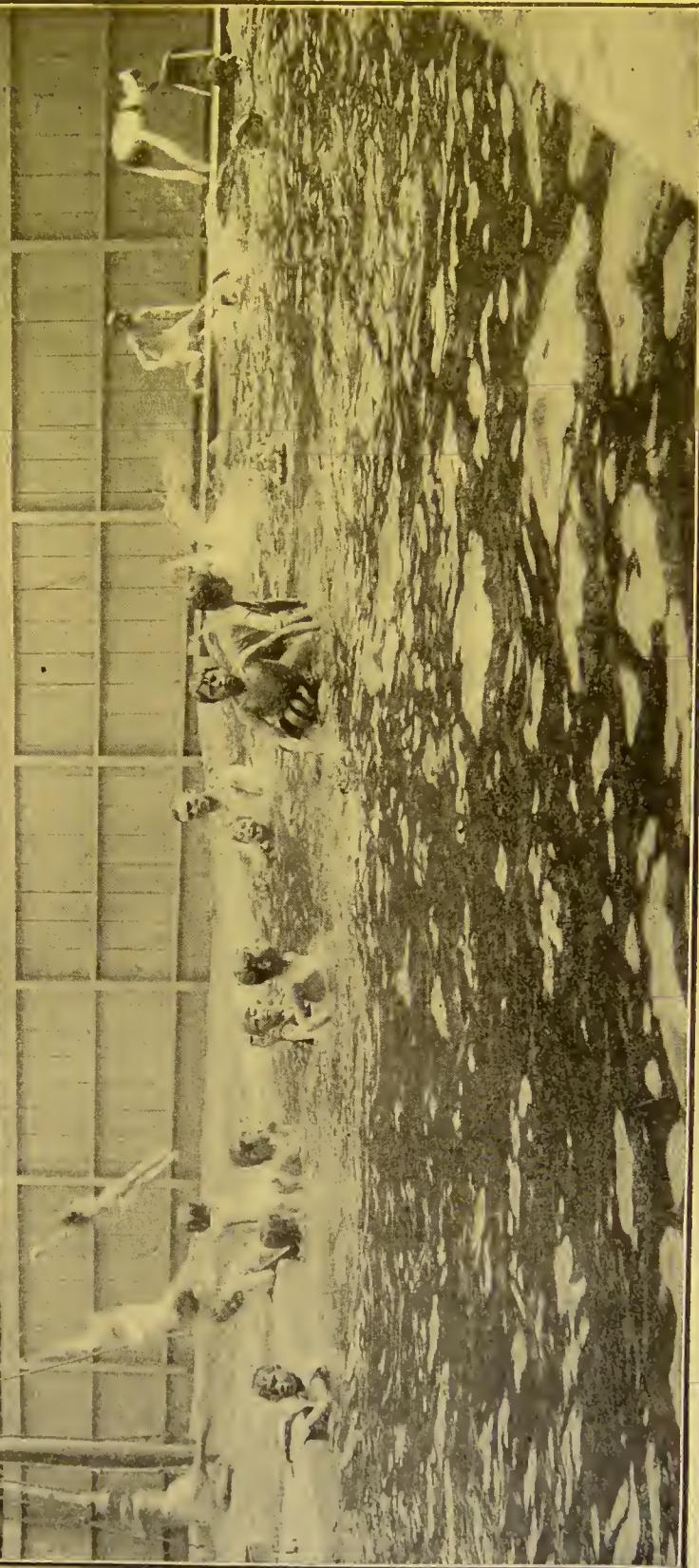


FIG. 10.
DR. KELLOGG'S
DYNAMOMETER.

FIG. 11.—DR. KELLOGG'S OPEN-AIR SANITARIUM AT BATTLE CREEK, MICHIGAN.

(Photo: Gage Printing Co., by permission of Dr. Kellogg.)



muscles in man or woman, in the left side and in the right, and how the weaker muscles may be strengthened by exercise. Indeed, he has invented a large variety of valuable apparatus, some of which we shall cite in another chapter: they are for correcting deformities, for warming the feet, for helping the digestion, excretion, breathing, and so on.

But we cannot pass by Dr. Kellogg's work without a notice of his foods. At his own establishment he uses and sells his own foods. The exceptions where a man is not making money by his work, however noble, are extremely rare in America. In Dr. Kellogg's establishment there is great reliance based on grain-foods and on pea-nuts, as well as on fruits, etc. Now such foods may suit some people, but when we find them given exclusively to all people alike, we begin to suspect that the financial instinct has the better of the strict search after what suits the individual.

In the rest of the system we cannot trace this money-making desire, but it is almost inseparable from the American male character, and it comes out in the food-supply.

Where pay is assured, however, by the Government, or some institution or individual, and as it is in the case of German professors, there we seem to have an excellent state of affairs. Dr. W. G. Anderson of Yale is a fine example. He is an official with a medical training and a recognised position. We could wish that position were put on a level at least as high as the politician and artist. He has a good salary from Yale University, and has no reason for truckling to anyone. He has funds to draw on for the finest apparatus in the world—apparatus for health, athletics, and physical tests; indeed, we have no such apparatus in England.

We personally inspected the Yale gymnasium, and saw the Yale first-year students at their drill. They were not left free in their first year: they were treated like schoolboys, after a careful medical examination.

But such is the open-mindedness of Anderson that he prefers exercises which have an athletic ring about them—exercises that imitate games and athletics. Though a scientist, he is also human, and knows how to attract his pupils.

He is most celebrated for his invention or adaptation of the balance-bed. On this balance-bed—see the chapter on the power of the mind—is placed a person who is told to think of an exercise done with the feet. The thought sends the blood to his feet. He is now told to think of a problem. The thought sends the blood to his brain. The balance-bed registers the change.

Then, again, he tests the results of



FIG. 12.
AMERICAN COLLEGE GIRL'S LONG JUMP.
After Illustration in "Outing."

exercise done before a mirror and done without a mirror: exercise done before a mirror brings more blood to the muscles which are used.

Once again, he wants his pupils to

understand the reasons for exercises ; so, instead of commanding "Knees bend," "Neck twist," or whatever it may be, all the hour, he gives up much time to describing and showing the results of the exercises. The effect of this is found to be admirable : the men are encouraged to do the exercises by themselves. Consider this short list of researches made at the Yale Gymnasium in a single year by Anderson with his class in gymnastics.

"The following problems were attacked (we quote from the *American Physical Education Review*) :—

"1. Do the muscles on one side of the body become stronger if only the corresponding muscles on the opposite side are developed, and, if so, what is the explanation ?

"This question would come under the title suggested by Dr. Ladd, 'Transference by Practice.' Dr. Scripture has used the term 'Cross Education.'

"2. After a difficult movement has been learned with the right hand, how much time is required to learn the same movement with the left hand ?

"3. In track athletics what is the most physically expensive event, as shown by the loss of bodily weight ? What is the average loss of weight in ordinary class-drill in the gymnasium ? What is the loss of weight as shown by the so-called 'individual work' ?

"4. Can muscles be trained to perform ordinary gymnastic feats by merely thinking of the movements ? In how much shorter time can the same or similar

movements be mastered if learned through the muscle sense ? Of the two methods of teaching gymnastic movements—namely, by sense of sight or sound, which is the quicker ?

"5. Of the two methods of strengthening contractile tissues, does the resistance offered by raising a weight fatigue a muscle quicker than that of an elastic band, and what are the dissimilarities in curves produced by the ergograph ?

"6. If one whole side of the body is trained, how much time is needed to educate the other ? What physical and mental qualifications are needed to execute

difficult balancing feats, those calling for highly developed co-ordination such as walking on a slack wire, and what are the physical and psychical results ?"

We wish we had space to give the an-

swers ; we can only outline some of them.

1. By means of an oval spring dynamometer the men exercised their right hand alone, and increased the weight-lifting power of their right hand on an average 6·3 lbs. in six days, and of their left hand meanwhile 7·8 lbs.

2. The men tried the "snake" in club-swinging. First the movement was carefully described and shown ; then each student did the exercise till he knew it well enough to try it alone ; he went to his rooms and practised daily for a number of days ; he began with his right hand and afterwards began with his left. One man took sixty minutes to learn the exercise with the right hand ; afterwards he performed it well with the



FIG. 13.—AMERICAN COLLEGE GIRLS TEAM-RACING.

(After an illustration in "Outing.")

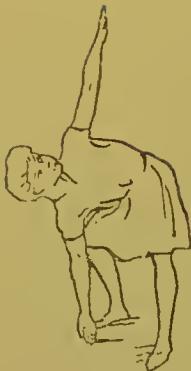


FIG. 14.

left hand after fifteen minutes. The times of the left hand were $\frac{1}{4}$, $\frac{5}{9}$, $\frac{1}{5}$, $\frac{1}{7}$, $\frac{1}{10}$, and so on; that is to say, an exercise which you have learned with the right hand you should be able to learn with the left hand, on the average, in about a third of the time. With regard to writing, nearly

everyone can write fairly well with the left hand at the first trial, but we must remember how many hours were spent in learning to write with the right hand. Divide this number of hours by three, and you see that the statistics might still apply here also. Weber, the physiologist, found that, if you made the skin on one side of the body more sensitive, the skin on the other side of the body became more sensitive also. Dr. Scripture of Yale has improved on Dr. Weber's Aesthesiometer, and Fechner noticed that the memory for arm-movements is transferred from one side to the other.

Omitting No. 3, we pass to No. 4. After going through exercises by thinking them out, men can perform them quite accurately. By combining teaching through sight and teaching through muscular sense, men learnt exercises very quickly; they learnt more quickly by imitation than by description. Everything seems in favour of learning through the sense of sight rather than of sound, but the shortest time of learning is when the two ways are combined.

Physiologists have said that a muscle does its best work near the beginning and its weakest at the end of contrac-

tion; that, therefore, resistance offered by springs and elastic bands is not beneficial, since the resistance is not equal at different times. The result of tests with an ergograph, however—an improvement on Mosso's—was to reverse this: the decision was in favour of exercises with springs or elastic bands, rather than uniform exercises (like Professor Dowd's) with weights.

Here we see co-operation in working. And the *American Physical Education Review*, from which we have taken these statistics, shows co-operation in publishing as well. That *Review* is among the finest physical publications in the world.

It alludes to the magnificent apparatus which America has adapted or invented,



FIG. 15.—IT IS A MISTAKE FOR AN AMERICAN TO CLAIM ORIGINALITY FOR THESE EXERCISES.

partly owing to the necessity of exercise in the severe winter, partly owing to the magnificent endowment of colleges. America has gone far towards perfecting the indoor rowing and pulling apparatus, indoor remedial apparatus, and so on. In every case, let us remember, the American object is to go



FIG. 16.

breathing and repose in India itself. It was at a boys' school that we first were surprised by the extent of this repose-system—namely, at Groton, not far from Boston. At this school we found games and athletics as well as Physical Culture for the boys. There was a tone of manliness that will do much in future years to counteract the American business-principles. This, however, is an isolated school; unfortunately, there are very few like it in America.

In America most things are on a wholesale scale—witness the prospectus of the St. Louis Exhibition of 1904. Apparently every matter is going to be discussed and decided—the effects of every exercise upon every human function, the effects of every apparatus. Indeed, there is about it a wonderful claim to completeness.

That brings us to what we associate with America—advertising. Take up any well-known American paper and look at the various systems, many of them to a large extent exported from the Continent and now imported into England. Besides Courses, including systems that develop will-power or personal magnetism, we notice a host of inventors or adapters or blatant borrowers.

We have before us a small pamphlet with a claim to originality. Not one single exercise here but belongs to and is essential to the British, the Swedish, and the German, and perhaps other, systems.

In their advertisements the Americans are very clever. To teach by correspondence sounds an impossibility; there must be the personal teacher, one thinks; otherwise how will the man do his exercises? Yet Physical Culture by correspondence is extremely common in America. We expect every day to see

an American advertisement saying that some one will eat for you by correspondence. How can the teacher make the exercises interesting? There are three ways. He sends you the exercises in instalments: you may not have the following lesson until you have reported on the first one. Secondly, you must pay heavily: that makes you think it is worth doing, though this is not the main object of the Americans in charging a high fee. Then there is an appearance of individuality: you are the only person in the world that they care to teach; your case is different from every one else's; it is *your* second lesson that is being sent, not Jones' (all the same it generally is Jones' and almost everyone else's).

Yet even here we have the merit of free individuality. Instead of a dull Course, suiting many perhaps, but dull for the original pupil, we have a choice of a hundred Courses in America. Each Course, let us repeat, is likely to be an exaggeration. In America there are more "only-one-way" men and women than in any other country; in food there are more "only-one-food" men and women. In America there are more quacks, more heavy charges for worthless information, than in any other country.

Money, we know, is closely connected with American athletics; it may be a surprise to us to hear that it is less closely connected with Physical Education. To play for money is common; to play as an exhibition for pay is common; to teach for a ridiculous price is far less common, and perhaps the teachers of Physical Culture—as distinct from professional exhibitors of athletics, such as baseball—are among the finest men America produces. Such men as—we cite the first names that come to our

mind—Anderson, Boas, Gulick, Hartwell, Hastings, Hitchcock, Huling, Mulliner, Sargeant, Savage, Seaver, Taylor, Wallin, are among the real patriots of America, the most liberal-minded and whole-souled of men, and the men who are doing most good for their country and the world, and doing it with least thought of piling up a huge fortune.

In America, however, the Editor studied rather the games and athletics than the gymnastic and hygienic drill. Tell us a nation's games, and we will tell you its geography and its character. Buckle

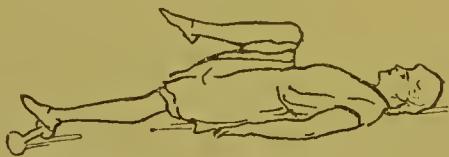


FIG. 17.—AN AMERICAN EXERCISE FOR OBESITY—
BORROWED, NOT ORIGINAL.

would say that the character came from the geography. To a certain extent that is true, but the character is betrayed—at any rate nowadays, when we have cities—as much by the games as by the geography. Take the history of our own favourite game—Tennis. In it you see the political changes from monarchy through aristocracy and plutocracy towards democracy.

In American athletics at their best we find loyalty to the side, co-operation together with specialisation, an ingenious pushing of skill, at least up to the confines of the written law, free originality to devise new ways, concentration at the time, seriousness if not gloominess at the time, and a loss of proportion, as if athletics were the best things in the world. That is a little of the American character as seen in athletics.

You can see American geography in athletics too. Notice how the exciting climate of New York and the nervous competition in the crowded cities com-

pels people to competitive outlets for energy. The severe climate compels them to indoor exercises, to exercises in play-rooms, as well as gymnasias, to exercise with apparatus, as well as free movements.

The fact that all systems are to be seen in America would of itself be sufficient to tell us that America welcomes the influx of certain hardworking foreigners. She is a receptive country, and has a receptive mind. Starting afresh, a new land, she has worked out on new lines some of the old systems, such as the Delsartean.

Divided up, if only by vast distances, she is bound to have variety and rivalry within herself. In the differences between the athletics of different parts we can see the differences between the geography of different parts. Many other features the athletics show which we could not so easily learn from the geography: absence of love for traditions, cultivation of the introspective mind, desire to find reasons, desire to "go one better."

In no country is so much attention paid to indoor competitive exercise. In no country is there such harmony between Government-education and individual research. On the Continent we find more Government-education; in England, as much or more individual research. In America we find general principles agreed on, but free deviations from them and free criticisms of them.

In no country do we find such exaggerations, especially in shameless advertisements; in no country, on the other hand, do we find such proofs of sanity.

Here are qualified medical men as professional teachers; here is careful supervision to avoid strain or inappropriate movements. Here labour is the one dignified thing, so long as it succeeds. Here original research is welcomed and

well paid for. Here scientific apparatus for exercise and for physical tests abound. Here the desire is for success, individual and national.

Yet it is a mass of contradictions ; it would not be America if it did not contradict itself—a land of most scrupulously dishonourable people in commerce, where cheating is cute and smart, and yet most scrupulously honourable people in Physical Culture, and indeed in education generally, so long as the people receive a sufficient salary to put them above bribery.

What we have said about Physical Education applies to American education in general ; it is for all, and the classes are mixed far more than here. The quality of education breaks down class-distinction, even by degrees that between white man and black. Much of the education is voluntary on the part of the learners : they learn because they want to learn. That is rarely the case in England. American methods are all up-to-date ; the newer they are, the more they are liked. That is not so in England. The subjects are well chosen ; the worthless subject goes. Among the better subjects are manual training and Physical Education in general, because they are practically useful. And such subjects are being well taught—for example, reasons are given, not mere dogmas.

The Americans started unhampered. Their constitution—so definite and yet

so elastic—was a good basis for national reform. They have experimented freely and have judged by actual results. They have been filled with new ideas by the perpetual influx of enterprising people, by the variety of the immigrants, and by the variety of American geography itself, by the wealth of their country and the patriotism of those who appreciate its good features. Nowhere does the patriotism show itself more clearly than in the local patriotism of the rich man for his old college, which he freely presents not merely with libraries, but also with physical and athletic equipment. In America there is co-operation, as is shown by the central paper, to which the heads of all great gymnastic and athletic institutions generously contribute.

In a word, we must contrast American education with German, because, though a sound basis is accepted almost everywhere, originality and free building on that basis is allowed, and encouraged by liberal payment. We must contrast Physical Education in America with the absence of Physical Education in England in this way : that in America good ideas are spread widely and freely by congresses, and all sorts of official ceremony, which impresses the people and interests the performers ; by gratuitous Government literature of a very high class ; by competition ; by practical demonstrations ; and indeed in nearly all the ways in which such valuable information *should* be spread in England to-day.

CHAPTER XXXIX.

REMEDIAL WORK, ESPECIALLY FOR THE YOUNG.

WITH LIEUT. FLYNN'S SUGGESTIONS AND EXERCISES.

What Might be Included under Remedial Work :—Play, Leisurely Eating, Full Breathing through the Nostrils, Repose of Muscles not wanted for use, Excretion, Regularity—Need to Treat a Great Deal as a Game to be Played well—Never too Late to Practise Sensibly—The Play-spirit—Wanted! A Minister of Recreation—Atrophy of Mastication-muscles—Need of Interest—Some Interest by Co-operation—by Apparatus—Lieut. Flynn's Hints and Exercises—Remedial Work must be Individual—Must Appeal to Emotions—Faults of Parents—Dr. Roth on Spinal Curvature—Types and Exercises—Sitting Positions—Chairs—Cold Feet—Weak Ankles and Flat Feet—Knock Knees—Weak Legs—Weak Thighs—Projecting Hips—Weak Waist Muscles—Lateral Curvature—Seek Remedies Early—Causes of Errors—Round Shoulders—Stiff Chest-walls—Heart Troubles—Weak Triceps, Biceps, Forearm—Sleeplessness—The Will—The Looking-glass—Self-deception—Apparatus.

If the Editor had a child, he would teach it—in so far as it was not a born genius at such arts—to play and enjoy itself, to eat leisurely and taste thoroughly, to lie and sit and stand and walk well, to breathe through the nostrils and fully, to relax the muscles that were not in use, to help the excretion by blowing the nose, by washing and rubbing, by regularity, to do a few full movements: all this as part of the physical-mental education, and as much as possible of it as a game (not as a dull drudgery, done because commanded), and as a game with some fun in it (not a sort of American football).

This suggests, to anyone who agrees with the Editor, a few lines of remedial work, for children if possible, if not for those who, though no longer children in

flexibility and habit-forming, will find that it is never too late to practise sensibly. But for children particularly, if possible. And it *is* possible.

Our omission of other items of education—the care of the child's own plants and perhaps an animal, the care of the doll and perhaps a poor child, some kindergarten work (only not the hard-and-fast, stereotyped caricature of it), is not because these are under-estimated, but because out of a host of neglected items we must perforce choose only a few.

The play-spirit—the mind evolved so easily by our splendid Anglo-Saxon and world-games—to do things fairly, skilfully,

pluckily, cheerfully; this must come first. Among all classes, particularly in cities, it is the first great atrophy, the atrophy of



FIG. I.—A MOORISH BOY WITH A GOOD-TEMPERED FACE.

(Photo by permission of F. H. Hewitt, Esq.

the divine play-spirit. Before we can become real and all-round men and women we must recover the art of being children also, and before some so-called children (notably American) can become real children they must recover the art of being animals, and therefore of playing.

Truly one of the first needs of the age of city-life is a Public Minister, not of "Education," as it is too flatteringly named, but of Recreation; a Minister with power to organise recreation of a sane, especially a cheap and physical and social kind, for all, however poor; indeed, for the poor above all, so that we may oftener see among them the enjoyment on the young Moorish face opposite.

The next atrophy is the atrophy of the muscles of mastication, and of the habit of mind that controls them. This needs a remedial Course all to itself, though here many animals set us a poor example, partly because they do not by nature take either in a pappy form the starchy foods which need so much chewing and so much saliva, or in a hardened and coagulated (cooked) form the flesh-foods which then need so much more breaking up.

Of the instinct bred of slow eating—the instinct to stop when enough has been taken, and to desire and choose what is needed by the system, we have spoken. The wrong choice of foods, which demands a remedial course of diet in later years, is too vast a topic, but the prevention is certainly in the direction of enough nourishment, less stimulant and irritant and narcotic.

With regard to the other departments, Lieutenant Flynn has, as usual, helped us with practical suggestions. For his own part, the Editor would like to see most remedial exercises turned into games.* His sister has not the least difficulty in getting

* In a later chapter Mr. Flynn gives a good example of this plan.

children to do what is healthy, and she puts down as one of the causes that she makes the children enjoy it. Either they are to be "grown-ups," or some special person, or a person engaged in some special trade or pursuit, or they are to be this or that animal; a fish or a snake, or a lion or a bird, or else a windmill or an engine. The work is nearly or quite the same, but the attention relieves the mind, and the enjoyment improves the blood. This is entirely against the spirit of gymnastic systems as usually practised. Few things must be done because they are pleasant and attractive; all must be serious, a duty, "educational." Let parents choose between our ways.

We are not under-estimating the importance of the positions and exercises so admirably selected or devised. Nor could anyone have laid down lines as to *which* form of play to introduce. But what we wish to emphasise is that, if the child is considered too young or stupid to understand what a certain exercise is going to do for it, then a help to interest is some appeal to the imagination; such as, to pretend that the fingers are so many children or "little pigs"; to send the hand "to sleep," and so forth.

For it must never be forgotten that, just as to eat perfunctorily without appetite or pleasant taste may mean that the food remains for a long time undigested (and a tax on our energy), getting none of



FIG. 2.—A CORRECT STANDING POSITION SO LONG AS THE OTHER FOOT IS OFTEN PUT FORWARD.

(By permission of Lieut. Flynn.)



FIG. 3.—A GOOD REMEDIAL EXERCISE: CHILDREN MIGHT BE TAUGHT TO IMITATE CENTRAL AFRICANS.

(By permission of F. Thomasset, Esq.)

our strongest and quickest appetite-juice (as Pawlow proved), so to move perfunctorily without desire or pleasant inducement of some sort may have a very similar effect.

In the case of Lieutenant Flynn or any other good personal teacher, it is different. The presence and influence of the tactful helper does what is wanted. It is when pupils carry out instructions given in a book—as they must in the case of the *PHYSICAL EDUCATOR*—that they lack this help.

We therefore appeal to the ingenuity of the teacher to make the practice easy. For the practice is, we can assure them, of more value than many sedentary lessons.

With these forewords, we shall proceed to business directly, urging the managers of children to think out the problems and to devise their own ways and means as well; and not to crush a child's desires in a bullying spirit. If the child is restless, let it be a dog and roll about and shake itself, or let it be Uncle John going to

sleep after dinner—anything rather than “Keep still, you wicked child, or I'll whip you.” Or, if it “pokes,” let it be for the moment a little native of Central Africa, balancing a basket on its head. This is a fine exercise for the figure and carriage.

The interest may be given, as Mr. Flynn shows, by co-operation, as in the later figures, which show how one person may help another.

Or, again, instead of a person, there may be some apparatus. We have before us a vast catalogue of remedial apparatus sold by a single firm in Germany. Some devices are most ingenious; for instance, those

to remedy constipation (a bane in childhood and after), to warm the feet by friction, to bring the shoulders back, and so on. We shall deal with some in a later chapter. Here we need only cite one, a foot-machine, shown in Fig. 4. For flat



FIG. 4.—AN APPARATUS TO REMEDY WEAK ANKLES. THE FOOT IS WORKED LATERALLY, AND THE RESISTANCE CAN BE REGULATED.

(This and the following reproductions of photographs are by permission of Lieut. Flynn.)

foot we might use the inclined plank, graduating the angle and the pace of walking up and down.

We now offer to the readers Lieutenant Flynn's valuable hints, referring them to an early article of ours on remedial exercises for many common deformities and mistakes of adults as well as children.

LIEUTENANT FLYNN'S HINTS.

Can we say anything new? Probably not; if not, many of our readers will give us our congé ; if we can, they will perhaps remain our devoted adherents. But as we do not propose to give a "variety entertainment" for the express purpose of titillating the appetite of such novelty-cravers, it may be as well to state in no uncertain manner our object, and the way we propose to attain it.

Feeling the force of the well-worn adage "a little knowledge is a dangerous thing," we wish to confine ourselves to such of those complaints, deformities, call them what you will, as one sees most commonly.

We shall put forward treatment which we have ourselves tested with good results. We shall omit, as outside the scope of a "popular" work, which recent results have proved this one to be, all cases requiring an intimate knowledge of individual constitution ; such cases must be left to the advice of the patient's own doctor. The directions we shall endeavour to make as clear as possible by simple illustrations ; the mysteries of medical nomenclature, so dear to the members of the healing profession, we hope to reduce to a vanishing point. *Some* may not like this new departure—"Mesopotamia may still be to them a thing of joy and peace." To these an illegible Latin prescription always has its charm. Like more than one dictum of the Oracle at Delphi, one can never tell how it may "act." To these we offer our humble apologies for denuding

our subject of its classical garb, and presenting it in the "altogether."

"Mother, does not Mr. So-and-So"—the specialist—"like little girls?" The above question was asked by a weakly child who was undergoing a Course of special exercises on the occasion of her first visit. Now here is a starting-point—the likes or dislikes of a patient or pupil—which many clever writers and experts seem to have quite overlooked. That the different emotions have a distinctly different chemical effect on the blood, and consequently on the health, has been fully proved by Professor Elmer Gates, of the United States Government Laboratory at Washington. Everyone feels the depressing after-effects of anger ; to use a colloquialism, how mentally and physically it "upsets" one. A man whom the writer knows is made positively bilious by it ; others become prostrated. To all it is a retrograde movement. Were it only possible for us at the time to realise this fully, and to *act* on it, what a very much happier world this might be. Again, that passionate anger is but a tacit acknowledgment of one's want of control, and therefore of one's weakness, appears to the writer about as strong an argument as it is possible to bring forward against its use. But what concerns us in the present article is not so much the dissection of our wrong emotions, as how best to utilise those that are good for the object we have in hand.

Everyone knows the effect good news has on invalids. The news of a victory to a wounded soldier, the successful result of an examination to an overwrought student, are but common examples of the tonic effect pleasure has on all the faculties. Doctors are not slow to recognise this in the sick-room ; but it appears to the writer a curious fact that when it comes

to sickness which requires "outward" treatment, viz. judicious exercise either passive or active rather than "inward"—the swallowing of so many spoonfuls of medicine of varying degrees of nastiness—the medical man seems quite to lose sight of the fact that in what has come to be known as "the movement-cure" the emotions, perhaps especially of the young, play a very important part. Therefore it is well to look at this great and interesting subject of Remedial Work from as many new points of view as possible.

Let us begin by taking the point of view of the little girl who asked "Was she going to be *liked*?" "Was her lesson going to be interesting?" "Would she enjoy it all?" Now here was something for her specialist to work upon. It was evident that the child was interested, at least she was not apathetic—and who with any experience does not know how difficult it is to treat these latter? Obviously, then, if that interest could be turned into a pleasurable interest, how much more good would the child get from the work. With adults a "cut-and-dried" system may have good effects—their reasoning-powers are developed, and they can foresee the "end" to which the "means" are working. But to go back to our practical illustration. The child's specialist, seeing how matters stood, devoted himself to making her *like* coming to her lesson; threw to the winds orthodox methods, prone to harass and bore; played with the child; and, apparently, to a casual observer, "fooled round" generally. But there was "method in his madness," for the result of this fooling and romping was that the child's circulation was accelerated, mental cobwebs were swept away by the freshly oxygenated blood, which also assisted the lungs, skin, and various internal organs in their duties, and, in a word, the child was now in that

state (of pleasurable expectancy as to what was coming next) which this most unconventional "practitioner" particularly desired.

It may be said, by parents and others, "Why all this harangue about matters which only concern a specialist?" Now do they concern him alone? Think for a moment. You have, say, a weak, poorly-developed child, inclined to "curvature." What course of action do you mothers generally take, if indeed one can use the word "action" for such feeble efforts?

You *tell* the child to "sit up at table," ignoring the fact that the poor little back must have support to maintain the strain of the erect position. Again, you *tell* the child to "keep his head up" when out walking or at church, forgetful of the fact that the position of the head is a natural consequence of the curvature. But what do you *do* to remedy these defects, when you see your child in a wrong position at his desk or at the piano, as in Fig. 15? Do you buy him a better constructed desk or "music-chair," as in Figs. 19 and 20, where the back gives just that support required by the spine, where the feet have a rail on which to rest firmly; or, in the case of the "music-chair," an arrangement by which the seat can be raised or lowered as required?

No. You have *told* the child to hold his head up, or whatever else is wrong; you have nagged at him, and made him hate you in this connection, and hate all the model little boys and girls you hold up to him as examples; but stay, there is one thing you mothers seldom omit—I wish to be fair—it is this. You nearly always *tell* your *fidus Achates*, Mrs. Hyphen-Hyphen, of Hyphen Lodge, Hyphen Land, that you are always "at" the child for his "head" or his "back" or whatever else is wrong. Incidentally you notice that Mrs. H-H is wearing

a very smart thing in hats, and you resolve that you will go one better next time you pay a visit to your milliners. Needless to say, it is not long before you carry out this easy resolution. It never occurs to you that the cost of that hat would have bought your child a suitable chair where rest in an upright position could be obtained, minus all that nagging.

Then, again, from our own experience there is another point on which we should like to sound a warning note. It is the bad effect produced on children by the openly-expressed opinion of their parents regarding their ailments. Parents and others who have not studied the matter can scarcely be expected to realise the enormous effect for good or evil the mind has on the body; but about the effect itself there is no manner of doubt. Parents, therefore, should dwell as little as possible on the defects of their children, especially in their presence. They should immediately seek good advice from experts, in such cases as spinal curvature and malformation, which require especially localised exercise, instead of salving their consciences with the utterly wrong theory, in the case of curvature, that their children "will grow out of it."

With regard to this theory as applied to spinal curvature we cannot do better than quote Dr. Roth, the well-known expert on this subject.

He says, "This means that the spine will *spontaneously* get straight, *which is never the case*. I feel it a duty to protest against such unscientific proceedings, alluding to this advice being often given by medical men—viz. (a) doing nothing—"grow-out-of-it" theory, which is the least trouble and the least expense; (b) spinal supports; (c) gymnastic, calisthenic, and dancing exercises, under direction of people who have not the slightest know-

ledge of the osteology, pathology, and therapeutics of spinal curvature."

(In Dr. Roth's work on this subject we notice he classes under the one heading Empirics, Professors of Calisthenics, Rubbers, and Quacks. Now this is anything but fair to the present-day instructors of physical exercises, as can be proved amply by the perusal of the examination-papers set by the various societies and colleges of physical education. In all cases an all-round knowledge of anatomy is insisted on, and we feel sure that a man who has done so much to alleviate this distressing deformity would be the last to throw the stigma of his weighty opinion on others, who, however far off, are at least, by careful study and observation, endeavouring to follow in his footsteps. We feel sure that, were this brought to his notice, he would be the first to correct what is little short of a slur on a deserving class.)

Let us now consider spinal curvature.

Under this heading we shall endeavour to show in as concise and simple a manner as possible :—

(a) The various kinds of spinal curvature.

(b) Positions which may be said to lead up to curvature.

(c) Positions and exercises which have an opposite or good effect on the spine and adjacent parts.



FIG. 5.



FIG. 6.



FIG. 7.

Fig. 5 shows a normal spine, the vertebrae being straight.

Fig. 6 shows what is known as a "right dorsal" or "upper curvature."

Fig. 7 shows what is known as a "left lumbar" lateral curvature.

Here it should be noted that the terms "right" or "left" apply to the convex part of the curve. The curvature is in both cases "lateral," inasmuch as the spine inclines either to one side or the other. They are also (Figs. 6 and 7) known as "primary" as distinct from the "secondary" or "compensating" curve which occurs later.

Fig. 8 shows this "secondary" or "compensating" curve in the "lumbar" or lower vertebræ. It should be noted that the convexity of the lower curve is always opposite to the convexity of the upper dorsal curve; by this means the balance of the body is preserved.

Fig. 9 gives a side view of a normal spine. Here the natural curves of neck, outline of shoulders, small of back, and lowest part of spine, should all be carefully noted. If these curves are increased or diminished, either a forward or "anterior,"

or a backward or "posterior" results. From this it will be seen that spinal curvature may be divided into three classes—forward or anterior, backward or posterior, and sideways or lateral. Of these the lateral is the most usual, and generally is found on the right side—*i.e.* the convexity

of the curve is to the right, which has the effect of raising the right shoulder.

The greatest care should be taken to avoid bad positions in everyday life. The figures, which are purposely drawn as skeletons, show exactly how the spine is affected by the wrong positions. Fig. 11



FIG. 10a.



FIG. 10b.

WRONG CURVES.

gives a wrong reading-position, with chin poked forward and back rounded. This interferes with full breathing and cramps and distorts some of the organs.



FIG. 11.

Fig. 12 shows a correct position of the spine of a rider.

Fig. 13 shows how lumbar or lower curvature is caused by a bad position. The

Editor holds that, as a general rule, position would be less harmful if the opposite position were often tried instead, before the curvature habit was fixed.

He would say the same about the standing position. Personally he is not in favour of the



FIG. 12.



FIG. 13.

always - equally - balanced-on - both - legs - toes-slightly-out-and-heels-together of the "schools," as the only correct position. To rest each leg in turn, at least occasionally, has something to be said for it. He is glad to find that a high authority in America has recently brought strong arguments against the orthodox pose as the only one. He feels sure that there are times when it is far more tiring than restful or useful.

Fig. 14 shows an incorrect standing position for habitual use, the weight thrown on the right leg; this causes the spine to be inclined to the right, with its convexity to the left. As a rule, children stand in a reverse position to this.

The "correct" position is usually said to have the weight equally divided on both feet, the spine straight laterally. The Editor prefers the position of Fig. 2 as an occasional practice to be varied by the converse position, and to be regarded as a rest from the straight position.

Fig. 15 gives a thoroughly wrong position, the legs being crossed, the chest contracted, and the spine twisted and



FIG. 14.

curved unhealthily. Here, again, the Editor would object much less to the crossing of the legs (he has nothing to say in favour of the "poking" of the chin here), if only it were not habitual, but were regarded as a change and were varied by the opposite crossing.

Fig. 16 shows a more correct position for writing. The spine is straight, the legs at right angles to the thighs and the knee-joints, and the feet flat and firm on the rail. Owing to the support at the back, no strain is thrown on the spine.



FIG. 16.

The child is writing *vertically*, which in itself secures a good position.

The Editor, once more, would not so much object to the sideways position if only it were regarded as a relief from the straight, and were varied by the opposite position, the left hand being used for writing. This culture of the left hand and side will be dealt with in a special Course later on.



FIG. 15.

Fig. 17 is a usual and thoroughly wrong position for reading. The head droops forward, the chest is contracted, the spine is twisted owing to the position of the legs. The greatest care should be exercised to prevent this very bad position. The Editor's remarks as to the legs apply here

also. It is not the occasional that is wrong, but the habitual use of this one-sided position.



FIG. 17.

Fig. 18 shows a usual and wrong position at the piano. The chair is of the wrong kind, being much too high, and giving no support, with the result that the head is



FIG. 18.

brought forward, the chest is contracted, and the spine is curved unhealthily.

The very anxiety of the child to learn to "play"—play, forsooth!—according

to the orthodox way of learning several hard things at once, and the distance of the small-type music from the eyes, were factors in the Editor's experience. He remembers that position well, even when the stool was the right height; nay, even when there was a back-support awaiting him.

Here is a better position (Fig. 19). The



FIG. 19.

back is supported, the feet are flat and firm on the ground, and at right angles with respect to the legs.

Fig. 20 shows a better type of music-chair, with adjustable seat, with movable



FIG. 20.

rest for small of back, and with good depth of chair for the thighs to rest upon, so that no weight is thrown on the hips.

The Editor, however, sees no point in the rounding of the back of the chair where it meets the seat. He himself prefers to have a space left there, so that he may not have his seat tilted forward. He hates the typical omnibus-top seat for this very reason.

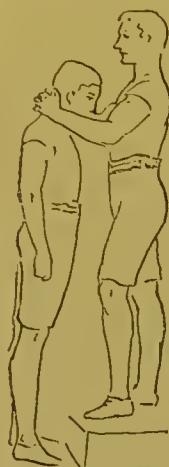


FIG. 21.

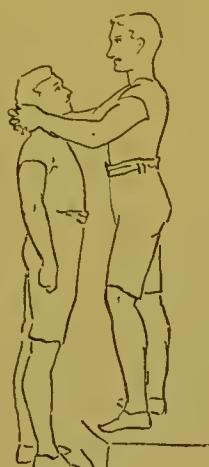


FIG. 22.

Figs. 21 and 22 give an exercise for remedying a bad position of the head. The operator stands in front of the pupil, placing his hands behind the pupil's neck, and so resists the backward movement of the pupil's head, thereby strengthening his neck.

Fig. 23 shows one of many good remedial exercises for a person who has a lateral curvature of the spine with a lumbar curve (concave) to the left. The effect of this position is to elongate and strengthen the spine by bending to the right. In some high one-handed catches



FIG. 23.

at cricket we may get a position something like this.

For weak ankles and flat feet make a circular movement of the patient's ankle-joint, bringing the foot more inwards, and working in a semicircle while "in adduction." Afterwards the patient himself should try to make the movement.



FIG. 24.

Figs. 25 to 28 show an extension and flexion of the foot, first with the *operator's* and then with the *patient's* resistance. These movements will tend to strengthen weak ankles, and, if the feet are cold, alternate use of warm and cold water



FIG. 25.



FIG. 26.



FIG. 27.



FIG. 28.

will warm them, if they are well rubbed after the last application.

The Editor finds that a good plan is to put the feet in hot water for two minutes, then in cold, with rubbing for one minute, then to repeat, then to add one minute in hot and one in cold, then to dry and rub thoroughly, then to wet again in cold, and either put on the socks or else get into bed, according to the time of day.

The hands here should be treated in a similar way by rotation, extension, and flexion, as in Figs. 29 and 30.



FIG. 29.



FIG. 30.

Mr. Flynn has now given an idea of his general way of treatment for certain cases of unhealthy curvature. This treatment has included prevention, especially for the young and pliant plant. We now arrange some of his more special and detailed treatments. We start at the feet, come upwards, and end with the arms. Then a word about heart-trouble, insomnia, weak will, and interest.

For Weak Ankles and Flat Feet.

(besides the above exercises).

(1) Walk on the toes, first on the level, then up the inclined plank.

(2) Raise the heels, as you stand with the chin in, the small of the back hollow, and the hands on the hips.

(3) Hop on each foot alternately.

(4) Skip with a skipping-rose; send it sometimes back as well as forwards.

(5) Raise each foot in turn, and rotate it on the ankle.

For Knock Knees.

Rise on the toes, in the same position as in 2, and then, in the full squatting attitude, bend the knees outwards to their furthest extent till they project over the toes.

For Weak Legs.

(1) In the full squatting attitude, chin in, small of back hollow, hands on hips, "hop" about.

(2) Walk and run, alternately, on the toes and balls of the feet.

(3) Sink to the full squatting position, then sink forward on to the knees, keeping the toes bent under the foot. Thence jerk into the upright position.

For Weak Thighs.

(1) Do plenty of lungeing with each leg in turn, sending the front knee well over the toes (see the Course for Men).

(2) Practise sprinting, but not for exhausting distances.

(3) Keeping the feet flat on the ground, sink to the full squatting position, then rise to the upright position again. This catches the biceps at the back of the thigh.

(4) Long-distance running, especially cross-country work, if your heart, etc., will stand it, powerfully affects and develops this muscle.

For Projecting Hips.

Raise each leg in turn forwards, then back, then sideways (see the Course for Boys).

For Weak Waist-Muscles.

For the front muscles, bend forwards. For the side muscles, bend sideways. For the back muscles, bend back.

For Lateral Curvature.

The main aim is to *lengthen*—to straighten out—the spine. For this purpose hanging-exercises are specially good.

(1) Hang on a horizontal bar, and swing lightly with the legs off the floor, or with the legs just touching the floor if you are weak. Keep the chin in and the small of the back reasonably hollow.

(2) Do the "ladder" exercise.

(3) Raise the arms above the head, and bend forwards, keeping the knees straight. Then rise to the upright position again.

(4) If the right shoulder is down, then

bend the body to the left, from the position of hands on hips, or of neck-rest.

(5) In the hands-on-hips position, turn the body right and left, then bend forwards and back (*see the Course for Boys*).

(6) Sit on a low seat, put your legs under a sofa close at hand; bend the body back, and then up again (*see the Course for Women*).

(7) Sit on the floor, with the hands on the ground. Then arch the back (*see the Course for Women*).

(8) Rest on two chairs, with the head on one, the heels on the other; keep the body stiff.

(9) Use a chest-expander, and bring the arms at full length behind the back, then do the stretch-exercise till the hands are level with the shoulders.

(10) Practise deep breathing (*see any of the Courses*), in pure air, whenever you can secure it.

(11) Take a daily bath, and after it rub the skin well.

(12) Carefully avoid wrong positions.

(13) Use what will-power you have, and get more by practice in small daily things. The Editor suggests leisurely eating as one of the best.

(14) For complicated curves you should at once receive special expert advice.

As to the age at which unhealthy curvature begins, Roth puts most lateral curvatures between the seventh and sixteenth years, and Emlenberg's statistics show that 159 out of 304 (children's) cases were of children between seven and ten years of age. Dr. Lewis says that curvatures are due to "weak muscles," and long hours, and overgrowth, usually at the age of twelve to seventeen, the growing period.

All high authorities agree that the remedies should be sought early. As Dr. Roth says, "the belief that spinal curvatures in the first stage can improve without

special attention and treatment is erroneous."

And most agree that the main aim—once more—is to lengthen the spine as much as possible.

As to the causes, as suggested by medical men, affections of the heart and liver are mentioned by Bahring; disease of the intervertebral cartilages by Adams; a paralytic affection peculiar to the left serratus muscle, by Stromayer. However these experts may differ on minor points, it is safe to assume that the predisposing cause is weakness of the parts of the column.

Such weakness may be partly due to bad ventilation, wrong breathing, want of exercise, sedentary life in incorrect positions (without support, etc., as in our diagrams), wrong feeding, and wrong thinking—lack of self-respect, and so on.

For Round Shoulders.

FIRST EXERCISE.

(1) Raise the arms sideways, level with the shoulders, and lunge to the front with the right foot.

(2) Let the arms swing a little forward, and then, without pause, swing them back with the utmost energy, doing a quick one-two movement. At the same time bend the right knee still more over.

(3) Bring the right foot back to the left, and the hands to the sides.

Repeat with the left leg.

The utmost *will-power* must be put into all movements which have for their object the alteration of the human frame. The work should be *done daily*, and measurements should be taken from time to time, so that the pupil can judge of his own progress and take a pride in it.

SECOND EXERCISE.

(1) Bring the hands behind the back, grasping the left wrist with the right

hand. Allow the shoulders to take their normal position.

(2) Press the arms at full length well down behind the back, at the same time forcing the shoulders back with the utmost energy.

(3) Allow the shoulders to come forward again, and repeat the whole movement.

THIRD EXERCISE.

Raise the arms above the head, and swing them in a circular curve to the rear, down past the sides and up to the starting position. Finally, make the palms meet behind the back, as in the exercise in the Course for Boys.

For Stiff Chest-Walls.

With fixed chest-walls the lungs cannot expand and collapse properly. A flexible chest is a necessity. A large chest is not.

When the chest-wall is rigid, the stretched lung gradually becomes less elastic, the air-vessels remain dilated, and cannot be emptied properly of their air, so that the blood does not become properly oxygenated.

Among the best remedies are rotating of the arms (as in skipping, etc.), skipping, swimming, breathing-exercises (*see* the Courses), and Indian clubs (*see* the Course for Men).

For swimming exercises, *see* "In and On Water."

It is needless to say that a simple yet nourishing diet must affect every organ of the body, because of the blood-stream.

For Heart Troubles.

In people who dine too freely, the heart-muscle becomes "fatty." The fatty degeneration may even become so marked that the heart-wall is nearly all "fat" (connective tissue, etc.), and very little muscle.

During starvation the last part of the

body to suffer (before the brain) is the heart. All great and sudden strains on a weak heart are dangerous, but exercise and training judiciously carried out prepare a heart to stand comfortably what might be a great strain to an untrained person.

Avoid tobacco and other narcotics, alcohol and other stimulants, and violently quick or severely prolonged movements. Ride a high-gear rather than a low-gear on bicycle, because the action is not so quick. Do slow stretcher-exercises, gentle running, deep inhaling and other breathing-exercises, avoid heavy meals, and keep the action of the bowels regular.

Do not worry, but try some of the helps we shall suggest in a special article on Expression.

For Weak Triceps.

Press up, as in the exercise in the Course for Boys.

For Weak Biceps.

Use the stretcher-exercise, as in another exercise of the same Course.

For Weak Forearms.

Roll up your handkerchief, and with each hand in turn try to squeeze it into the smallest possible ball.

For Sleeplessness.

We totally disagree with Doctor Hulbert when he says that a few energetic movements made just before you get into bed will draw the blood from the brain into the muscles, and will induce sweet, refreshing sleep. For most people we recommend slow movements, not energetic movements, and especially leg-movements.

The Editor will deal with Repose later on. He will show, among other things, how important is rhythm—rhythm of exercises, rhythm of breathing, rhythm

or monotony of thought. The brisk and snappy jerk is seldom a help.

The will is an essential condition for cure. Dr. Roth says:—

"The majority of patients suffering from the various forms of spinal curvatures are not aware of their abnormal position; they feel straight while they are in a crooked position, and while the spine is curved. The spinal curvature is usually accompanied by a *compensating abnormal position of the head*. It is well known that when the body is slightly bent to the right, the head is bent to the left.

"At present I intend to speak only of those forms of spinal curvature where the patient himself can straighten the spine by his own will. The *first object* to be attained is to change the false mental impression they have in believing themselves straight when they are crooked, and feeling crooked when placed in a normal position. The *second object* is to enable the patients to *retain* the normal position, which at first causes the sensation of being crooked."

Roth goes on to say that, where there is this deficiency of right position in the pupil's mind, he "should be shown his various defects by means of a looking-glass, and, if even then he cannot feel his abnormal position, he *must be shown how and to which side the head inclines or turns*: the different heights of both sides of the back; and so on."

"As soon as the patient has acquired the faculty of seeing his abnormal position he must be instructed to feel the wrong position; *these last* being always accompanied by the sensation of being *uncomfortable* and crooked, he is recommended to place himself with *closed eyes* before the looking-glass. When asked to place himself in the right position, he usually chooses the wrong one, *because* he feels straight only in the abnormal position. After his

repeated assertion of being straight, he is told to open his eyes, and is quite astonished to see how crooked he is, and how the various parts are far from the normal line."

Roth thinks it is at this point that the patient should be told to use his will-power. "If the will," he says, "is directed to the special muscles which are to be strengthened, their nutrition, power of contraction, and volume increase, and the change of tissue is accelerated not only in the muscles, but in all the surrounding parts."

He believes that a great part of the success of his treatment of spinal deformities is due to the use of the will as a substitute for supports, apparatus, etc.

The final aim of the use of the will-influence is to change the intentional movements into habitual and automatic movements.

When the will is weak, we must reinforce it at the start by interest and pleasure. The beneficial effect of pleasure on the patient is a fact that too many doctors forget. In order to keep up the pleasure, it may be necessary to vary the work.

Good apparatus is also of use for this purpose, and for regulating the resistance. Roth lays great stress on the surgeon or operator resisting the pupil's effort in order to call forth his will. Now a strong man or even an ordinary man cannot always be sure of using just the right amount of strength necessary for the pupil to resist. The result is a staccato or jerky movement—the worst thing possible for the pupil. We therefore strongly recommend a chest-expander suitable to the pupil's strength, as Phelan does in his book.

But in every case of remedy begin early, and find an interest in the cure strong enough to keep you to the exercises and other treatments.

CHAPTER XL.

DELSARTEAN SYSTEMS ESTIMATED.

A Very Long Article and the Reason Why—Few have Repose with Suppleness—The popular Idea of Delsarteism is Limpness—Economy—The Eye—A Lesson from Yawning—Who Need this Economy?—Speakers—Athletes—Sample Exercises—Right and Wrong Ways—The System not Complete—Rapidity Needed also—And Strength—Expression Important—The Hand—Some of the Theory seems Fantastic—Yet Suggestive—Breathing—Corrective Work—A Dangerous Distinction—Against Tension—Sitting Exercise—Reinforce the Vital Organs—The Spine—The Outward Breath—An Exercise in Relaxing—Size of the Chest not Very Important—Flexibility more Important—Balance—Grinding—Succession—The Inmost Centre—Fat—A Good Practice—Delsarte's Favourite Exercise—Massage—Concluding Remarks.



FIG. I.—THE APOLLO BELVEDERE:
REPOSE WITH SUPPLENESS.

your strength. Yet even then you may know of someone who could be compared either to a metropolitan engine running ceaselessly on Inner Circles, but in a barren land, or to that gnarled oak-stump which we have described already. This article may provide you with useful hints for such a person if not for yourself. And, indeed, repose with suppleness are desirable things for most of us to-day—very desirable, yet terribly neglected.

That is why we have made this chapter the longest in the whole PHYSICAL

THIS chapter is going to be a long one. Perhaps you personally, unlike the Editor, are already so well endowed by nature or trained by art that you lack neither repose with your activity nor suppleness with

EDUCATOR. Its aim is to set forth principles of which hardly any of us know anything—principles and practices that we unconsciously held and blessed as little children, but lost with advancing “education” and “civilisation.” They have hurried and worried or frozen and paralysed the repose and the suppleness out of us.

We write for nine out of every ten readers, not because the whole of Delsarteism is for all the nine, but because much of it is. If Mrs. Jones is tending to become like a flabby pudding, she does not need repose; yet she may need suppleness (as well as the activity and strength which other systems may give). If Mr. Jones is tending to become like a wriggling eel or a hustling American, he does not need suppleness—yet he may need repose.

Let each reader go manfully or womanfully through the whole chapter, and see at the end whether Delsarteism, in moderation and with many grains of humour, has not for him a new light on daily and nightly life; as it has had and still has for the Editor and hundreds of his acquaintances and correspondents.



FIG. 2.—THE POPULAR IDEA OF DELSARTEAN PRACTICE.

If you were asked what Delsarteism was, you would probably say either that you did not know, or that it was posing in a limp and would-be careful attitude, as in Fig. 2, like a sort of Burne-Jones æsthete, anaemic and sloppy in inaction.

And, indeed, the relaxing of muscles is a vital part of the Delsarte teaching. This part, in its proper sphere, can be thoroughly justified when we remember that, as an exponent of Delsarteism says, "We see invalids every day who waste enough energy to do the allotted work of three strong persons." This applies not only to invalids, but to American millionaires (as in Fig. 3) and other unhappy people, and, indeed, to most people that we know. Notice the stiffness of their hands, their neck, their whole face. All this means ugly waste of power. How few of them can let themselves go heavy! How few of them can safely do what one exponent often begins her lesson by! It is described thus by Mrs. Stebbins:—

"I withdraw my will-power from my fingers, then from my hand. Touch it; do not shudder. Do you feel as if a dead thing had struck your living flesh? Now I will show you the same phenomenon with forearm, entire arm, waist, spine, hips, knees, ankles, toes, jaws, eyelids. Now I fall. Give me your hand and help me to rise. I did not mean to startle you, sir. I have not even bruised myself. I simply withdrew my vital forces into the reservoir at the base of the brain. The

first thing to be acquired is flexibility of the joints. These exercises free the channels of expression. We name these exercises *decomposing*."

All of us wish to minimise our troubles and to treble our pleasures, and we can do much to effect this by such physical economy. Economy is a source of revenue. We do not mean the stinginess which many show, including physical stinginess. True economy is found to be something quite different—an income to the body, and almost, if not quite, identical with true beauty and gracefulness.

If only we could observe, we could work out Delsartean systems and exercises ourselves. Notice how invalids close their eyes for restfulness. Why not, when you need rest, turn this into a conscious practice, or perhaps still better, do what Dr. George Wilson suggests. His words are worth repeating:—

"Now, when you have learnt to perform each of these movements separately, you will soon be able to do them very quickly, and almost together. And in future I shall speak of the whole process as '*expansion of the attention*.' If I ask you then to expand the attention, I mean to relax the lips, to loosen the brow, to release the eyes (as in Fig. 4), to look far away, and to think of the horizon.

"You may think this whole subject stupid, or perhaps as interesting and as important as an exhibition of dog-tricks. But if you do, you are mistaken. For nothing is more evident in this bustling age than that most men and women do not have the most remote notion of the art of keeping their minds at rest. In



FIG. 3.—AN ANTI-DEL-SARTEAN BUSINESS-MAN.



FIG. 4.—THE NEGLECTED ART OF RELAXING THE EYES.

play and in work alike, we are ‘pressing’ nearly all the time, anxious-minded and strained. In our schools the children are growing up by the thousand into the same vice ; and there is no one to teach them how to rest, for the pupil teachers themselves, poor souls, are as anxious as their neighbours. What they want is a few lessons in some such movements as I have been describing, and, unfortunately, no educational department has as yet seen fit to include ‘expansion of the attention’ in the code of subjects to be taught in the board schools.”

He suggests a more detailed plan in another pamphlet, where he advises people not to let their attention wander to anything small or intense, but to train their minds to turn at command to some wide and quiet subject, to fix their memory on a picture of some horizon, some distant line of expanse to which they can revert. “I am sure,” he says, “that anyone—even grown-up people—*can learn* mental relaxation *very easily and very quickly*, if he first learns the appropriate muscular act. That act is one of release—release of straining muscles.”

Or, again, observe the person yawning. He breathes in a deep and full breath. Up go his arms. Then, as his arms go slowly down again, out comes his breath, and he relaxes (Fig. 5). Deep breathing inwards, extension, slow breathing outwards, relaxation—that has been turned into a system. Indeed, many fortunes are being made to-day by those whose systems, whether of memory or other arts, are based on a few simple practices which have long been found useful by thousands. The secret is an

invention only in the sense of an extension and an elaboration, of what has already been found useful, into an organised scheme called by some taking name.

Now in this chapter we shall not, as in dealing with Ling and Sandow and Macdonald Smith, give formal *pros* and *cons*; we shall rather talk. If we are guilty of errors we must apologise beforehand. Some may object to the article on Ling, saying that the best teachers of the Ling system included games as well as Ling exercises. But, for the masses of people for whom we write, we must speak with a view to what people will get at “the nearest shop,” not what they will get from comparatively a few *élite* specialists.

And especially must we emphasise what will be useful in daily life—that is to say, practicable parts of the Delsarte system, rather than the whole, if, indeed, the whole has yet been described anywhere.

Scarcely one person in a hundred of those who profess to have mastered systems of exercise can go through the Delsartean tests, as described above. Such people, if they see that physical economy and gracefulness—and power as well—are worth while, should not try too much at first. The order which Mrs. Stebbins suggests for practice is this : fingers, forearm, entire arm, head, torso, foot, lower leg, entire leg, entire body, eyelids, lower jaw.

Now all this—not weariness of the flesh, but rest of the flesh and muscles and nerves—is it really for common application in daily life ? Yes, especially in modern life. By society women, by actors and actresses, by fencers, boxers, and athletes in general, even by city clerks, the practice has been found worth while. Take the last case—the clerk who suffers from



FIG. 5.
AFTER A
NATURAL
YAWN.

writer's cramp. Here is Delsartean advice for him. "Let him hang down his hand, shake it out, stretch it, then let it close as far as it will go of itself. Let him sway it and shake it above his head, if he dares, in public, stretch it again, again let it close of itself; then swing the relaxed hand round in a circle with the main action at the wrist; then drop the hand for a few seconds."

Take this advice for speakers—a very large class. "Persuade yourself," says the teacher, "that there are blind men and deaf men in your audience whom you must move, interest, and persuade. Your inflection must serve as pantomime to the blind, and your pantomime as inflection to the deaf." Singers, again, are told by Delsarte himself to bring their heart into the place of their larynx, a metaphor in which there is much value. Mrs. Stebbins artlessly remarks that to do so physically requires arduous training of the rib and back muscles, perfect breathing, control and absolute unconsciousness of the throat. We doubt, however, whether even this would bring the heart exactly into that place! Still, it is like our advice to some people to sing sometimes as if they were yawning: it gives something concrete to work on.

As to the athletes for whom it would be of value, it must be remembered that the system is not mere relaxing of the muscles. There is relaxing, but it is preceded by extension and deep breathing,

both invaluable aids to all athletics, and is followed by energising—the sending of the blood to the parts which are used. Without this energising the relaxing is comparatively fruitless. The Hindus, who are supreme in the art of relaxing, are deficient in the art of energising.

And the system is a study in correctness, too—in the correct doing of those things which ordinarily we do least correctly. It has an inducement for those who value their personal appearance. Here is one of the exercises suggested by

Mrs. Stebbins. The head should incline to the side of the leg that bears the weight when by an act of will we shift our weight, while the torso has an opposite curve from head and leg, and so should incline away from the strong leg, thus always presenting nature's line of beauty. "Stand firm on both legs. Shift your weight

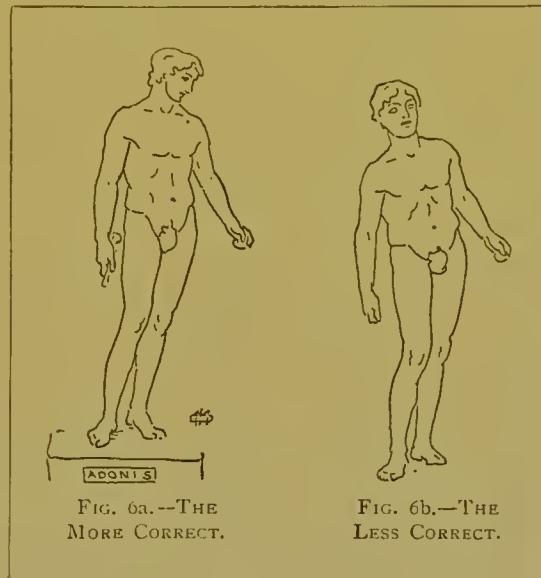


FIG. 6a.—THE
MORE CORRECT.

FIG. 6b.—THE
LESS CORRECT.

on to the right leg. Incline the head to the right. Incline the torso to the left. You are now in a harmonic balance. But incline the torso to the right also, and you become awkward. Continue to incline it, and you fall and prove the want of balance."

"This opposition of the three parts of the body," he says, "is one of the most beautiful things I know. Hour after hour has flown by me unheeded, as I examine one after another the exquisite forms of gods and heroes in the great museum of the Louvre. Delsarte holds that dynamic wealth depends on the number

of articulations brought into play. His system tries to free these articulations—for instance, those of the spine. When two parts follow the same direction, they cannot be simultaneous without an injury to the law of opposition. The great articulation (though strictly it is not an articulation) which we have learnt to control is at the waist. Seat yourself squarely, inclining your torso forward. Incline your head back. Make this movement a simultaneous one. Now reverse it. Next incline the torso forward and to the right. Simultaneously incline the head back and to the left. Now reverse this. I have already advised the use of a mirror, so I counsel you to give your reflection these lessons, and I beg of you to be strict with her or him."

It will be seen, then, that Delsartean systems, or parts of them, are eminently practical for modern life, *appealing to those who are weary, to those who are clumsy, to those who are deformed, to all who wish to improve their appearance*, to all who would be better for a reasonable pride in a finer body. In the whole system there is a training of the nerves for poise, but there is, so far as we can see, no danger whatsoever.

We must regard this system as an invention. Delsarte was a Frenchman who lived 1811–1871. In one way he was a remarkable man. He perfected his system for thirty-five years before he wrote a single word about it. His unremitting study took him by turns to investigate hospitals, morgues, asylums, prisons, art galleries, children at play in public gardens, everything, everybody. His search was for the

laws of expression and the values of expression.

So far as concerns physical education the Delsartean system is, like every other, incomplete. Even with regard to expression alone, we may define it in Delsarte's own language as "*de l'expression*" rather than "*l'expression*," which we can only clumsily express by our "some expression" rather than "all expression."

For in it there is little rapidity, though rapidity is helped by the extensions, the freedom, the poise, and the shaking. It is the rapidity of the snake perhaps, rather than that of a sprinter in a race. Directly, again, his system is not a training in promptitude. His movements are too rhythmical to encourage promptitude. Nor would the practices directly develop strength to lift, or push, or pull, or hold. Such a figure as the typical one of the "strong" man, tense and fat-looking, could not possibly result from Delsarteism.

Nor could Delsarte tolerate visible effort and strain, such as the American millionaire often shows in his photographs.

A far more typical result of the Delsarte system would be a good type of Greek statue, such as is seen in Fig. 8. It is especially on the repose of the



FIG. 7.—A DELSARTEAN EXERCISE.



FIG. 8.—ARIADNE SLEEPING.
(From the Vatican.)

unused parts that the Delsarte system would rely for its superiority to any other system.

When we come to think of it, however, there is great truth in the whole system. Take the hand as an example. What can it express—and what does it express? It can express, Mrs. Stebbins maintains (see Fig. 18), such ideas as the following—"pointing, affirming or denying, moulding or detecting, concealing or revealing, surrendering or holding, accepting or rejecting, inquiring or acquiring, supporting or protecting, caressing or assailing." We do not entirely understand what all these mean, but some of them sound intelligible enough. Thus, when the hand has its fingers curved, this signifies grasping.

The chief expressions for which the Delsartean systems train are expressions of gracefulness, poise, economy, power, and trust in a Providence. The ideal is that the confident spirit should guide a skilful and easy mechanism.

Much of the theory will seem fantastic. Delsarte has been compared with Swedenborg for his theory as to correspondences. "To each spiritual function," he says, "corresponds a function of the body. To each grand function of the body corresponds a spiritual act. Physical development, poise, and gesture are but the external expressions of an internal condition. But, by the law of reflex action and correspondence, these physical manifestations also influence the inner nature for good or ill. In a word, the expression may give rise to the corresponding feeling. We may approach the mind through the body, and alter it through the body." So far we are with him, but other parts of his theory, perhaps through our own stupidity, we cannot altogether understand. He divides man's nature, as others have done,

into three parts—physical, intellectual, and moral—which he calls the trinity. That is easy, so far. He says that "the voice is physical, the word is intellectual, the attitude and gesture are moral. The physical should sustain; the intellectual should guide; the moral should impel." We might add with equal truth that the physical should carry out; the intellectual should devise tactics; the moral should restrain. Then, he goes on to say, "the intellectual expresses itself through the brain and head, the voluntary through the heart and torso, the sensual or more earthly and animal through the limbs. The limbs are physical or vital; the head is intellectual; the torso is moral."

"Yet certain parts of the torso have their physical and intellectual tendencies, the intellectual being adjacent to the head, the physical being adjacent to the thighs. The apex of the lungs is intellectual, the lower part physical. Breath at the top of the lungs (clavicular) is intellectual in its action and effects; the middle or costal is moral; the lower or abdominal is physical. The upper is directing; the middle is impelling; the deep is sustaining. Persons," he thinks, "who have a shallow intellectual breath are brainy, but sickly, nervous, and unsympathetic, and often cold and even cruel. Those who have constantly lower breath are gluttonous, sensuous, coarse, vulgar, and even brutal. These usually have a flat, receding chin, and protruding abdomen. Persons who have constantly a middle breath are safer than the other two, but, like some Christians, would be wiser if they did not entirely ignore the reasoning breath and the physical, health-giving, or sustaining breath."

Such ideas, though fanciful, yet may be suggestive of part-truths. At least they make us think, even if our thinking is chiefly

critical. The head is not entirely intellectual. Its forehead region is rather intellectual, the moral and physical being rather the top and back of the head.

Though all these statements are to be received with caution till we know a great deal more than we do about the body and brain, yet it is interesting to study the effects of shallow breathing on the character, and the effects of the character on the shallow breathing.

It is also interesting to note that Delsarte, as distinct from most specialists in breathing, considered all kinds honourable. That is perfectly sound physiology and teaching. "If you have been using only the middle of the lungs until you have become abnormally sympathetic and unbearably pious," says one of his exponents, "lose no time in establishing your equilibrium by exercising the upper and lower parts of the lungs. If you have constantly exercised only the top parts, go to work and use the middle and lower parts."

The advice also to put the palms on the parts which you wish to develop is decidedly good. This recognition that all breathings are good in their place, that those who have one of them weak should restore the upset balance by developing it, that such helps as the placing of the hands on the part are to be used, are as practical as anything that we have ever read on the subject of physical education.

Then, again, the system is quite human in dealing with such a fault as the poke of the head. Here is one exercise from Le Favre: "Lie, face downwards, at full length on a bench or on three chairs placed in a row, or across the bed in such a way that the head projects beyond. Now lift the head and drop it. Lift it up a little higher and drop it. Repeat six or nine times. Besides straightening the



FIG. 9.—A DELSARTE CORRECTIVE EXERCISE.

seventh cervical (neck) vertebra so that the head rises gracefully above the shoulders, this exercises and strengthens the upper part of the spine. It also makes the neck plump and beautiful."

We may, let us repeat, be misunderstanding Delsarte. We know him, as we know many of the greatest men, only through interpreters. Imagine a man devoting thirty-five years to research, and not a line published with his consent! And, in fact, some of his pupils are perhaps teaching the exact opposite of what he himself would have taught. The idea within he would have considered of more importance than a forced expression. Would he have tolerated an elaborate system of expression for those who already express themselves satisfactorily? It is this thrusting of the system on all, whether they need it or not, that makes some of his exponents so unpopular, and, indeed, is the most fatal part of all systems.

The object which he certainly had, and which his exponents certainly have, is to free the body, so that it may express the spirit more satisfactorily.

He also sought to define what beauty was. He knew that it was not in the material by itself, but rather in its arrangement and order. He based his results chiefly on observation. That is a sound method. "The ape," he says, "must be contrasted with man if we would find the natural tendency of man. The

natural tendency of civilisation is to retreat the chin, the abdomen, and the foot, and to bring forward the superior top brain and chest." "Then it must

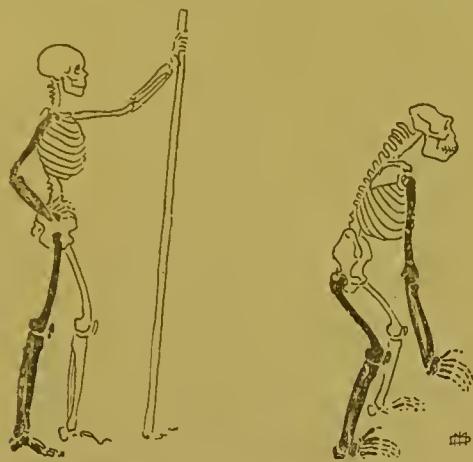


FIG. 1ca.—THE MAN AND—FIG. 1cb.—HIS PHYSICAL ANCESTOR.

be," his exponent goes on to say, "that the chin, abdomen, and foot are less noble than the head or chest. The chest must lead, and the head must follow as closely as may be."

Now we may well hold that this distinction of parts and organs is disastrous, the cause of much mischief, especially among children. Remove this idea that one organ is low and another noble; make all organs equally sacred, though they have not the same office, and you go far to solve *the* problem. Yet to a certain extent it is true that the larger the lungs and the brain together, the higher is the nature possible; but, we must add, the lower is the nature possible also. Most good, most evil, most kindness, most cruelty, have come through religion. That was because the fundamental idea was lacking.

Though this was what Delsarte aimed at—the fundamental idea and its free expression through the whole body—probably his most valuable contribution to physical science was his use of breathing and other helps as an antidote to

the "clutch-on" habit, the state of mind and body as if there were no All-wise Power to hold us up at all. Delsarte carried out physically the commandment to become like little children, to give the self up.

Some exercises of his exponents we have already described in the Courses for men and women.

Yet these practices might be dangerous unless we knew what it was to which we were giving ourselves up. Surrender of the self may lead to insanity. This applies clearly to the surrender of the self in water. To what are you opening yourself? Is it fresh water, or a sewer?

In spite of this risk, the first lesson of Delsartean systems invariably removes tension. Thou shalt not distrust Providence. Thou shalt not express distrust. Relax the jaws; relax everything, or at least be able to relax it.

Why should one not be tense? Because tension is against rhythm, grace, and economy. Rhythm, grace, and economy—repeat and realise those three words. As an example, grip your hands for all they are worth; frown, grip your face for all it is worth; focus your eyes as if an object were an inch off; grip your whole body for all it is worth; now try to be rhythmical, graceful, economical of energy. We dare you to do it. It is a physical impossibility. Indeed, it has been estimated by some that we waste seventy to eighty per cent. of the energy which, by our food and bodily work, we generate. But how get out of the habit?

When we look at the figure that appears limp, we say, "Delsarteanism is limpness." But think for a moment. There is a Delsartean shaking exercise. You begin at the ends of the body, the tips of the fingers and the tips of the feet, and you work up. You shake the fingers,

the hands, and then the arms. You shake the toes, the feet, and then the legs. You inarticulate yourself. You free the joints. You even shake the head and the neck and the spine.

The sitting exercise has already been described, yet it is of such vital importance that we must repeat it here. Le Favre says, "*Invigorate only the parts that are legitimately engaged in an act.* Allow the other parts not so engaged to rest, to remain relaxed. People of to-day feel so much more than they can express, and have mental knowledge of so much more than they can accomplish, that economy of the forces becomes a matter for serious consideration. We must learn to waste so little energy that there will be sufficient in reserve to answer to all the calls the inner man may make. Who has not wished he had six hands? We weaken ourselves by prodigality of our forces. We do not need to generate more energy, but we do need to cultivate control and wise direction of our forces. Relax all the parts not legitimately associated with what you are doing. When you are sitting, don't sit with your arms and hands, legs and feet, nor with your neck, but rest all those by letting the energy flow into the centre to strengthen the torso, while the extremities all rest. Economy is in itself a source of revenue."

Here is the principle: to reinforce the vital organs, the organs by which we live, from the extremities by which we do not live, the extremities which we use only as instruments for living.

The relaxing exercises illustrated by the figures—some of which Mrs. William Archer kindly supplied—will show one or two forms of the relaxing movement. For instance, look at the lying exercises. Before the lying exercises one person may be shaken by another, who rolls the arms, the body, and the head; but

in this the other person must exercise great care.

"Withdraw your energy to your heart." Relax your jaws and tongue and throat and forehead, and even your ears. Relax your eyes above all. Let your eyelids fall relaxed as you breathe outwards. Let your eye gaze, as Dr. George Wilson suggests, at a distant horizon.

We might even say, relax your nose. In the train are many unpleasant smells. Get your senses far off. Faddy as it sounds, yet it is practicable. Focus your nose to a distant horizon! To focus it to the present sphere is sheer worry: the people around you are undesirable nasally. Focus your nose to that rose garden in which you lived: you have seldom lived, but you lived then.

Relax your neck also. Think for a moment how your body is formed. Think of the right order of its articulations. Your spinal column has twenty-four vertebræ. From these proceed the various plexuses or plexūs or plexi, as the inventive Americans call it. Now all these plexuses aid some particular expression. "The vertebral column forms the keys of the sympathetic human instinct. In relaxing the vertebral articulations," says Le Favre, "begin with the joint next to the skull, and relax each following joint in its order until you have allowed all to tumble slowly down. When they are down, bend your arms and head towards the floor. The legs and knees are straight and firm, and the thighs serve as reservoirs of energy withdrawn from the spine." This practice, it is maintained, will make the shoulders plump.

But remember, in spite of the neglect of many Delsartean teachers to take



FIG. II.
THE
VERTEBRAL
COLUMN.

advantage of every outward breath, every outward breath is the breath that gives you the chance of relaxing and economising. Sit on a chair, with your hands hanging down comfortably. Breathe inwards. Then let the breath go outwards while you relax. Have you ever a better chance in life to relax? That outward breath is your golden opportunity. Miss Call and Mrs. William Archer have realised the value of the outward breath to the full—perhaps more than Delsarte himself did.

In order to relax the arms and the legs together with the outward breath, the following exercise may be of value. It is taken from Le Favre:—

"Beginning with an erect standing position, the arms being relaxed at the sides, inhale and rise on the toes twice, while you have your lungs inflated. Then, while you are inhaling, rise on your toes four times. Again rise on to your toes four times while you are exhaling. Do not let the feet jar when they return to the ground. Afterwards sit erect, and let your chest come forwards and backwards four times. Let your chest come forwards to the right and forwards to the left four times. Let it come backwards to the left and backwards to the right four times. In each case inflate the lungs through the nostrils as the chest comes forwards, and keep the top of the head as stationary as you can throughout.

"Then, sitting erect with your arms relaxed and your feet extended yet relaxed, breathe in deeply through the nostrils as if you were drawing your breath up through your feet and lungs. Exhale as if you were exhaling through your arms. Exhale as if you were exhaling through your legs and feet."

A certain doctor of our acquaintance, after the fashion of many drugists and

operators, misinterpreted such advice, and said that it was ridiculous to breathe in or breathe out through the arms and legs. It is that sort of remark that brings the profession into disrepute. One does not wish to inhale through the arms and legs except in so far as the skin can inhale or exhale. It is merely the imagination that may be of value. Such pettiness in the profession is of inestimable invalue or disvalue, whatever the word may be. Such a man is thoroughly petty, since our imagination is our most practical help in the world.

So far we have considered exercises mainly for the extremities. We now come to consider the body itself as a whole. As one relaxes—and relaxation is not nonsense—one pretends to withdraw the energy from the extremities to the thighs, etc., as a reservoir. Suppose that you feel tension near the base of the spine, as a great many people do (probably you do yourself). Now to withdraw energy from the extremities to the thighs or to the brain may be a great faculty. If you have tension, or even deadness, near the base of the spine, then you may, for all we know, revivify that part by such a practice.

You can do the exercise standing, with or without music or humming or counting. Standing, withdraw your energy from your entire head, drop your eyes, then your head, then your top vertebral joint, and so on, till all the joints are relaxed. This is to go naturally with the outward breath. Keep down for a moment; then return leisurely to the upright position. Le Favre says that this requires sixteen counts for the exercise. She says that it is good to do the exercise not only to the front, but also obliquely to the sides. After practice we have found that she was perfectly right. The oblique relaxing exercise—which we had not tried till



FIG. 12.—A DELSARTEAN RELAXING EXERCISE.

quite recently—is of very great value. For some years we had practised only straight to the front. The exercise for relaxing backwards is of value also, but about this we cannot yet speak from reliable experience.

One thing, however, is certain: it is that expanding precedes relaxing as a help to it.

We are not urging expansion as an end. We are not justifying those hundreds of people who send to the papers the measurement of their chest expansion—a fact which interests us scarcely at all. We want to have not the chest-expansion, but the chest mobility and liteness, rather an inch of mobile expansion than five inches of expansion or extension of a stiff kind, above the normal. It is true that small chest-walls may cramp the lungs as much as wrong corsets may. On the other hand, large chest-walls may be scarcely less of a disadvantage. We can imagine the disadvantage of living in a huge house with thirty rooms, a stupid housekeeper, and only two other inmates. That is analogous to the case of the man who has a huge chest-extension, but no flexibility.

The size of the chest by itself is of little or no importance. What is of importance is the *lung-expansion*. How far can a man open his lungs and his mind—his lungs to oxygen, his mind to healthy information? The lungs undoubtedly influence the intellect and the morals. Let a man have a high and forward chest, and he is utterly unlikely to be foolish and ignorant, even as it were a beast.

The exercises obviously should be with-

out pressure from bands or belts or corsets, unless these are elastic; then the pressure may serve as a developer, as a sort of Sandow exerciser to strengthen certain muscles.

Le Favre, on pages 24–26 of her book, gives a useful practice for expansion together with rhythmical swinging, with a view to power and freedom and economy. We quote the exercise here.

"Standing erect, swing the right leg forwards and backwards like the pendulum of a clock four times, while you count eight: one count to the front stroke, one count to the back stroke, as if the pendulum of a clock were ticking. On the seventh count let your foot down at an angle, so that it will be well settled at the eighth count. At the seventh and eighth count, spring the body obliquely on to the right foot, the big toe of the left foot remaining in its place to keep the equilibrium. In this position, swing the right arm as you did the leg, while you count, and at the seventh and eighth count swing the arm high up to the right and push with the palm of the hand while you raise the left foot from the floor and push it hard in the opposite direction to the hand. You are poised. In this balancing attitude count eight. Then return to the first position slowly and steadily while you count eight. You have eight counts for the swinging of the leg, eight for the swinging of the arm, eight for the expansion, eight for the return to the position, making thirty-two counts in all, and another thirty-two



FIG. 13.—A DELSARTEAN PRACTICE TO FREE THE LEGS.

for the left side, which does a similar exercise."

In the Delsartean system, extension, rhythmical movement, poise, and breathing are all combined. Here is another Le Favre exercise. "With your arms relaxed at your sides, stand erect, and inhale while you rise on your toes twice. Exhale. Then inhale while you rise on your toes four times; and rise on your toes four times again as you exhale. As you exhale and return to the floor, be careful not to jar your spinal column. Then, sitting erect, sway your chest forward and backward as before."

The next exercise in the system seems to be grinding and twisting to free the joints further. Gymnastics do a great deal of this grinding and twisting. Here is a typical exercise from a Delsartean system.

"Sitting with the limbs all relaxed but with the torso firm, bring the shoulder-joint forward, up, back, and then down. Continue this in a steady round grinding eight times. Throughout, the arms and hands are relaxed, the chest is expanded, the head is erect, and the face pleasant, not anxious. Sitting with your upper arm firm by your side, describe as large a circle as you can with the hand and forearm round and round. The action here is all in the elbow. Then, sitting with your elbows near your hips, describe as large a circle as you can with the points of your fingers, with the action all in the wrist." Similar exercises are devised for the lungs, the knees, the ankles, the head, and the trunk. The Swedish and other systems have exercises not altogether different.

In addition to the breathing, relaxing, poise, and grinding, the Delsartean system insists on order or *succession*. Roll in the body upon its fingers and toes as if these fingers and toes were spools. Roll

it out again in the reverse order. Involution and evolution—these words sound like mere "gas" to the ordinary reader; to Delsartean pupils they mean something extraordinarily religious. All is to be done in a steady and unbroken movement, not in a jerky and spasmodic way. Eventually all the movements should be done together. "Try each time," says Le Favre, "to feel that you are paying a visit to your inner nature, and bringing forth therefrom new beauties." The kingdom of heaven is within: that is the religious way of putting it. If the kingdom of heaven is within, why not visit it occasionally? How many of our readers visit it, physically, once a day?

"After the practice of this for a time," says Le Favre, "you will have a sense, even a consciousness, of mental and moral as well as physical evolution. Emotions express themselves from within in succession, beginning with the eyes, and passing over the body like a wave, using every part in turn." "There is an inmost centre of us all where truth abides," Robert Browning said. The Delsartean system aims at introducing us to this inmost centre, which many find to be their true self, their firm self, their only reliable thing in the universe.

Firmness at the centres, freedom at the extremities—no published physical system, except the Delsartean, has fulfilled this order. Look at gymnastic or any other teachers. Firmness at the centres perhaps they cultivate. Most of them neglect freedom at the extremities. Macdonald Smith is good with regard to freedom of the extremities. Firmness at the centres, however, his published works have not yet emphasised as essential. Delsarte aimed at both ideals: a firm yet elastic torso, free yet elastic arms and legs.

For he did not wish to see muscles

put on to a figure like patchy lumps of plasticine.

He said that more exercise was needed for the torso than for all the other parts of the body. We may rather doubt whether all the other parts of the body should include the feet. Can we have too much sensible exercise or care for the feet?

The word *feet* suggests to us the word *fat* by similarity of sound. Delsarte objected to fat. Le Favre says, "Several years I wore a corset, and I was told that corset-cramped ribs can never be expanded. Now I am frequently told that I have a fine figure. My figure is no longer fat. A fat body is utterly expressionless. Adipose tissue cannot receive and express emotions. Fat is a non-receptive, non-conductive, non-expressive material. Only very little adipose tissue can be used to advantage in making up the clothing of the soul; whereas muscular tissue is full of life, vitality, action; it is capable of receptivity, conductivity, and expressiveness."

Hence Delsartism does not neglect a good waist—let that endear it to all female readers. Here is a Delsartean exercise for the waist and, we may say, for health.

"Standing, put the back of your right hand against your body, half-way between your right shoulder blade and the belt-line. Now stretch and bend yourself back and sideways, as if you were trying to break yourself at the point where the hand is, and as if you were using the hand as a fulcrum. Now put your left hand just below the left breast and bend in a left direction sideways over the left hand as a fulcrum, as if you were trying to break your body at that point; but begin with extreme caution, and do not increase to a severe strain till after the second week. This

will improve the figure by strengthening the waist muscles, and will set free a surprising amount of bile, and so help to remedy indigestion."

Some of the Delsartean exercises are of the ordinary kind, belonging to all systems—German, Swedish, British, and the new Syllabus. Among them are the trunk-bending and dipping exercises.

But Delsarte did claim to have invented an exercise of his own. Here it is. It is an exercise in breathing and expanding and, so he said, spirituality. "Standing, or sitting in a low-backed chair, draw your abdomen well out of sight, and expand your chest. Throw your head back and your face up, and raise your bent arms to the level of your shoulders, putting your finger-tips upon the chest at a point between the breasts on the sternum. Look up at the sky and inhale while you sweep your arms and hands up and back, and then down to the sides. While you sweep your hands to your chest again by the same heart-shaped curve, exhale.

"The reverse of this exercise is to sweep the air, as it were, from all sides and above into the lungs, while you throw your head back and your face up and follow this track; but to exhale as you sweep the arms up and out and down. This exercise," says Delsarte, "lifts your thoughts to a high altitude and is excellent for temperance work and all moral reform, as well as for mental expansion and bodily culture." Delsarte apparently set this forth as the supreme exercise in his whole system. For this he was presented with a laurel wreath. He held that it encouraged a proper attitude, which in its turn favoured proper emotions.

He was not altogether averse to massage, since he urged people to knead and pat their chest while they exhaled.

Voice-production also, as closely connected with breathing, he advocated most strongly. And among his followers, Miss Call and Mrs. William Archer give advice of inestimable value with regard to voice-production.

"A voice," says Delsarte, "however powerful it may be, should be inferior to the power which animates it." By such sayings Delsarte defended himself against those who said that his system was mere expression, mere mechanism. It was the power which animated man, it was this vitality, this soul, that he sought to call forth. He regarded the expression only as the means of calling forth the soul. It was because he realised how the soul was unable to convey its wondrous vibrations to fellow-souls without a proper instrument. He laid too much stress on the instrument, too little stress on the soul; but, in doing this, he erred on the right side. He never meant the expression to go ahead of the best that was within us. His aim was always beyond the muscles, something ultra-muscular. The aim of too many gymnastic instructors is merely muscular.

Besides saying that improper attitudes favour improper emotions, he held that improper movements favour improper emotions and habits of mind. So he would have advocated leisurely walking sometimes, as we advocate it here.

About walking he said a great deal. "Straight and upright let the walking



FIG. 14.—TO STRENGTHEN WAIST MUSCLES.

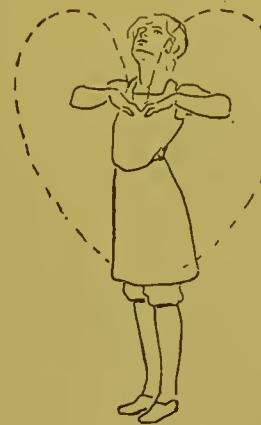


FIG. 15.—A FAVOURITE BREATHING EXERCISE OF DELSARTE.



FIG. 16.
A BAD WALK.

be. Exaggerate your hip-movements forward, lest you should make that rollicking movement from side to side. Walk in lengths, not in breadths. Put a weight on your head. Do not hold it up with your hands. Hold it up by your carriage. Then see how you walk. You will walk in lengths not in breadths; your movements from the hips will be forwards not sideways."

"Forget the feet," he said. "Have all your weight, all your size, in imagination, at your shoulders and your chest. For

gracefulness, have a narrow base, without straddle." It is thus that one of his followers addresses a pupil who walks in an undesirable way:—"Your walk is full of defects. You stiffly project the leg. You stiffly drag it after the torso. Your leg comes first; your torso afterwards; your heel then strikes the ground with a thud, jarring your poor spine."

Another exponent says you may judge a bad walk by the way the umbrella is held, no matter whether it be open or shut. There is a lot of truth in this dictum. Notice some people when they have their umbrella open, how they sway from side to side. Notice when they have it shut, how utterly thoughtless they are for the eyes of others, especially when they go up the stairs of a railway station.

We are tempted to write on and on about this system, since no branch of physical education has been so much ignored—

we might say despised—by “experts.” But we must come to an end and sum up the merits of the system.

It has been much needed by city-dwellers as a protest against waste of energy by misuse, as a plea for moral teaching by means of physical drill, as a protest against animal athleticism, or, on the other hand, against ugly fatness, and as an equally powerful protest against anaemic “spirituality” which despises health and beauty.

Above all, it is an appeal to us to use our expressions, which we can so easily control, so that we may help our mind, which we can hardly control at all. In a word, it is not a system in the clouds, but a system in and for the body. To prove this, let us end up with a concrete example.

“A leading active chest,” says Delsarte, “chest high and forward, eyes up.” This, perhaps, sounds commonplace; scarcely an able gymnastic instructor but urges it constantly upon his pupils. Delsarte, however, would carry the principle a step further: he would say, not only cultivate this habit yourself, but watch others, see whether they cultivate it; judge them according to their physical habits; measure them, their feelings and their intellect, by their physical habits. If they hold their chest up and forwards, know that they are so-and-so. The Frenchman shrugs his shoulders and moves his elbows and moves thus and thus. By his actions to some extent you measure his emotions, estimate his feelings by his attitudes and actions. Practise yourself the right expressions. When others have the right expressions, assume until you have contradictory evidence that they have the right feelings and character also. Here are some of Delsarte’s indications of character.

“The shoulder shows sensibility and

impulse; the elbow, self-will; the wrist, vital energy. The shoulder comes into play in all forms of emotion, telling of their intensity. Sloping shoulders show insensibility, weakness, prostration; square shoulders, strength of character. Going downwards, we find that the elbow thrust out from the side while the wrist is towards the body is a sign of coarseness, boldness, and love of self. When the forearm goes out with the elbow, this means attraction towards the body to which it moves. The elbow pressed against the side, on the other hand, shows humility, timidity, self-repression. If a person extends the hand towards you without the forearm and elbow, you may be sure that the person is fond of himself rather than of you. The hip thrown from side to side during the walk is a proof of vulgarity and sensuality. The knee thrown much outwards is a proof of boldness and assertion, and so on.”

Besides this practical side of the Delsarte system, helping us to judge the character of people about whom at present we know nothing, there is in Delsartism a considerable amount of suggestive matter. Dancing with the feet we all know; dancing with the hands is a new phrase to us. Delsarte predicts that such dancing will one day become popular. He gives examples of it. He says, “The hand has so many articulations, and, being uncovered, admits of such wonderful training, and, owing to its muscles, has so many beautiful curves and artistic lines, that it must be a delight to the onlooking artist as it is a pleasure to the hand of the dancer. No mother,



FIG. 17.
A MAN'S MIND
MAY BE KNOWN
BY HIS SHAPE
AND ATTITUDE.

no churchman, can find fault with this artistic exercise."

Among the many values of the Delsartean systems is this: that they make one think, and suggest problems for life. Can we by controlling our expressions control our minds? If we check our expressions—for instance, the expressions by means of our shoulders and our face—what happens? Do we thereby control our minds? Can we, by noticing a

(Fig. 20), and the clerks (Fig. 21)? Can it be made a system for them? We rather doubt it.

Such people may need some apparatus, with which the Delsartean systems apparently have little or nothing to do, if we except the relaxing bed or sofa.

For purposes of extension, which is inseparable from the system, such apparatus as the quarter circle, the horizontal bar, the ladder, and so on, may be of



FIG. 18.—THE HAND AND ITS VARYING EXPRESSIONS.

person's expressions (especially during play, we suggest), know their emotions also, their intellect, their character? As a rule, we leave this to a subtle instinct (which women possess more than men), or to experience based on failure, or to mere chance. Are there not systems by which we can judge more accurately, more economically?

The Delsartean systems, then, seem to be essential in modern life, but, in all fairness (and the PHYSICAL EDUCATOR wishes to be fair rather than what is called scientific) let us apply it to practical life. We will take a class of yokels, schoolboys, or even clerks in an office. Perhaps the system may be interesting enough to schoolgirls or even factory girls; indeed, we know that it has appealed to them. But how about the yokels (Fig. 19), and the schoolboys

great importance. The skipping exercise suggested by Le Favre may be far easier with a skipping rope or girbola than without it, or may be more interesting with clubs.

For there are some who seem not to be moved by an appeal to economy or gracefulness; yokels, schoolboys, and clerks—these are among them. They do not care for a law such as "firmness at the centres, freedom at the extremities." Their body may be limp; their hands may be tense. They do not care for a right sequence. They sit, they rise, somehow or other—how, they don't care. The law of sitting and rising as expounded by Delsarte has no interest for them. When one says, "Stand before a chair with the right leg firm; bend the right knee as far down and out as is possible; bend the torso forward in

opposition, so that the thigh now meets the chair and you are seated ; rise in the reverse order," the yokel or schoolboy or clerk does not care an atom. These people lift their hands anyhow. When Delsartean exponents say, "Bring the arm directly in front of the body, letting your muscular force act only on the upper arm and bringing the funny-bone to the front by a rotary movement of the arm ; then put force in your upper arm, and raise it to the level of your shoulder in front, letting your forearm and hand hang decomposed. Then, at the level of your shoulder, let force flow into your forearm and unbend it, still raising your upper arm. When that arm is straight, with a rotary movement of the wrist turn your hand, and let force flow into your hand while you raise it on a line with your arm, palm inwards, so that the arm is directly over the head, bending upwards" ; and when this lady-exponent says that "this exercise consists in evolution of emotion carried to the altitude of absolute truth," still the yokel and the schoolboy and the

clerk again "do not care a hang." They do not even care for the warning that an attitude repeated tends to become a habit of the body and hence of the mind.

And even many gymnasts—what do they care about Greek statues, as against their gymnastics practised exclusively and to excess ? They may read almost without a care Mrs. Stebbins' condemnation that, after studying the poses of Greek statues for fifteen years, Delsarte decided against the parallel movements of the limbs in gesture, recommending attitudes which he called *inverse*. These gymnasts do not mind. They have not been interested by the Delsarte system ; it has not yet touched the spot.

In a word, then, this system, neither in its interest nor in its scope, is—as its exponents have claimed it to be—a universal criterion of all things, the beginning and the end. It is a help to physical education, not physical education itself. Even as a science of expression it deals with *de l'expression*, not with *l'expression*.



FIG. 19.—YOKELS DO NOT WANT DELSARTEISM.



FIG. 20.—SCHOOLBOYS DO NOT CARE ABOUT DELSARTEAN CONSIDERATIONS.



FIG. 21.—CLERKS NEED DELSARTEISM, BUT ARE DIFFICULT TO REACH.

CHAPTER XLI.

GYMNASICS: INTRODUCTION AND PARALLEL BARS.

"Gymnastics" here Confined to Work with Fixed Apparatus—Greek Gymnastics—Striking Differences—Open Air—Closely Connected with Brain Work—Objections to Indiscriminate Gymnastics—To be Distinguished from Exercises Tactfully Arranged for Individuals by Experts—Dr. J. W. Seaver's Testimony—Good Remedial Gymnastics to be Highly Praised—Apparatus Relieves the Instructor—Gymnasia Already Abound, Playing-fields do not—Physical Recreation—Group-feeling through Gymnastics—Attraction to many—Pride in the Body—Dr. Lagrange's Scathing Words—He says that Gymnastics are not Recreational—That they are not for Children—That they may Deform People—That they have too much Arm-work—Professors Mosso and Bergenstein—What Exercises do Children Need?—Baron Pierre de Coubertin—Gymnastics must be Supplemented—Dr. Anderson—Need of Fresh Air—Opinions of Three Experts, Messrs. Vardon, Burdett, and Flynn, will be Quoted in Part II.—Parallel Bars, by Lieut. Flynn.

THE term "Gymnastics" may be treated as of wide or narrow range; here we prefer to confine it chiefly to exercises with fixed apparatus. In early times gymnastics were a very different matter.

There was little fixed apparatus among the Greeks, and their gymnastics (derived from a word meaning "stripped") included boxing (of a very brutal kind, owing to the heavy glove), wrestling, running, jumping, discus-throwing, spear-throwing, and many other athletic exercises, ball-play among them. In those early times, also, as the name shows, the gymnasts were not clothed—they were stripped and oiled. Oil served as a help to massage and to scraping afterwards, and also to enable the wrestler to elude the grip of his opponent. Perhaps it also served as a kind of clothing from the sun; very likely the skin was then pained less by the scorching of its rays. In ancient days, too, there was more advantage taken of the open air.

Horace begins one of his odes by an appeal to a man, once energetic and free, now lazy, and a slave to some love. This man no longer sought the Campus. Horace asks why he now hates the oil

as if it were poison, he who was once so patient of the sun and the dust. It was open air and more all-round gymnastics in those days.

Moreover, it was closely connected with brain-work, including that most noble form of brain-work—philosophy. Here moved the athletes, and by their movements became more like the statues of the Greeks—active and strong, graceful and poised, not over-developed anywhere. Close by walked Plato with his pupils—walked and talked. Before or after their walk and talk they moved as athletes with athletes. The body and mind were developed hand in hand, and the cleanliness of the body, thanks to the cheap baths, was attended to with as much scrupulousness as its development.

We cannot feel sure that to-day an *indiscriminate* use of gymnastic apparatus would tend to all-round fitness of mind as well as of body. In the eulogistic notes which experts have kindly contributed in this article, we must remember that they are in every case alluding to gymnastics under good conditions, especially with *tactful* directions given to

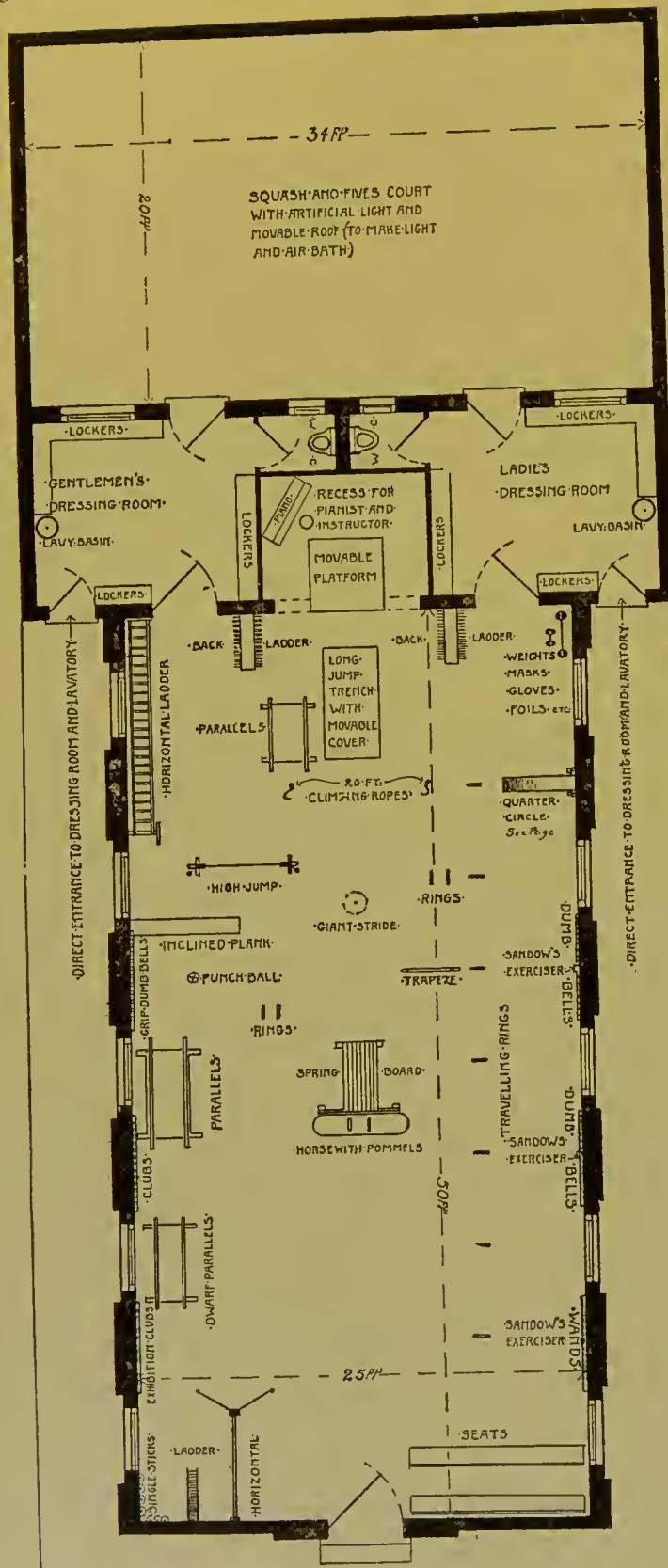


FIG. A.—A WELL-EQUIPPED AND WELL-ARRANGED GYMNASIUM
(LIEUT. FLYNN'S).
(Design by J. Dovaston, Ealing.)

individuals by such experts as these three themselves are. It is the Editor's purpose to discuss, as fairly as he can, the other side—the haphazard use, perhaps forced, without graduated leading-up work, upon those who are weak or uninterested or both.

Dr. Jay W. Seaver, one of the American leaders in Physical Culture, says, in a little book on Anthropometry: "A gymnasium, like a drug-store, is full of good things if intelligently used, but full of evil if taken indiscriminately." (The statement that the drug-store is full of good things is open to dispute.) "The round-backed, narrow-chested, slouching, head-hanging loafer becomes a smart, well-set-up, active man. The health improves visibly. The strength increases rapidly. The man is no longer the same being with properly applied gymnastics."

For such remedial gymnastics, and indeed for any gymnastics properly applied, we can have little but praise; we have constantly recommended them throughout this PHYSICAL EDUCATOR. Here, however, we are rather treating gymnastics as a recreation, perhaps not under the personal supervision of a tactful expert.

One sees the picture of the gymnasium clearly before one's mind's eye. In it are rings, ropes, bars, vaulting-horse, ladder, and many other appliances. The diagram of Lieutenant Flynn's gymnasium will give a

good idea of a well-equipped gymnasium, with plenty of light and air, yet clean and free from dust.

A gymnasium is a great convenience, if only in order to take some of the weight of the labour off the teacher's hands. The apparatus is there, and even the ignorant and automatic instructor will perhaps allow his pupils to "mess about" with some apparatus with more good than harm. Under the care of a fine instructor, who realises that children are individuals *and* children, the benefit of the apparatus may be enormous, especially if the apparatus-work is varied by free exercises.

And, indeed, we have plenty of gymnasia already in all great cities, and in many suburbs as well. This cannot apply to an equal extent to playing-fields. Some time ago a member of the London County Council calculated that for every acre of cricket-fields in London and the suburbs there are at least a thousand young men eager to play on it. The English love of sport, as the Committee for 1891 truly said, perverted by want of opportunity for active exercise, produces the gambler and the loafer. The physical decay of a nation, partly due to want of opportunity, is invariably accompanied by moral decay, by loss of nerve, and loss of self-restraint. Many excellent societies, such as "The National Society of Physical Recreation," have done much to remedy this deficiency. Still it exists, and is a slur upon our civilisation.

Meanwhile, many of us have to be content with gymnasia, which render exercise in cities at any rate possible, if not attractive.

The gymnasia do a great deal to breed the proper group-feeling. Besides the fact that men are drilled in classes, they learn to help one another in apparatus-work. The mere fact that one belongs

to a club brings with it some of the group-feeling. There is no doubt that much of the success of the London Polytechnic is due to the fact that its gymnasium is not in an odd corner, but in the very centre of the building. That is the plan in America. The athletic young man is first attracted by athletics into the Y.M.C.A. buildings. Afterwards comes the mental and moral education, not a little of which is through the athletics.

And gymnastics do appeal to larger numbers than the average British Public School boy would imagine. His games are so exciting to him—at least, some of them are—that he finds gymnastics (especially as taught in the stereotyped way) extremely dull. Others, however, have not been spoilt by the attraction of football. For them gymnastics are interesting. They find in the apparatus "sensible" obstacles to be overcome. By overcoming these obstacles, and feeling their own growth, they increase their self-respect; they get some pride in the body—perhaps of the wrong kind, but far better than none.

Yet gymnastics, especially in elementary schools, have come in for a great deal of abuse from Dr. Fernand Lagrange, the well-known French author of "The Physiology of Bodily Exercise" and a member of the French "Commission de Gymnastique." His abuse is not of gymnastics as a whole, but of indiscriminate gymnastics, managed or mismanaged by ignorant and wooden instructors.

His first complaint is that the young are treated as if they were old. He says, " You may see in our gymnasia seven-year-old children, as well as young people and well-set men, hanging on to the trapeze and rings and raising themselves upon fixed and parallel bars."

It is for the young especially that the



FIG. B.—GYMNASICS WITH FIXED APPARATUS CAN BE USED BY MANY AT A TIME.

gymnastic lessons are apt to be given in too long stretches. He remarks : " With these lessons, separated by too long intervals, we fall into this dilemma : either the work at our lesson will be too severe, and then the health will be exposed to different risks, or the work will be lessened, and so the exercise will be insufficient. The vice of our existing methods is that of calling for severe efforts, repeated at very rare intervals, while what is required for the child is a system of exercises very moderate but very frequently repeated.

" The muscular labour is given in improper doses ; the times of work are not sufficiently frequent ; and we commit a hygienic heresy when we assert that we can compensate for the rarity of the exercises by the greater energy of the muscular efforts we exact from the child."

Then, again, he points out how too much of the exercise is for the upper part, especially the arms, and too little for the legs. We might add that too much of it is with tensely gripped hands. He says all the exercises with fixed instruments—trapeze, rings, loose rope, fixed bars, parallel bars—localise the muscular effort almost exclusively in the arms and the upper part of the trunk, leaving the muscles of the pelvis and the lower

limbs almost inactive. This is an exaggeration, and does not apply to exercise on the horse, for example, as our series of illustrations will show. But he rightly holds that severe fatigue in exercise is not a benefit. The ideal should be not to induce fatigue quickly, but rather to bring all

the great functions into activity, to quicken the current of blood, to expand the lungs, without fatiguing the child severely. " This result," he holds, " is more easily obtained by exercising the arms than the legs, since the legs are much stronger than the arms. Moreover, in running, the pelvis, the vertebral column, and even the arms, are associated in the exercise. In him who climbs the loose rope or who mounts the ladder by the strength of his wrists, the trunk and legs must remain limp, and take no active part in the work. The natural result of exercises which generalise themselves is to produce with equal labour less fatigue than the exercises which are much localised. It is the deviation of labour that minimises the fatigue."

Then he goes on to assert that the exercises (so frequent in gymnasias) in which the body is raised by aid of the arms tend to give to the child a conformation which resembles that of the climbing animals. The type of these animals is the monkey, which, when upright, presents an arched appearance, with his round back and his shoulders raised so as to touch the back of the neck.

One very potent argument he brings forward. We all admit the value of remedial gymnastics. As Lagrange says, " Localisation of exercises in gymnastics

with apparatus has one advantage in the adult and the adolescent—namely, to develop very quickly the muscles of the region which is at work." He proceeds, "If these exercises are able to reform a distorted shape, it is because they have the power of modifying the shape of the body. *The modifications which they produce may become as hurtful in unskilful, as they might become useful in skilful, hands.* Improperly applied, they inevitably produce deviations which did not show before then. They always aggravate existing deviations. Who, then, will guarantee us that the method of gymnastics with apparatus will not be improperly applied? In order to suppose that certain specialist doctors are sufficiently initiated into the mechanism of these different exercises to be able to use them therapeutically, it will require still a long time. For my part, I, a surgeon who has studied and constantly practised for many years all the exercises in general use, should refuse the responsibility of applying to a young child all the movements of gymnastics with apparatus. The convenience of its application in schools cannot recompense for the different dangers in the education of the child of from seven to fourteen years."

He also makes a great point of the fact that for many children gymnastics are not recreation. The early exercise of animals is in the form of play. Now for many children gymnastics are not play, and that should be one of the questions we ask: Are the gymnastics dull? Do they, partly on that account, tire us more quickly?

We cannot answer the question absolutely. Too much will depend upon the

teacher. We can only ask whether the average teacher manages to make gymnastics attractive as well as safe and healthy. The answer has been given as "No" by a large number of people of different countries; and we must remember that, "under the influence of perpetual restraint, nutrition becomes less active and the vital functions languish." "No punishment," says Lagrange, "is so painful for the Belgian schoolboy as that of being deprived of his play. On the other hand, being excused from gymnastics would be willingly accepted as a reward by the greater number of our French collegians." Once again, that great Italian physiologist, Professor Mosso, extolling the merits of the English games and athletic sports, speaks of the gymnastic training in his own country so far as it goes (that was in 1897) as worse than useless, it being in cold, dismal rooms, with teachers who have no enthusiasm or power to enthuse their pupils. The German system he also condemns. The gymnasium hour in German schools, he declared, is the most wearisome hour of the day, and the best teacher has not succeeded in making it otherwise. Bergen-stein, an Austrian Professor, says of gymnastics, as conducted in Austria. "They afford no relaxation. It is not only a lost hour, but one of the least interesting of the day." The modern



FIG. C.—FREE MOVEMENTS IN MASS-DRILL DO NOT APPEAL TO ALL OUR PEOPLE.

teacher of gymnastics, Mosso says, commits an error if he undertakes to make his art do the whole work of Physical Culture.

And indeed we cannot but be against much severe apparatus-work with strain for the young. Theirs is rather the period of enjoyable quickness. Their

But, once again, Lagrange says that these exercises, "though equally convenient and hygienic, cannot be called recreative. These movements in combination are often excessively tiresome. There is none of the distraction and freedom of mind which the scholar ought to find in gymnastics. Our gymnastics, and even our

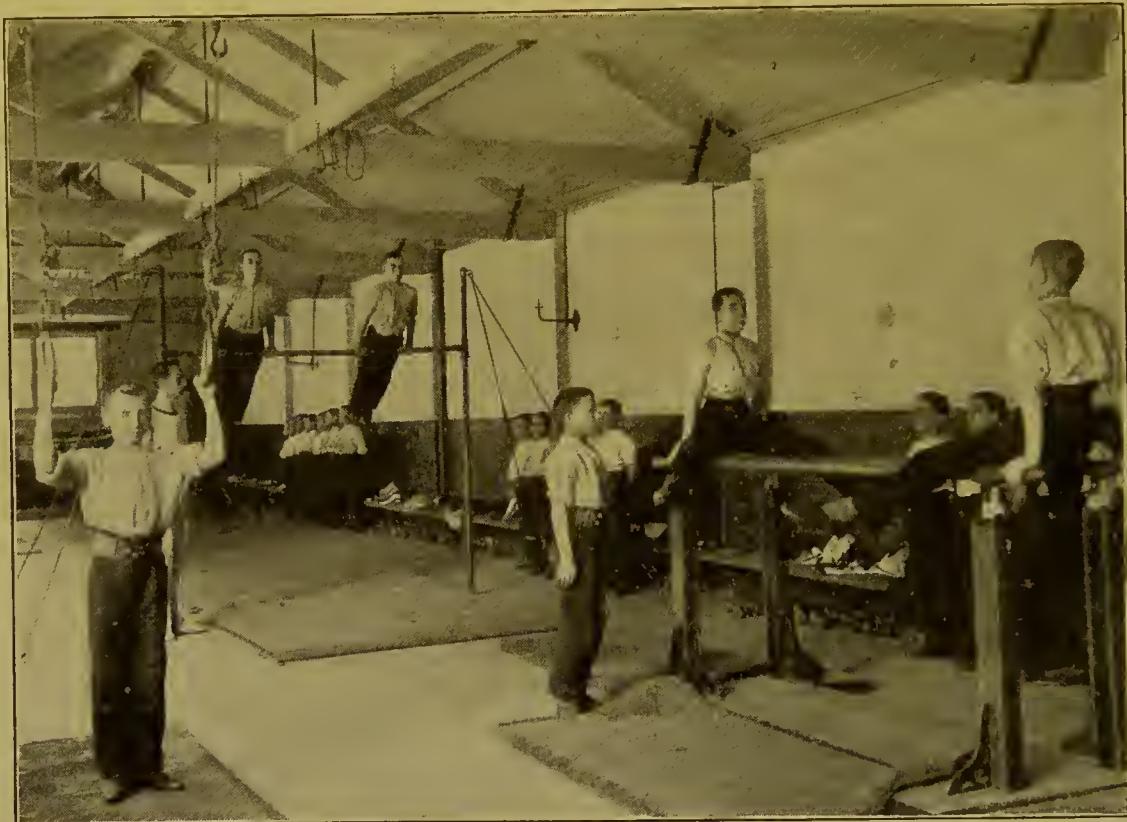


FIG. D.—GYMNAStic WORK IS ATTRACTIVE TO MANY BOYS.

(Photo of Highbury Truant Boys, by permission of Mr. J. G. Legge.)

conditions of growth should be carefully considered.

Besides the demand for quick exercises, the dull old gymnastics are less necessary now, when it is so easy to get a good personal instructor who will advise as to the right sort of home-apparatus—perhaps some expander or simple device, like a skipping-rope.

Besides, there are the free exercises, which are now better worked out and better published and known than ever before.

free exercises, should be recreative. They are wearisome."

Organised games, Lagrange rightly contends, should be introduced more widely, and more widely recommended and insisted on by gymnastic instructors. They should be popularised and made cheaper and more feasible.

Baron Pierre de Coubertin was one of the most active searchers after the solution of this problem. He urges the revival of our best old games. In another

article we have shown how organised games have worked admirably in more than one London Board School, though the space is narrow and the money and time to be spent sadly small.

In a word, then, against gymnastics we have our usual complaint which we have against all systems when they are set forth as complete and allowed to be taken indiscriminately. *They need to be supplemented* by recreation as well as by free work. *They need to be led up to*—for instance, by ungymnastic apparatus, such as the expander, and (*see previous chapters*) by the dumbbell in certain very carefully-selected cases.

Besides this, they do assuredly need to be explained, so that even children may know some reasons why this or that exercise is good; otherwise they are very unlikely to continue the exercises afterwards.

Then, besides, Dr. Anderson, of Yale, says that he would rather spend a large proportion of the time in explaining why this or that exercise is good—for example, its fine effects on the lungs and on the heart, as well as on the digestion and excretion.

The word “lungs” reminds us that gymnasia need better ventilation than they usually have. The more we exercise ourselves the more air we take in, the greater is the need that that air should be fresh, rich in oxygen, free from too much carbonic acid or dust.

Moreover, so powerful is the effect of exercise upon the skin, that after it there should be a healthy wash and a change of clothing. Gymnastic exercise in ordinary clothing which is worn for the rest of the day is not hygienic.

So much for the view of the Editor, and of authorities who perhaps exaggerate their case, yet anyhow state it clearly. As to the other side—from the point

of view of the individual—considering expert who is enthusiastic (and with much justice) on gymnastics as *he* teaches the art, some excellent material has been kindly sent us by two experts, Mr. W. M. Vardon and Mr. H. H. Burdett. The contributions, together with a third eulogy from Lieut. Flynn, will be given in the second article on Gymnastics. That article will give a brief course for the Horizontal Bar and the Horse by Mr. Flynn, who has here devised one for Parallel Bars.

PARALLEL BARS.

BY LIEUTENANT FLYNN.

It is generally admitted that this apparatus runs the “horse” very close in popularity. The reason is not far to seek, the exercises, even in the elementary stages, being varied and interesting, while the more advanced when well performed have a distinct artistic effect.

Practically all exercises are executed by the trunk and upper limbs. [The Editor believes that the parallels supply one of the best helps to light step-dancing.]

The exercises may be divided into (1) travelling along the bars; (2) oscillation between the bars, or swinging exercises; (3) combination of the above in many various ways. Among muscles that are prominently brought into play are the triceps when one presses from the bent to the straight arm hang, and from the bent to the straight balance; the abdominals, when one raises the legs level with the bars (in “lever” exercises); and the pectorals in “pump swings,” and also when one presses from the bent to the straight arm while in the “front leaning rest.” In the elementary movements several pupils should be on the bars at once—e.g. in such exercises as “travelling,” “walking,” and “hopping on hands,” raising heels,

knees, or legs. This keeps pupils on the alert, and gets through more work in the time. The "squads" should not exceed fifteen pupils, though this limit is often impossible. A good plan then is to break up the class into two divisions. Set exercises that can be done in safety on two instruments, if possible placed fairly close together, so that the instructor has the whole class under his eye. The pupils will thus at least get exercise, which, after all, is the main aim of apparatus work. At the same time each pupil should do his utmost to carry out the exercises on this and, in fact, on all the apparatus in the best possible form. Let him remember that slack gymnastics is no gymnastics. He has in this apparatus a means of permanently developing his chest and upper limbs, provided he conscientiously carries out what is laid out for his guidance.

The bars should be about 7 feet 6 inches long. The height should allow the feet to clear the ground when in the upper arm rest. The width should average $17\frac{1}{2}$ inches. It is of great importance that bars should be absolutely rigid.

EXERCISES IN "THE REST."

Exercise I.—Fig. 1 shows the rest on hands. In this position the back must be hollow, the head up, the chin drawn in, the shoulders pressed down. The common mistake of beginners is to let the shoulders hunch up. The following exercises can be done at "the rest."

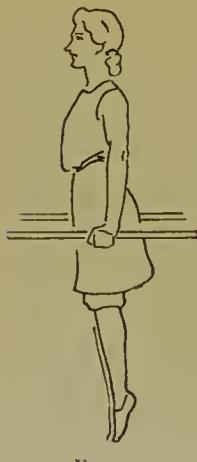


FIG. 1.

Exercise II.—Raise one or both knees, and extend the legs to the front.

Exercise III.—Raise one or both heels, kicking the thighs.

Exercise IV.—Raise the knees to the chest.

Exercise V.—To increase the difficulty, raise the leg forward or sideways over the bar.

Exercise VI.—The same with both legs together.

Exercise VII.—Open and close the legs over the bars in front of the hands.

"TRAVELLING EXERCISES."

Walking and Hopping on the Hands.

Exercise VIII.—Walk along the bars with right and left hand alternately. Avoid all swing of the body. Keep the back hollow, the head well up, the shoulders level.

Exercise IX.—Hop along the bars.

Exercise X.—Same as Exercise VIII., with the heels raised.

Travelling in Bent Arm Rest.

Exercise XI.—This can be done as in the above exercises—either backwards or forwards.

Note.—The back must be kept hollow.

"SEATS."

Exercise XII.—From the cross-stand at the end of the bars, and with a for-

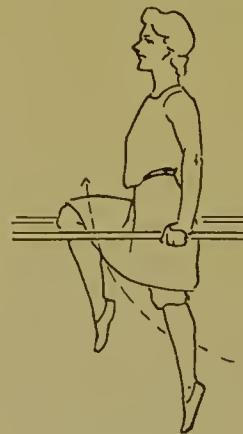


FIG. 2.

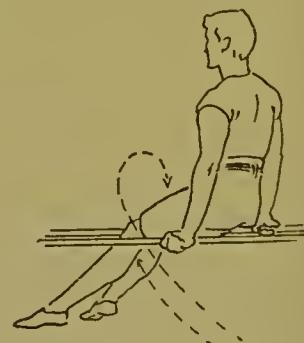


FIG. 3.

ward swing of the right leg between the bars, jump up (1) to inside cross-seat on the right bar in front of the right hand.

Be careful to keep the body erect, the back hollow (Fig. 2).

Exercise XIII.—Jump to the riding-seat on the right bar in front of the right hand (Fig. 3).

Exercise XIV.—With a swing of both legs forward between the bars, jump to the outside cross-seat on the right bar in front of the right hand (Fig. 4).

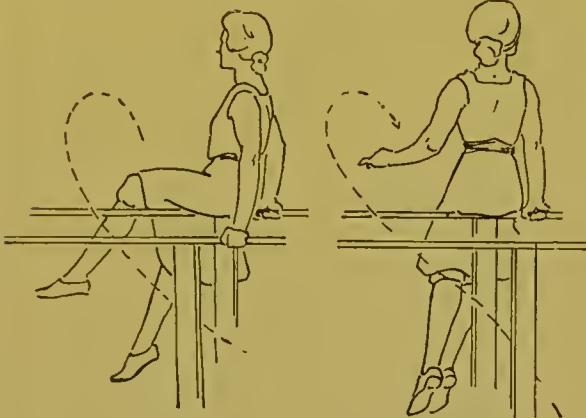


FIG. 4.

FIG. 5.

Exercise XV.—The same with a quarter turn to the outside side-seat, the left hand quitting the bar (Fig. 5).

SWINGING EXERCISES FROM "THE REST."

Note.—At first you should not practise swings too high. In swings the main thing for you to remember is that in the forward position of the swing your body should be well in front of your hands, and bent at the hips as in Fig. 6. In the backward swing, press your feet well down as though you were trying to touch the ground with your toes, holding your back as much as possible, keeping your arms straight, your head

well up, your feet together, and your legs straight, as in Fig. 7.

Exercise XVI.

—Swing and straddle the legs over the bars at the end of the front or back swing, or both.

Exercise XVII.—Do a momentary front straddle of the legs at the end of the back or front swing, by swinging one leg forwards and the other backwards.

Exercise XVIII.—Swing with a momentary crossing of the legs.

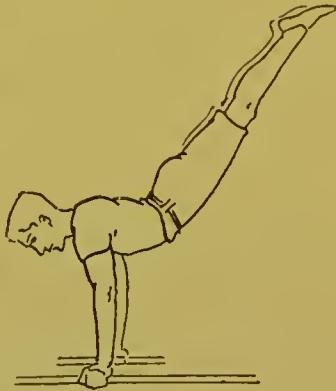


FIG. 7.

SWINGS AND VAULTS FROM THE MIDDLE OF THE BARS.

Exercise XIX.—Swing and vault over the right bar in front of the right hand ("Rear Vault," Fig. 8). *Note.*—Push well off the left hand in doing the vault.

Exercise XX.

—Rest on the outside side-seat, rear-vault over both bars, pressing well off the left hand, and swinging well from the hips.

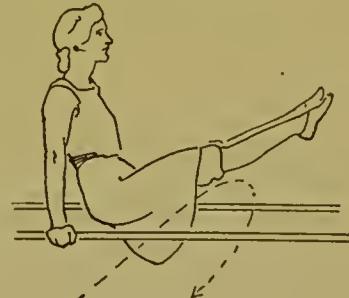


FIG. 8.

You can do the above vaults with a quarter inside turn towards the bar in alighting, also with a half turn. In all swings off the bars remember to keep the legs well together, and in alighting take care to bend the knees well outwards. You should make the turn just as your body and legs are above the bars.

SWINGS BACKWARDS OVER THE BAR.

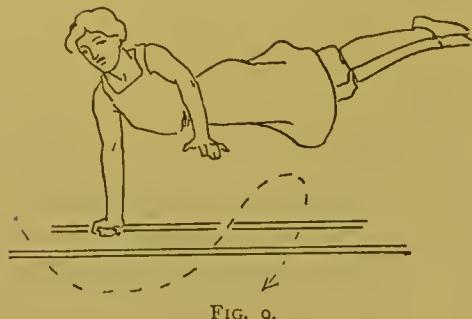


FIG. 9.

Exercise XXI.—Make these as in Fig. 9, with the right front vault without turning.

Exercise XXII.—Right flank vault (quarter left turn), Fig. 10. The main thing to remember is to keep the back as hollow as possible in descending.

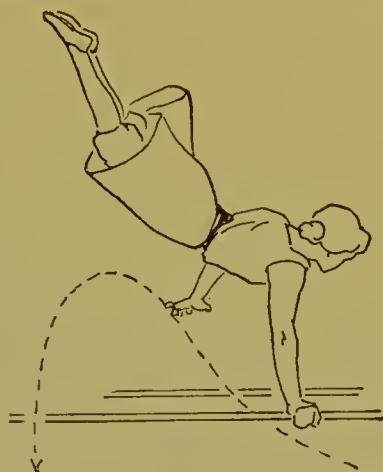


FIG. 10.

EXERCISES IN THE BENT-ARM-REST.

Exercise XXIII.—From the "rest" position lower to the bent-arm-rest, as shown in Fig. 11. Repeat the movement. Weakly pupils should receive assistance. We do not recommend this for women or girls.

Exercise XXIV.—Swing slightly in the "bent-arm-rest."

Exercise XXV.—Hop with slight bent-arm swing.



FIG. 11.

Pump Swings.

Exercise XXVI.—From the "rest" swing back; then, at the end of the swing, drop to the bent-arm rest.

Exercise XXVII.—Swing forward from the bent-arm-rest, and before the end of the forward swing straighten your arms again. Weakly pupils should not attempt this exercise, and beginners should first of all practise swings in the bent-arm-rest. Fig. 12 shows this exercise.



FIG. 12.

LEANING-REST EXERCISES.

Exercise XXVIII.—From the "cross-rest" in the middle of the bars, swing to the "front-leaning rest" (Fig. 13).

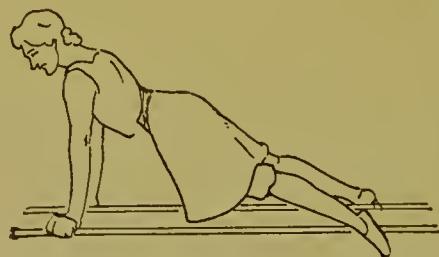


FIG. 13.

Turn your toes well out. Keep your back straight, but not too hollow.

Exercise XXIX.—Swing to the "back-leaning rest" with your legs in front of your arms. Weakly pupils should have

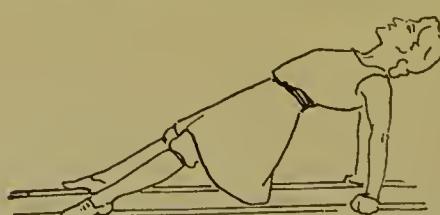


FIG. 14.

support for this exercise, and then, without assistance, gradually hollow their back to position shown in Fig. 13. You can make these exercises more difficult, in the front-leaning rest, by raising one arm forwards or sideways; and, in the back-leaning rest, by raising the leg forwards or sideways.

LEG-CIRCLES.

Many circles can be done on the bars. Some of the simpler kinds we propose now to describe; for more difficult and intricate combinations we must refer our readers to the well-known text-book on gymnastics by A. F. Jenkins (All-England Series).

From the cross-stand at the near end of the bars, forward leg-circle over the left bar at half lever.

(1) With the left leg. From the cross-stand, spring, separate the legs, carry the left leg forward outside the left bar, raising the left leg to let it pass; and at the same time carry the right leg forward between the bars. Let the legs meet in the half-lever, and remain there.

(2) With the right leg in front of the left leg. From the cross-stand mentioned, spring, carry the right leg in front of the left outside the left bar, raising the left hand to let it pass, and, at the same time, carry the left leg forward between the bars. When the right leg is clear of the bar, you will have the legs crossed with the right leg over the left. Uncross the legs, and remain in the half-lever.

(3) With the right leg behind the left leg. From the cross-stand, spring, carry the right leg behind the left leg, outside the left bar, raising the left hand to let it pass, and at the same time carry the left leg forward between the bars. When the right leg is clear of the bar, you should have the legs crossed, with the right leg

under the left; then uncross the legs, and remain at the half-lever.

(4) With both legs. From the cross-stand, spring, carry both legs outside the left bar, raising the left hand to let them pass, and remain in the half-lever.

ELBOW LEVERS.

From the outside-rest behind the right hand rise to the right elbow lever.

Come to the position named; then do a quarter left turn, slightly bending the

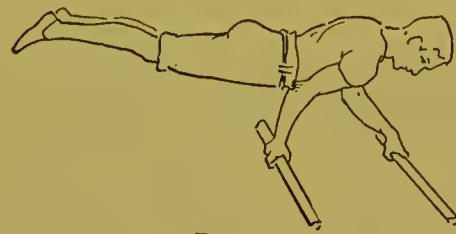


FIG. 15.

right elbow. The main thing is to bring it as far as you can to the left under the body; then lean slightly forward, and raise the feet until you reach a horizontal position with the back hollow (Fig. 15). You should keep your head well up, and your body and legs at right angles to the bars. If you let go with the left hand, and do the lever entirely with the right arm, it is called a "Free Right Elbow Lever."

You may pass from the right elbow lever to the left elbow lever.

From the free right elbow lever you may bring the left hand on to the right bar and shift the weight on to the left elbow, passing through a double elbow lever on to the right bar, and so reach the left elbow lever on the bar which was originally the right. You can thus do a complete turn round.

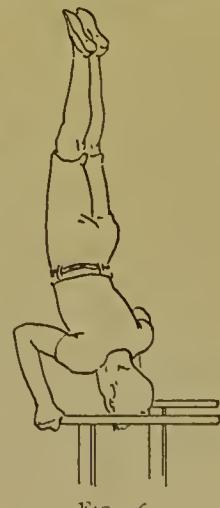


FIG. 16.

HAND-STANDS AND SHOULDER-STANDS.

From the riding-rest, with hands in front, lift to hand-stands with bent arms (Fig. 16) or double shoulder-stand (Fig. 17). There are several ways of

reaching this bent-arm-hand-stand, but the safest is undoubtedly to get a friend to prevent you from overbalancing forwards. If, however, you are without such help, it is best to bring the legs rather forward so that the thighs almost touch

the hands, at the same time bending at the waist and getting the whole weight upon the hands. Raise the hips, bend the arms, till the hips are nearly above the head. Then hollow the back and close the legs. Should you manage to overbalance forward, you should move elbows outwards, and come to the double shoulder-stand (Fig. 17).

From there, if you again overbalance, bend at the waist, and roll round on the upper arms.

From the riding-seat, with hands in front, lift to the shoulder-stand on the right bar.

In this exercise, when nearly in the bent-arm hand-stand, move a little to the right, getting on to the right shoulder in front of the right hand. Keep the head as in Fig. 18, looking straight backwards.

From the rest lift to the bent-arm-hand-stand—*i.e.* bend at the waist, raise the hips, and come to a

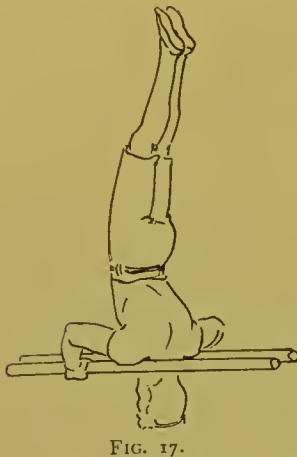


FIG. 17.

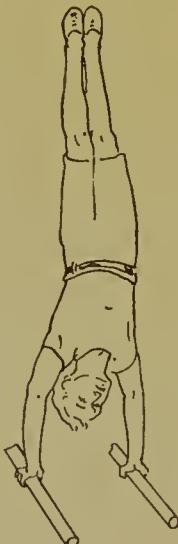


FIG. 18.

bent-arm-hand-stand. You can also do this lift to a shoulder-stand or double shoulder stand.

From the rest, with hollow back, lift to the bent-arm-hand-stand.

From the rest raise the body and legs to the bent-arm-hand-stand, keeping the back hollow all the way. In this lift you pass through a front lever in the rest.

STRAIGHT ARM HAND-STAND.

The dwarf parallels, as shown in a previous number, are a safe way for you to begin to practise this balance. You can then practise it from the ends of the bars, getting a friend to put his hand against your shoulder, to prevent the overbalance; or, if you are without such help, and you feel you are overbalancing, do a hand-spring or high vault right or left. Beginners will find it an easy way to get into the straight arm balance if they *nearly*, but not *quite*, straighten the arms as they swing up, and, having secured the balance, press up the remainder.

The following very good hints on the art of balancing are from a recent article by Mr. Vardon in the *Gymnasium Magazine*: “The novice at balancing is almost sure to do one of two things—viz. to spring up with his shoulders so far forward that his arms and chest almost make a right angle, or with his shoulders too far back, so that his arms and back make one curve. Both these positions are unsafe, and can only be held by straining. In a good balance the arms should be vertical, and the weight should simply rest on the hands. Try to relax as many muscles as possible, and rely upon the swing to carry you up to position, and then retain the balance by moving the shoulders slightly backward or forward. Bent legs are fatal to a good balance.”

CHAPTER XLII.

HOW TO BEGIN A CHANGE OF DIET.

Silly Servants are a Great Obstacle—Also Different Diets for Different Members of a Household—Tact is Needed—Suggestions—Our Diet is Equally Tasty—Success with Over 100 Meals out of 105—Cooks will take Pride in such Successes—A Soup that Deceives People—Bean Sandwiches—Explanation of the Merits—A Leading Food Expert's Opinion and Experience—Let the Cook try such Dishes Occasionally—Mistresses should Learn, and Teach Them—Need to Know what is Nourishing—Useful Foods to Keep Ready—A Dainty Meal—What if some Members of the Family Refuse?—Need to Raise the Status of the Cook—Cooking as an Art—Cooking not yet in Perspective—Objections to Flesh-foods—Concessions—The Cost—Effects of Acidity and Blood-pressure—Cravings—Inhumaneness—Occupations which we should Ourselves Shrink from—A Theory of Over-acidity—Cooked Flesh-foods with Starch—Condiments—The Range of the Fleshless Foods is Wide—Not Merely Vegetables—Lieutenant Flynn's Success after a Breakdown—His Practical Advice—What he has Gained by the Change—Inferior Doctors and Others as Obstacles—Need of Pluck at the Start.

DEAR MR. MILES.—The difficulty I meet everywhere is how to arrange, unless everyone in the house is of the same mind; as a rule, there are only one or two enlightened people. The servants are the great obstacle. They are most difficult to move. Can you suggest anything?"

This is the kind of letter which the Editor frequently receives from those who find that a diet like his suits them better than the mixed diet, but is not procurable everywhere; and he wishes to deal with the difficulty in this chapter. He will welcome all suggestions as to other ways of changing the diet, if those suggestions are sent to him at Cambridge.

The letter hits one of the nails on the head. To provide different diets for the different members of the same household is a nuisance and an expense; and the hardest people to move are the servants. Our poor are proud as well as ignorant, and among the poor our servants are perhaps the proudest.

A friend of ours, who is head of a large school, wished to introduce porridge at breakfast for his boys, but the boys

refused, saying that they would not take "workhouse slops." The master brought in a large cane and laid it ostentatiously in front of him, remarking that he wished all the porridge to be finished in ten minutes. The porridge was not only finished; it was enjoyed. The boys specially asked for it next morning. This plan is impossible with servants; we are not allowed to cane them, and they know it.

A more feasible plan was that of a lady of our acquaintance, who told her servants that under no conditions whatsoever were they to have porridge for breakfast; in the kitchen they were to continue the common foods which were good enough for the servants—eggs and bacon, and so on. Porridge, the dish on which the Scotch used to thrive, was a dish for upstairs and for gentlefolk; it was forbidden in the kitchen. The result was an entreaty—at first rejected—that porridge should be allowed in the kitchen at least once a week. The servants now have porridge in the kitchen every day, by their own special request, and they are much the better for it. We recommend

some such tactful policy to those mistresses who have not sensible servants. In other cases, let the people upstairs prove that they thrive better on the simpler foods, and let the servants know that many leading society people prefer these foods, and they will come to prefer them themselves—so long as the servants never suspect that the change is for motives of economy. That they will never forgive. We know two servants who gave notice because their mistress, owing to ill-health, did not herself take turkey and sausages, plum-pudding and mincepies, and sherry and champagne, for her Christmas dinner. She let the servants have such things; but the servants thought she must be economising because she did not take them herself.

The most cogent appeal, however, will be to the people in authority, especially the people in "society"; and we know that hundreds of them are to-day preferring the simpler diet. No one could suspect them of economising; they could afford a pound-meal every day. If they take a shilling-meal by preference, at length the poor people will be convinced. All well-to-do people of recognised position who set the example are doing a great work for the nation, if the simpler diet suits them; they are going far towards dealing with the temperance-problem.

That the upper classes—and, indeed, all classes—do like this *régime* (not necessarily for all their meals, but for some of their meals) we can prove by the fact that out of more than a hundred* four-or-five-course meals (generally at a cost of less than sixpence a head for materials), given to guests of both sexes and various classes, only five meals have not been praised; indeed, many of our guests have adopted the nourishing fleshless diet on the strength of that one

meal, and are thriving better on the new *régime*.

We know one case where an aged gentleman has lived on this diet for many months now without knowing that he has not been eating flesh; he cannot quite understand why his health has been improving. Here is one of the recipes to which he is devoted. It is the most expensive of all the soups that the Editor uses. He has some that cost less than 2d. for four people:—

LENTIL AND TOMATO SOUP.

(From "Some of my Recipes.")

$\frac{1}{2}$ LB. LENTILS, 1 ONION, 1 SMALL PIECE BURNT ONION, A FEW SPRAYS PARSLEY, 1 OZ. GRATED CHEESE, 1 LB. TOMATOES, 1 OZ. BUTTER, 1 GILL PLASMON STOCK, 1 TEASPOONFUL LEMON JUICE, SALT AND PEPPER TO TASTE. COST ABOUT 10D.

WASH AND SOAK THE LENTILS 12 HOURS IN 1 QUART OF WATER. ADD A SECOND QUART, AND BOIL THE LENTILS WITH THE ONION AND PIECE OF BURNT ONION (CROSSE & BLACKWELL'S), PARSLEY, CHEESE, AND TOMATOES. WHEN ALL IS QUITE SOFT, RUB IT THROUGH A SIEVE, LEAVING THE PULP. ADD THE PLASMON STOCK, AND BOIL UP AGAIN, STIRRING FOR A FEW MINUTES: IF THE RESULT IS TOO THICK, ADD A LITTLE MORE WATER. BEFORE SERVING, STIR IN THE BUTTER AND LEMON JUICE.

Now this soup, followed, let us say, by cold bean sandwiches, made according to the following recipe, would enable the middle classes of our vast cities and of our country to live at about a third, more or less, of their present expense for food, without falling below what is supposed to be the right standard of nourishment for an average person. Mr. Seeböhm Rowntree, in his book on "Poverty," has shown that many families, in spite of their expenditure on food, still fail to reach this standard, taking, for instance, perhaps twenty-five per cent. too little of protein, and devoting much of their money to clogging and stimulating stuff, which—so "Science" says—cannot by any possibility build the body.

* In August, 1904, the number reached 125.

POTTED BEANS FOR SANDWICHES.

½ PINT HARICOTS OR BUTTER-BEANS, 2 OZ. GRATED CHEESE, 2 OZ. BREADCRUMBS, 2 OZ. BUTTER, PEPPER, SALT, AND NUTMEG TO TASTE. COST ABOUT 5D.

BAKE THE BEANS, PUT IN A LAR OF WATER, IN A SLOW OVEN UNTIL THEY ARE SOFT. POUND THEM IN A MORTAR, ADDING GRADUALLY THE GRATED CHEESE, BREADCRUMBS, BUTTER, AND PEPPER AND SALT AND NUTMEG IF REQUIRED. THEN PUT THE MATERIAL INTO POTS, AND RUN A LITTLE MELTED BUTTER OVER THEM. USE FOR SANDWICHES, WITH LIGHTLY BUTTERED WHOLEMEAL OR OTHER GOOD BREAD.

Now we wish this chapter to be thoroughly practical ; not in any way an advertisement for anything, except for the possibility of great variety, pleasant tastes, nourishment, digestibility, and so on, at a very small expense, and without those disadvantages which the flesh-foods often bring with them. We shall, therefore, explain why some of the recipes seem to us likely to agree with many.

(It must be understood that the Editor does not guarantee good results. He merely cites what he himself finds satisfactory in view of hard work with body, or brain, or both.)

Let the reader once for all sweep away any previous notions of "vegetarian" foods. We have questioned hundreds of people recently, and have asked them their candid opinion of "vegetarian" meals, and they have said, "Very little taste, apart from condiments ; a feeling of over-repletion at the time, a feeling of emptiness an hour or so afterwards." Not a few of them add that a continued experiment has led to a breakdown.

Now we believe that our recipes are not tasteless ; certainly they are not pappy and sloppy, so they do not encourage too fast eating ; theoretically, also, they have been pronounced, by one of our highest English authorities on food-values, to be scientific. Not only that, but he tried a meal himself, and lectured well on the top of it. He found that it was guilty of none of the worst

faults of the typical "vegetarian" meal.

Any cook can be induced to try just one meal of this type, and, if this meal brings her the praise of the guests, who pronounce it delicious and satisfying, and think the cook a clever cook to be able to do so well at such a small cost and with such apparently common materials, then we guarantee that the cook will get a pride in her work ; that she will try other recipes, some original ; that she will welcome the outlet for her ingenuity, an outlet not satisfied by the perpetual joint, potatoes, greens, and stodgy puddings and pastries. She seldom has such praise for her ordinary meals, has she ? Whatever she is praised for, that she will enjoy doing. We cannot agree in the wholesale condemnation of cooks. We believe that they are unsatisfactory chiefly because they have not yet had the proper scope for their talent or genius.

Whether it would be advisable or not to give them a share in the savings we cannot tell ; that must be left to the tact of the mistress, though a system of profit-sharing in domestic life might pay as well as a system of profit-sharing in large businesses.

But one thing is certain : the mistresses must tell their cooks when this or that dish has been a great success. People are too thoughtless ; they little know how it pleases and incites to further effort.

The danger on the face of this advice is that the cook should starve the household. To obviate this there should be a chart of food-values in the kitchen. The cook knows that flesh-foods, especially beef and mutton, are nourishing ; beyond that she scarcely knows anything at all. To her, food is valuable according to its bulk. To her, starch is "nourishment" ; so is sugar ; so is proteid, though she

does not know it is proteid. She does not know that all the starch in the world, according to "Science," and all the sugar in the world, and all the cellulose in the world, can never build one single atom of the body, nor repair one single atom of its waste. She must know what to give people in place of the flesh-foods which used to form the cells of the body and repair its waste.

And a few cookery hints, such as we have offered in a special volume, must be before the cook always too. For this is not like the old way of cookery; it is a new way, unfamiliar.

She must have a good stock of useful foods: for instance, she must have peas, beans, and lentils, ready soaked; she must have good kinds of flour, shredded wheat, Plasmon, and a dozen other valuable ingredients, without which the diet is likely to be classed as "vegetarian."

And then there are the useful flavourings. At the beginning, so degraded are people's palates, we must not despise a little taste of such sauces as A1, O.K., and Trek Fruit Sauce. These are our three favourite, together with Tomato Ketchup. The only soup-flavouring which we use is the one which we have mentioned in the recipe. We find these, and a little curry powder, amply sufficient for all ordinary purposes. We have several hundred recipes which do not go beyond these flavourings, and all these recipes are found by most people to be delicious. Later on, people should find themselves gradually dispensing with so much flavouring, and preferring plainer foods.

Now imagine the cook at her task, with the mistress looking on and helping for the first few days. The first course is a savoury sandwich, quite light and thin. This is how it is prepared. An expert, who had managed one of the best restaurants in London and prepared the

menus day after day, told us that it was as good as any savoury that he had ever tried. The Editor has fifteen other kinds. Some people prefer one kind, some another. Each cook should alter hers according to the results in her own case. This one has already appeared in "Some of My Recipes":—

SAVOURY SANDWICHES.

4 OZ. BUTTER BEANS, 4 OZ. LENTILS, 1 ONION (SMALL),
A DASH OF A1 OR O.K. SAUCE, A LITTLE CHUTNEY,
1 DESSERTSPOONFUL CURRY POWDER (HALFORD'S).
PEPPER AND SALT TO TASTE. COST ABOUT 2½D.

SOAK THE LENTILS FOR SIX AND THE BEANS FOR TWELVE HOURS.

BOIL THE BEANS AND LENTILS IN SEPARATE PANS UNTIL TENDER. PUT THE ONION TO BOIL WITH THE BEANS. WHEN TENDER, LET THEM COOL, THEN TAKE AND MASH THEM, OR PUT THE BEANS THROUGH A NUT-MILL. CHOP THE ONION VERY FINE. MIX ALL WELL TOGETHER, ADDING THE SAUCE, CHUTNEY, CURRY-POWDER, AND PEPPER AND SALT IF REQUIRED. PUT INTO POTS, AND RUN A LITTLE CLARIFIED BUTTER OVER THEM.

THE ABOVE MIXTURE MAKES EXCELLENT SANDWICHES, WITH BUTTERED SLICES OF WHOLEMEAL, MANHUR, HOVIS, OR BERMALINE BREAD.

Next comes the soup to which we alluded just now, or the following one, which is far cheaper.

VEGETABLE SOUP.

N.B.—The vegetables from the soup, when cold, make a nice salad with a dressing of butter and seasoning.

2 MEDIUM-SIZED TURNIPS, 2 SMALL CARROTS, 2 MEDIUM-SIZED ONIONS (OR $\frac{1}{2}$ A LEEK), 2 OZ. LENTILS, 2 OZ. BUTTER OR HARICOT BEANS, 1 TEASPOONFUL MARMITE, 3 QUARTS WATER, PEPPER AND SALT TO TASTE. COST ABOUT 3D.

ALL THE FRESH OUTSIDE LEAVES OF BRUSSELS SPROUTS, CABBAGE, CELERY TOPS, MAY BE ADDED AFTER BEING WELL WASHED. DO NOT THROW THEM AWAY.

PARE AND WASH THE TURNIPS, PEEL THE ONIONS, SCRAPE THE CARROTS, AND PUT ALL INTO A PAN WITH 3 QUARTS OF BOILING WATER. THEN ADD THE BEANS AND LENTILS ALONG WITH THE OUTSIDE LEAVES OF OTHER VEGETABLES. BOIL GENTLY FOR 3 HOURS. THEN PASS THROUGH A COLANDER; PUT THE LIQUID BACK INTO THE PAN. ADD THE MARMITE (PREVIOUSLY DISSOLVED IN A LITTLE OF THE BOILING LIQUID), AND BRING AGAIN TO THE BOIL. SPRINKLE IN PEPPER AND SALT IF REQUIRED. A LITTLE BUTTER MAY BE ADDED AT THIS POINT. A PIECE ABOUT THE SIZE OF A WALNUT. BUT THE SOUP MUST NOT BOIL AFTER THE BUTTER HAS BEEN ADDED. SERVE IN A HOT TUREEN, WITH CROUTONS SEPARATE.

Next should follow perhaps some such sweet as the Plasmon Blancmange, which we cited in a previous chapter. It is more wholesome without sugar, sufficient sweetness being given by the prunes or raisins.

If the hunger is not yet satisfied, there could come a nice salad made according to the recipe in "Some of My Recipes," with a little cheese grated over it.

There is difficulty in a family, unless all the members of the family agree; but the difficulty is not insuperable. Let the cook make a special study of dishes which are nice when they are served cold, or which can be heated in a few minutes. It will be very little trouble for her to provide these for the people who prefer the simpler foods; thus the second and third recipes may be satisfactory. This is not cheap, but most people find it sustaining and digestible, and a gentle remedy against constipation:—

PRUNE MOULD WITH MILLED NUTS. *(From the before-mentioned book.)*

1 GILL PLASMON STOCK, $\frac{1}{2}$ LB. PRUNES, $\frac{1}{2}$ PACKET SWINBURNE'S ISINGLASS OR SOME AGAR AGAR, $\frac{1}{2}$ TEASPOONFUL ESSENCE OF LEMON. COST ABOUT 7D.

SOAK THE PRUNES 12 HOURS BEFORE COOKING THEM IN COLD WATER. SOAK THE ISINGLASS IN A WINE-GLASS OF COLD WATER FOR 12 HOURS. COOK THE PRUNES, AND RUB THEM THROUGH A FINE SIEVE, PASS THE PLASMON STOCK THROUGH THE SAME SIEVE. PUT THE PRUNES AND PLASMON MIXTURE ON THE STOVE TO MELT IT, THEN LET IT BECOME ALMOST COLD, BUT NOT SET. ADD THE LEMON ESSENCE AND ISINGLASS, STIRRING GENTLY; PUT THE MATERIAL INTO A WET MOULD AND STAND IN A COOL PLACE. AFTERWARDS TURN OUT INTO A DISH, AND GARNISH WITH MILLED WALNUTS AND, IF YOU LIKE THEM, ALMONDS.

But we come now to the most practical point of all. A person must learn not merely to eat the things which the cook provides, and give the cook a book of recipes, but to cook these things for himself or herself. A later chapter will offer a brief lesson in simple cookery. Here

we can only insist that cookery is one of the finest educations for the senses, and especially for the sense of discrimination; and that the person who can cook sufficiently well has gone far to free himself or herself from the tyranny



FIG. I.—IT IS RECKLESS WASTE TO POUR DOWN THE SINK THE VALUABLE JUICES OF MOST VEGETABLES. IT IS BETTER TO USE LESS WATER, OR A DOUBLE PAN COOKER.

of servants. There is nothing to be ashamed of; there is everything to be proud of.

We should like very much to raise the status of the cook to-day. Among the Hindus of the best kind, so far from there being any contempt for the cook, the cook is almost the priest; indeed, you are not allowed to touch the cooking materials. The French housewife in the country-districts is also an expert, and proud of her skill. Among us the ordinary cook—we do not speak of the hotel *chef* with five hundred a year, or the steamer *chef*—is treated too much as a drudge. Cookery is really a fine art. The cook should be an artist.

For is not cooking an art? As training the senses; as helping others; as

attracting others ; as improving our relation with servants ; as part of the grand art of economy ; as part of the still grander art of independence ; as including a knowledge of food-values and food-combinations ; as developing discrimination and tact ; as involving a knowledge of digestion (for example, a knowledge of Pawlow's experiments) ; as almost demanding a knowledge of the process of excretion ; as giving splendid chances for originality and for money-making ; indeed, as a part of political economy inferior to none ; as a help to the poor ; as a help to health ; as a hobby—what art is it really fair to consider as far above cooking ?

In fact (we repeat what we said in an earlier chapter), we are a nation of snobs. The person who develops the all-round health of thousands of people—the teacher, that is to say, of physical education—is despised in society. He is doing as good work for the nation and posterity as anyone. It is time we got rid of these false estimates. We ought to judge persons and things by their all-round values, not by whether they have inherited a large sum of money from their parents and grandparents.

Already we have touched on a few of the disadvantages of the orthodox or mixed diet ; but it may be convenient to recall to the reader some of the objections which can be fairly brought against flesh-foods and flesh-extracts. We do not pretend that they are not nourishing, that they are not digestible, that they are not quickly and easily digestible ; we do not pretend that they are so very much more expensive than certain simpler dietaries ; we do not pretend—it would be unfair and ridiculous to do so—that those who live on them are ill or cruel or something else that they

should not be. Indeed, if those who live on flesh-foods are thoroughly satisfied with themselves after weighing the evidence on both sides of the question, we refuse to advise them to change their diet ; we are only writing for those who feel inclined to make a change of diet, because they believe that they are not getting the greatest amount of work and enjoyment out of themselves and life.

In our concluding remarks we shall be very brief and concise.

The first objection is the cost. Much of the flesh-foods is wasted because of the quickness with which they perish. A great deal of what we pay for them we pay for the water and bone ; since 70 per cent. of bought beef is usually water and bone. Besides this, the cost to the nation is enormous, since the land which is needed to feed cattle for food would be sufficient to provide far more proteid and general nourishment in the shape of plants, if only we knew what to grow in any given locality. In so far as the flesh-foods tend to unwholesome cravings, such as the craving for alcohol, perhaps partly due to over-acidity and blood-pressure, the expense (to the nation and individuals) of drink and the maintenance of criminals and paupers is gigantic.

Besides the perishability of the foods we must remember the impurity of many of them. The Jews reject a vast deal of the meat which Christians accept. The impurity may be due to too long keeping, or to diseases with which the animals were infected. It is not so much the germs which are poisonous, as the excretions of the germs. These excretions may remain in the food even when it has been cooked.

But, quite apart from such condemnations, flesh-food is bound to be over-

acid for many people, if only because the animal, as we have pointed out already, has lived and moved and broken down its cells by living and moving, and has created acid in the form of waste-products (such as uric acid) within itself. This acid (or the kindred purins) we eat and add to our own waste-products when we eat flesh-foods or take flesh-extracts.

Another kind of acid may arise from the distress and fear of the poor animals during the last days or hours of their life.

For, if human beings poison their blood by unfavourable emotions (and it is proved chemically that they do), animals almost certainly do the same. The inhumaneness to animals is not so much in the killing of them at a well-regulated abattoir, as in their transportation and conveyance generally, in crowded ships during stormy weather, and along dusty roads without sufficient food or drink, and with cruel drivers to hurry them along.

The slaughtering in inadequately-inspected private places is far from skilful ; and, indeed, the killing of most animals is so objectionable that we should not like to do it for ourselves. Can you personally wring the neck of a chicken ? We confess that we believe we should be *unable* to do so.

Indeed, the occupations of drover, butcher, and kitchen-servant are not such as we should ourselves care to fulfil. We should not mind most occupations, if we were forced to them through want of money ; we should strongly object to these occupations—we should object to have to prepare flesh-foods for the table.

With regard to the effects of flesh-foods on the body, and especially to the effects of their acid waste-products, what

we can testify from personal experience and from the evidence offered in many letters is that when they are given up *and good nourishment taken in their place*, the craving for drink almost invariably disappears. The theory is worth citing. It is probable that, in many cases, these acids increase the acidity and blood-pressure and upset the body's equilibrium. The person feels uncomfortable, and hastens to restore comfort somehow or other. If the means chosen be healthy exercise, little or no harm is done ; if the means chosen be healthy work, the same holds good ; but, if the means chosen be one of the many undesirable kinds, then the taking of flesh-foods is a mistake.

In our own case, as we have said, when we have eaten them by mistake and without knowing what they were, in recent years, we have had a return of the want of alcohol, and local cramp in the muscles which we had been using most, and general heaviness and sleepiness.

Now this may not apply perhaps to the use of flesh-foods *per se*, with abundant water, as in the Salisbury treatment. Here also we must remember that the foods are not over-cooked—that is to say, the proteid is not coagulated, and so is more thoroughly digested. We are speaking now of the ordinary or mixed diet, which to the flesh-foods adds superabundance of starchy and probably sugary foods, as well as superabundance of condiments. Think for a moment of those two irritants—if we do not reckon salt as an irritant—pepper and mustard. You have before you your plate of beef, potato, and cabbage. On the side of your plate is salt and mustard ; over the vegetables is pepper. Is it not rather a confession of weakness that you do not care to eat your meat without mustard ?

You will reply, perhaps, that it is a weakness, and against "vegetarianism," that you do not care to eat your vegetables without pepper. Please, good reader, give up that word "vegetarianism" for once and all in reference to our diet. It is not a diet of vegetables; certainly it is not a diet of vegetables cooked as our English cooks are wont to cook them, serving them up tasteless, sloppy, and devoid of their precious alkaline salts. We are not comparing the ordinary diet with "vegetarianism"; we are not recommending "vegetarianism" at all, as the term is *popularly* understood. We are contrasting flesh-foods and the foods which usually are taken with them, with our own favourite diet, which attends first to taste and nourishment and consistency and also excretion—a most neglected matter—and finds that it can secure these requisites without overheating and over-stimulating,* and without much expense, from the fleshless foods, properly chosen and properly prepared; not from vegetables alone, nor from vegetables, salads, and fruits alone; but from these things, together with nuts, cereals, milk-proteids, and eggs, if they agree with the individual.

So much for the Editor's hints. Lieutenant Flynn contributes others which are summarised here. His is an interesting case, since he has met with un-

* At first people may want some extra flavourings that are irritating. But our experience is that soon the instinct prefers foods without them.

expected success after an early failure, in which his mistake probably was that he took too little bulk. It is not everyone who is suited by so much bulk. Perhaps in his case a reason is the constant physical work. He is always on the move.

"In the first place," he says, "know yourself. Carefully weigh up the various ingredients of your constitution, disposition, nature, and general habits so that you can start right away under the most favourable conditions.

"For example, can you stand chaff? Can you put up with being told by an unhealthy-looking doctor that he will give you three months to live, or being told by your wife 'How old you look!' or being asked by some well-groomed whiskey-and-soda-syphon, 'How long are you going to stick to it?' and so on *ad nauseam*? Well, if you are of the weak-kneed, no-mind-of-your-own type, we certainly advise you to give your-



FIG. 2.—THE DUSTBIN USUALLY CONTAINS
VEGETABLE-STUFF THAT MIGHT HAVE
BEEN USED WITH ADVANTAGE.

self a chance. Wait for your holidays, where kind friends will not be quite so much in evidence. Then have a cut-in at the game, without what may be serious drawbacks to you.

"Personally," Mr. Flynn says, "I am not averse to a little opposition; it has a good tonic effect. And that reminds me of another boxing metaphor. Let me have a good lead off, not at the whole medical profession, but at that part of it which may be denoted by 'Dr. Pleasefools.' For absolutely unfair hits below the belt, he is an easy winner. He will

not argue fairly. Even when a man gives him the best test of all, successful practical experience, Dr. Pleasefools tries to make out that his improved health is due to other causes. The worthy doctor entirely refuses to give the diet a trial. Why? Because King Custom reigns supreme, and who has ever heard of a fashionable doctor being unconventional? It is impossible. So he goes on with the same old gag, persistently ordering plenty of open air treatment, while he as persistently does his rounds in his hermetically sealed brougham.

"And now, having said a word to the wrong kind of doctor, let me say a word to the wrong kind of school-master and clergyman—also great hindrances to reform.

"What horrible waste goes on, say at Eton, on the Fourth of July! How many mouths might be fed, how many poor boys given an open-air holiday, with money spent in this reckless and rotten way. Then there are the clergymen. There are exceptions, all praise to them; but how few realise that it is impossible for many men or women to live up to the ideal set by these clergy while they have the ordinary stimulating foods.

"My own experience may help some readers to give the change of diet a fair trial. For about six months I began things gradually, and had little if any discomfort. Then I suddenly cracked, and went back to meat once a day. This I continued for some months, but feeling that, probably through some mistake, I had not given the no-meat diet a fair chance, I tried again, and this time had my food-stuffs made firmer. Cheese in various forms and Plasmon are the mainstay in my diet. I knocked off tea-drinking from four times a day down to once. This time I evidently hit the right

nail on the head, since for nearly a year now I have been going strong on the no-meat diet. I occasionally eat a little poultry or fish, but I live mainly on lentils, beans, Plasmon, Provost Oats, and Telma. Plenty of protein—that's indispensable. Potatoes are to me a useless article of food, therefore I do not use them. Salads and green foods of all kinds I have daily. They must be cleansing. Much fruit does not suit me. Wines and beers I never touch; they don't suit me. Whiskey I sometimes take, but I honestly can say I care very little whether I have it or not. I was never really a smoker, but what little taste I had that way has now left me. I am very fond of a drink called 'Brunak.' I don't know or care what it is made of.

"Finally, if I thought a return to meat would be better for me, I would return to-morrow. But it is more than probable that before long I shall go the whole hog on a purin-free diet, and give up the lentils and beans. For I am absolutely convinced that purin or uric acid, or whatever one calls it, is the cause of half the complaints of men and women when they begin to approach that time of life which is called euphemistically the 'present day.'

"I will sum up as briefly as possible: less fatigue, less stiffness, less unpleasant effect from climatic change, less anxiety and irritability, less desire for strong drinks, no desire for smoke, no constipation, more activity and suppleness—especially in fencing—better wind, better brain-power, better self-control.

"Habits are soon formed. There may be a bit of a struggle to begin with, but once form the habit and the instinct, and the way is smooth. It is a matter of a certain amount of manliness and pluck at the start."

CHAPTER XLIII.

THREE "MODEL" COURSES ESTIMATED.

The photographs are taken by an expert in physical education from actual classes doing, or trying to do, the exercises. The Editor wishes here to thank him for his kind help.

Children's Air, Exercise, and Recreation a National Matter—Results when They have been Attended to—Enormous Numbers now Drilled—Sketch of the Three Courses—The Infantry Drill a Failure for Children—Experts not Consulted—The Middle Course Good at the Time—Works Well Now—Safe and Cheap—But Chesterton's Insistence on Play is Neglected—The Disappointing New Syllabus—A Collection of Isolated Pieces—Not Workable except in the Hands of Trained Expert Teachers—Singularly Incomplete—Not Up to Date—Not Human—The Three Courses in Detail—Some Good Effects of the Army Course, especially for the Already-developed Young Man—Crushes Free Self-activity—Omits Vital Practices—Repose—Independent Control—Litheness—Promptitude in Adaptation—Advantages of the Middle Course—Faults—Excusable in the State of Knowledge Then—The New Syllabus—Unpardonable Ignorance—Presupposes Wonderfully Skilled Specialists in Physical Education—Current Literature not Read—Experts not Consulted—No Free Self-activity—What the Editor Would Like to have Learnt when a Boy—Knowledge of Food-values—Intervals Between Exercises as Opportunity for a Little Teaching—Leisurely Eating—Reasons Must be Given—Leisurely and Thorough Breathing—Reasons Again—Relaxing and Repose—An Exercise—Extensions to be Held—Hints about Water—Must be Taught at School because not Taught in the Home or Church—Comparisons—Self-massage—Humour and Laughter—Nose-blowing—Mental Control—Extent of the Physical—Details—Practices that are Good in the Middle Course—Athletic Exercises—Organised Games are Essential—"Playing the Game"—Teachers Must be Trained—Suggestion of an All-round and Representative Committee—A New Course Might be Devised—Desirable Features.

"LET the children first be fed" is a commandment which the nation is at length beginning to obey. More care is given to the diet of infants and little boys and girls than ever before. But feeding is not the whole of the child's life. We might add, "Let the children first be aired, exercised, and recreated." Air, exercise, recreation, all are food for both mind and body.

As the result of better attention to these three or four points, we find, as in the illustrations, hooligans turning into heroes. The little children, the despair of the nation in the past, because they seemed bound to become drunkards and criminals, are the hope of the nation in the future, the best servants of the State, the English people of whom we are proud to be the fellow-countrymen.

The importance of the question of physical training—we mean all-round training and not mere drill—for our boys and girls, will be better realised by the apathetic and snobbish public through a glance at the numbers of boys and girls who are now being taught what we may call the Middle Course—the one devised by Mr. T. Chesterton.

There are about ten thousand certificated teachers of this Course. There are about 150,000 boys under Government learning it in London, many more thousands of boys in the provinces and in other non-Government schools; and some of the Course, mixed with "Swedish" exercises, is the drill of perhaps an equal number of girls. That gives some sort of notion of the importance of considering which, if any, is the best of the

three "model" Courses. These, for convenience' sake, we may call the Military, the Middle, and the Muddle.

We need not enter into details of the history of the changes. The need of physical education was felt, and a laudable attempt was made to provide some Course for children. The first Course was simply the Infantry Red-book, planked down upon the helpless children by Army fanatics. Government itself, as usual,

which at the time was decidedly good. We have already given illustrations of this Course in previous chapters; we here add a few more.

Chesterton's book, which is published by Gale and Polden, gives a definite Course and an easy Course, bringing a large number of important muscles into play, and encouraging a far better position of the body than is usual among children and adults. It seemed well adapted to



FIG. I.—CHEST-EXPANDING WITH DUMB-BELLS.

First Model Course.

"WITHOUT LOWERING THE ARMS (WHICH WERE PREVIOUSLY RAISED FORWARD TO LEVEL OF SHOULDERS), BACKS OF THE HANDS OUTWARDS, FORCE THEM SMARTLY BACKWARDS AS FAR AS POSSIBLE." A MOST VIOLENT EXERCISE FOR CHILDREN, STRAINING THE PECTORALS SEVERELY. THIS WOULD NOT HAVE BEEN THE CASE IF THE BACKS OF THE HANDS HAD BEEN TURNED UPWARDS.

knew nothing; it left all to those who were put or put themselves most prominently forward. The expert-teachers of other systems were sadly ignored. These experts were all willing to tell any questioner all that they knew about the training of the children; but they were not asked.

The Army Course must be called a miserable failure for children. We shall say more about it directly, but anyhow it was violently abused by a number of well-known people and was abandoned.

Then came Mr. T. Chesterton's Course,

many needs and many children. It was a comparatively safe Course to apply indiscriminately to groups and masses. Its apparatus was simple and cheap and feasible, yet, together with the music, helped to make the drill not nearly so dull as otherwise it might have been. Besides, there are the above-mentioned trained teachers of this Course; and, above all, there have been excellent physical and mental and moral results.

In speaking of Mr. Chesterton's work we must never forget that, side by side with his work on drill, he wrote a

work on play. Throughout his life he, with many others, including Mr. A. P. Graves, Inspector of Schools, have insisted that the recreation of children was every whit as important as the drill. To such men, all praise. But the part of the work of Mr. Chesterton which has been adopted among these thousands of teachers and learners is the drill, not the play.

For some unaccountable reason a third Syllabus was devised. It came suddenly before our notice in April and May, 1904. We were led to expect that recent discoveries about physical education would be included. We were terribly disappointed.

This third model—or muddle—Syllabus splits up the definite and workable Course by Mr. Chesterton into little isolated pieces, arranged, it is true, with strict regard to a narrow “science,” but on the whole theoretical rather than feasible. As an example, it discourages the use of music. There is much theoretical soundness in the discouragement of music, especially of carelessly chosen music; but, so long as music helps the exercise, music is good. There is a great deal of valuable advice also in the blue-book Syllabus; but a large proportion of it is not feasible. It is not human. It seems

to have been concocted on the Continental plan, according to which you can treat teacher and learners as if they were lumps of putty, and mould them to your will, or rather as if they were buttons, turned out by thousands from a machine. That is not the way which the British public requires. It requires something definite (how often we have found this to be the case in respect of diet-instruction!); and yet it requires a scope for originality. In the third model Syllabus there is not really a definite Course at all. There are units which the teacher is supposed to arrange in appropriate groups. Now the teacher, with all his other work, is not likely to have the expert knowledge needed for this; nor is he ever likely to have it; nor, indeed, should we be altogether right to demand that



FIG. 2.—PRESSING FROM THE GROUND.

First Model Course.

THIS IS A FINE EXERCISE FOR SUITABLY-DRESSED CHILDREN IN A GYMNASIUM. FOR BOYS OR GIRLS IN ORDINARY CLOTHING, ON A DUSTY SCHOOLROOM FLOOR OR AN ASPHALTED OR GRAVEL PLAYGROUND, IT BECOMES RIDICULOUS, ESPECIALLY AS THE CLOTHING MUST TOUCH THE GROUND, AND THE INHALING TAKES PLACE JUST WHEN THERE IS MOST DUST AND DIRT. BESIDES, THE EXERCISE IS TOO VIOLENT FOR AVERAGE SCHOOLCHILDREN, UNPRACTISED IN TRUNK AND OTHER MOVEMENTS.

he shall have it. If children are to be dealt with in huge squads; if the teachers are not yet to be paid reasonably for all extra physical work; then the best we can do is to give them some such Course as Mr. Chesterton's as a safe makeshift. Only, as we shall see, a very great deal must be added to that Course, and a great deal may be taken away without much loss.

Coming to consider the three ways in detail, let us take the Infantry Red-



FIG. 3.—CHEST-EXPANDING WITH WANDS.

First Model Course.

"HOLD THE WAND FIRMLY WITH BOTH HANDS IN FRONT OF THE THIGHS, ARMS STRAIGHT. KEEPING THE ARMS STRAIGHT, SLOWLY RAISE THE STAFF ABOVE THE HEAD, AND CONTINUE THE MOTION OVER THE HEAD WITHOUT ANY PAUSE UNTIL THE STAFF RESTS IN THE SMALL OF THE BACK." COMPLY WITH THE INSTRUCTIONS VERY STRICTLY. WITHOUT UNCLASPING THE GRASP, AND KEEPING THE ARMS QUITE STRAIGHT, CAN YOU DO IT YOURSELF? COULD A WEAK AND UNDEVELOPED CHILD DO IT?

book or first model Course first. We must consider it from several points of view, asking ourselves especially, What will help the average army young man? What will help the average child? What motives will appeal to these two classes? What effects will the exercises have upon these two classes?

Answering this nearest question, we say that the chief moral effect of the Infantry Course is regular obedience to comparatively dull orders; to orders dull and, not infrequently, unscientific obedience implicit and unquestioning. Now in spite of familiar quotations, such as "the use of soldiership, self-abnegation, freedom from all fear, loyalty to the life's end," we doubt once for all whether that soldier-drill is good training for a child. The whole trend of modern educational theory and practice in all the most enlightened countries is against such a drill, which does not train the will, but bends and perhaps breaks the will for life, which is now life

no longer, but a mere dull grey monotonous round.

In speaking of the Army Course—or rather we should say the Infantry Course, for the Cavalry Course is improving, and indeed, was better long ago—we cannot well avoid turning once more to the problem, Shall we develop the intelligence or the sheer will? The Infantry Course seems dead against any use of intelligence; it compels absolute and unreasoning slavery. Now slavery to a very high, and at the same time a very sensible ideal, may be good. Slavery to an unscientific system is degrading. The teacher of that system cannot justify the exercises. He must not be asked questions, for, because he would be unable to answer them, he would immediately lose some prestige.

Now the Infantry Course has merits. It will help to set up a young man, give him a certain stiff strength and hardy endurance and pluck, if he is already fairly developed. It will do this in a short time, and practically without any intelligence, and even without any enthusiasm, on the part of the teacher.



FIG. 4.—WAND EXERCISE WITH KNEE-BENDING AND STRETCHING.

First Model Course.

THE STAFF IS TO BE RAISED FORWARD, AS IN THE ILLUSTRATION, AND KEPT IN THAT POSITION WHILE THE KNEES ARE BENT AND STRETCHED. THIS IS REALLY NOT A STAFF-EXERCISE. IT IS AN EXERCISE THAT KEEPS THE CHEST IN A CONSTRAINED POSITION THROUGHOUT, FOR THE INSTRUCTIONS SAY "THE MOVEMENTS OF RAISING THE HEELS, BENDING AND STRETCHING THE KNEES, AND RESUMING THE STARTING POSITION, SHOULD NOT BE LESS THAN TEN SECONDS IN DURATION."

In the hands of an intelligent teacher the Course may produce better results—so, indeed, will almost any Course.

Then there is the motive. The military spirit does appeal to young men, and the imitation of a soldier is a favourite child's game.

Physically, the Infantry Course exercises many large muscles, and thus helps the breathing, digestion, excretion, and so on. It exercises both sides. It gives some strength. It gives a better attitude. It gives more self-respect.

So much for its main advantages, especially when it is applied to already developed young men.

But for children the ideal exercise consists mainly of short, sharp spells of light and interesting work. The most enthusiastic admirers of the Infantry Course could not say that it was of this nature.

Its system of breathing is inadequate ; the principles of thorough breathing have not been realised in the very least.

The principle of relaxing, and the vital art of physical economy, have been ignored altogether. A whole troop of children may be frowning and gripping their hands needlessly, but there will be no call to order. This is not considered a fault at all by the devisers of this wicked system.

Nor are the two sides used independently, one side moving while the other calmly rests. The two sides are generally moved together in parallel directions. The army man is not quick to use his two sides promptly and independently. What quickness he gets, he gets not through his drill, but in spite of it, and rather through his boxing and games.

Firm centres are good, but they should not be stiff centres. The ideal should be litheness and quickness and adaptability of the muscles. The typical British infantry Tommy has not that sort of torso :

his—as distinct from the British sailor's—is a solid fibrous torso. Look at his chest. It is not flexible, even if it is large. And we must remember that his life as a soldier is supposed to aim at fitness. On this his time is spent. He devotes many hours to the pursuit. He does not come out of the process lithe and enduring, like the Japanese.

Nor does the Infantry Course train free extremities. Delsarte's "firm centres and free extremities" we may emend to "firm and lithe centres, free and strong extremities." The average infantryman too often has stiff extremities.

This is partly because there is in his drill so much rhythm, so much repetition of expected and, we may add, monotonous movements. There is too little training in fresh combinations, sudden co-ordinations ; there is too little exercise in prompt and rapid adaptation. There is far too much strain-work.

Consider a typical exercise belonging to the infantry drill. Take the ordinary sloucher in the street, with little self-respect, and this kind of drill will give him a better position of the body, larger muscles, and with them more self-respect ; but, once again, it will develop the two sides of the body together, not to prompt independent use. It will not develop free extremities. It will be too regularly rhythmical, and for solitary practice it would be very uninteresting to the majority. The illustrations give examples of special exercises undesirable for poor children.

No wonder, then, that in place of this system, whose main aim is strength, a system least harmful to already developed young men, a system most utterly inappropriate to ill-fed children, there was adopted a safer and sounder Course, now in use among all these children whose numbers we have cited.

In addition to the advantages of this middle Course, as above mentioned, we must note that it is in full swing at the time of writing; that its results are good on the whole; that it is a great step in the right direction; and that the author of the system repeatedly insists on the necessity for organised games side by side with the drill.

But the middle Course is only a step.

Then there is not nearly enough independent control of one side while the other rests. True, the two sides are not always used in parallel directions, and here is an advance on the Army Course; but they are generally used at once. What we advocate so strongly is that in the early stages of practice the children should learn to move each while the other rests.



FIG. 5.—TRUNK AND ARM-MOVEMENTS, ETC.
Second (Chesterton's) System.

THE ILLUSTRATION SHOWS TRUNK AND ARM MOVEMENTS WITH ALTERNATE HEAD-TURNING AND BENDINO, TRUNK-TURNING AND BENDINO, AND STRAIN IF IT BE PROPERLY PRACTISED.

Its system of breathing is not complete; it does not include both lower and middle and upper.

As in the Army Course, so here, there is not one word about muscular relaxation and economy of the unused parts. Leakages of energy are here permitted. No leakage of energy can be permitted with impunity.

As to the directions of the movements, we certainly prefer those of the Macdonald Smith system, the carefully-worked-out fullest extensions in both directions. The middle Course occasionally has chosen the wrong direction—a partial extension or contraction, not a full one.

Nor does the middle Course insist that the teacher shall explain much of the

theory, many of the advantages, to the children.

And there are other objections which we shall note directly.

In early days these matters were hardly understood. Mr. Chesterton was a pioneer and a great one. He put down on paper and worked out in practice the best he had found at the time.

There is no such excuse for the new Syllabus. It has blundered hopelessly and conceitedly in the midst of easily accessible knowledge.

For sentences and words, with which we should begin our learning, it substitutes letters of the alphabet, and says to the teachers, Arrange these in words and sentences, as you like.

And it has not a complete alphabet, out of which the comparatively inexpert teachers are to build scientific words and sentences. The difficulty of building such words and sentences can only be realised when we remember how long a period

it takes before a teacher can teach the Swedish drill properly. It requires, so the leaders of the movement say, years and years of arduous preparation. And the Swedish drill is very far from a complete Course, even for the young. Now scarcely one teacher in a hundred will be able to, or will care to, give up even a hundredth part of that time to the study and practice. Among other reasons, the teachers are quite inadequately paid for this, which is really expert work of a most important kind.

And this Syllabus seems to us in no way an advance on the middle Course, either with respect to breathing or relaxing or independent control of the two sides, or full contractions and extensions, or teaching about the principles and merits of most of the exercises, or other items to which we shall come directly.

There is absolutely no excuse for the carelessness of the compilers, considering the multitude of cheap literature that



FIG. 6.—A LUNGE.
Second (Chesterton's) System.

THE ILLUSTRATION SHOWS THE SIMPLEST LUNGE POSSIBLE, A SIDE-LUNGE, WHICH IS VERY POPULAR IN THE SWISS SYSTEM. TO IT ARE ADDED ARM-MOVEMENTS. HERE THE EXTENSIONS OF THE LEG ARE NOT SO POWERFULLY ENGAGED AS WITH THE DIRECT LUNGE SHOWN IN NO. 7.



FIG. 7.—A DIRECT LUNGE, ETC.
Second (Chesterton's) System.

THE ILLUSTRATION SHOWS A DIRECT LUNGE WITH ROTATION OF THE BODY AND ALTERNATE BENDING AND STRETCHING OF THE ARMS IN THE LUNGE-POSITION. THIS IS A REASONABLE MOVEMENT, INCLUDING GOOD EXERCISE NOT ONLY FOR THE LEGS, BUT ALSO FOR THE SHOULDERS ALTERNATELY.

they had to read. Among books they had, cheap and easily accessible to them, "Power through Repose," by Miss A. P. Call; "The Speaking Voice," by Behnke; pamphlets by Macdonald Smith, George Wilson, and a hundred others; a dozen good and cheap health-papers; and the **PHYSICAL EDUCATOR**, in which, with the help of an expert-teacher, we have tried to be universal and fair.

In place of an eclectic and all-round Course there has been thrust upon us a series of entirely Continental and academical drill-movements, thoroughly dull, devoid of *abandon*, and, when we consider the absence of relaxation and recreation, not even scientific.

At least, after all that has been proved in England, Germany, America, and elsewhere, we should expect repeated insistence on organised games. Instead of that, there is just the vaguest outline.

We may be wrong, but it seems best to keep in our mind's eye all we know, all we have learnt, and then to become a boy again, or to be, in imagination the father and mother and teacher of the boy or girl. Having made, and suffered for, most mistakes, the Editor speaks with genuine feeling: not as having arrived at final truth, but as knowing what he would choose, if he could begin life again, for himself or someone else.

First of all there must be knowledge of food-values. It is hard, when the children go home, that they should be compelled with their better knowledge to submit to horribly unhealthy foods. It reminds us of a story, told us by a coach who took a pupil round the world. At one of the places where the ship touched, the pupil gambled and ran up a large debt. On being abused by his coach, he offered the unanswerable plea, "My

father and my grandmother both gambled habitually." Yet the teaching of food-values, however badly it may be carried out by the parents at home, will at least be a little knowledge, not a dangerous thing, for the child in after-life. Impossible to teach? During intervals in the drills, when the children should be breathing deeply and relaxing—then is the time for just a few clear and simple facts as to what really builds the body and what does not.

Easier to teach is the advantage of more leisurely eating. The worse the foods that have to be eaten, the more carefully they need to be masticated. True, the parents at home might say, "Get on with your meal, child. Don't dawdle." But if the child eats just a little more slowly than before, that is something gained.

There should be the reasons for the advice, explained clearly to the child. Leisurely eating breaks up the food; adds saliva to it; brings out more taste; satisfies the system with smaller quantities; saves much money; saves much illness; is better manners; shows forethought for the servant-lives within us; brings from them more satisfactory service. As an example, the effect on the teeth might be explained to the children. Take care of your teeth, and your teeth will take care of you; neglect them, and they will do you injury in many ways.

We are not urging that the child should become morbidly self-intuitive: we are just urging a little sensible and interesting knowledge to show the child its many responsibilities. Simple reasons can be given everywhere, and should be given between the exercises.

Besides leisurely eating, leisurely, rhythmical, yet full breathing in and well up through the nostrils, should assuredly be

taught. In all Courses of any use whatsoever the need for the closed mouth is emphasised; but few Courses have any idea of the principles of full breathing: first the lower breathing, then the middle, then the upper—downwards, outwards, and upwards.

Here, again, the reasons are very simple; for instance, more carbonic acid gas is thrown off if the breathing be thorough, especially the breathing out. More oxygen is taken in if the air be fresh. The body gets a better carriage; its organs of digestion and excretion are helped.

There is some teaching about a certain kind of breathing in all the Courses, but about muscular economy and the special breathing for it there is no teaching—not one single hint even. The child could be shown a bad example, a tense and ugly-looking face and body of some person engaged in worrying. By contrast the child might be shown an illustration of some Greek statue. Statues could be taken as ideals and models. The child should also be taught by means of comparisons. The energy of the body which is wasted by tension may be compared with money—pennies, for instance; the child would understand that. Don't drop pennies in the street; don't drop energy through the cramped and straining muscles of eye, mouth, forehead, hand, and so on. The art of muscular relaxing, together with the outward breathing, should be taught to the children after they have been taught the art of extension.

Here we would suggest an exercise which would help to turn this important part of physical culture into a game. Let the children be told to yawn through the nostrils, to stretch up their hands, and then to let their hands go as the breath comes outwards. If they wish to laugh, let them laugh; it will do them good.

With regard to extensions, they should certainly be taught not, as at present chiefly, extensions which are first made, then immediately abandoned ; but the children should be taught—to use our former comparison—to send their extremities, their head and their hands, nay, their very finger-tips, to the extreme limits of their own land, and then to

Washing is another subject. At home the child gets no teaching ; therefore it must get its teaching in the model Course. *Hitherto the framers of model Courses have not put themselves in imagination within the average home.* There are many important items that they have left to the parents, while as a matter of fact they must surely know that most



FIG. 8.—ARM AND SHOULDER EXERCISE,
Second (Chesterton's) System.

HERE WE HAVE A GOOD MOVEMENT FOR THE MUSCLES OF THE ARMS AND SHOULDERS, BEING AN ALTERNATE SHOULDER-MOVEMENT, TOGETHER WITH HEAD-TURNING.

move them about. There should be full extensions, in many directions, not only made, but also held.

Afterwards let the children be shown or reminded of a sleeping flower, and let the children imitate that sleeping flower.

Perhaps also it might be a help if the children were told to shake their hands, their legs, and their body, as a dog shakes its body after a bath. Here also there can be plenty of laughter.

parents never do teach these things at all.

Let the child be taught that warm water will open the pores of the skin ; that pure soap and rubbing will help to remove dirt, which will be further removed by rubbing ; that cool or cold water will close the pores of the skin and give a pleasant shock ; that more rubbing, and perhaps exercise, will now restore the circulation and the glow. Let the child



FIG. 9.—TRUNK-BENDING WITH ARMS STRETCHED.

New Syllabus.

"WITH CHEST ADVANCED, KNEES STRAIGHT, AND ARMS WELL UP, BEND SLOWLY FORWARDS FROM THE HIPS, HEAD KEPT BACK, EYES DIRECTED FORWARD." THIS IS A MOST DIFFICULT EXERCISE FOR CHILDREN IN ORDINARY CLOTHING. THE ARMS ARE SUPPOSED TO BE KEPT IN LINE WITH THE TRUNK THROUGHOUT; BUT IT IS HARD TO GET A LARGE CLASS TO DO THE EXERCISE CORRECTLY. SURELY ANY EXERCISE THAT NEEDS A VERY GREAT DEAL OF TUITION, ESPECIALLY IF THE CLASS IS LARGE, IS USELESS IN CASES WHERE THE CLASS IS ALMOST INvariably LARGE, AND THE TEACHER NOT NECESSARILY AN EXPERT.

be taught the importance of cleanliness, its real meaning, its effect on self-respect, and indeed its all-round effect, including the importance of a freer circulation of the blood. If such things are not taught at home, they *must* be taught at school. If they *are* taught at home, well, there is no harm in their being taught at school as well.

We cannot repeat too often the experiences of Dr. W. G. Anderson, of Yale, with his men in the gymnastic classes. Given a certain number of hours for gymnastic drill, he gets better results when he spends a large number of them in explaining the reasons by ocular and sensible tests and comparisons and contrasts. Such things as these which we have suggested for a model Course, explained with tact, would interest children considerably. With tact; that must always be the case. They may be taught not directly, but in parables, by comparisons, and especially by the choice of simple and familiar instances. Let the feet be compared with the founda-

tions of the body. Let the blood-stream be compared with indiarubber water-pipes, which should not be tied into knots or allowed to become clogged.

The cleansing and the free circulation are also helped by massage. Here again children might be taught at least two kinds of self-massage, and might be allowed to laugh at them if they liked.

First, there is the pinching kind, pinching between the first finger and the thumb. We have described it already. The right hand pinches the left side; the left hand pinches the right side, all over. Such a system has helped to produce our Holbeins, Chases, Shrubbs, and Butlers.

The second kind, starting round the navel and going up the right side, down the left, need not be practised by the children, but its direction and its effects might be explained, together with a few words on the importance of excretion.

Such suggestions may sound ridiculous. Our defence of them is that we believe in them thoroughly; that undoubtedly such things for most children would be healthy and cheap and easy; that they

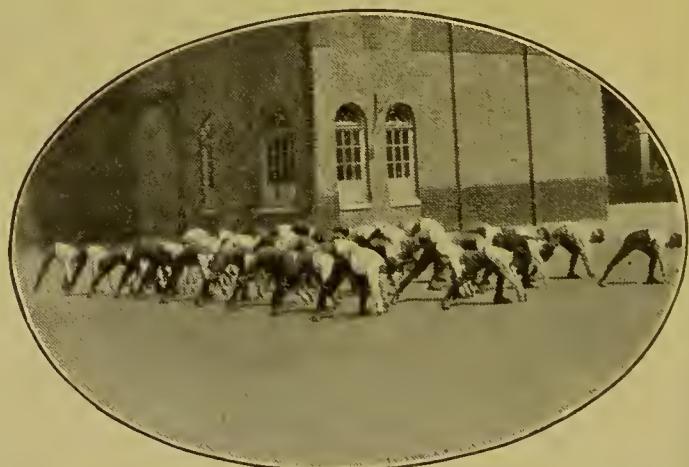


FIG. 10.—DOWNWARD-BENDING IN FORWARD LUNGE POSITION.

New Syllabus.

THE ARMS ARE TO BE STRETCHED UPWARDS WHEN THE PUPILS ARE DOING AN OBLIQUE LUNGE. THEN THE TRUNK IS TO BE BENT FORWARDS TILL THE FINGER-POIS TOUCH THE GROUND IN ADVANCE OF THE TOES. (N.B.—THIS ILLUSTRATION IS THE BEST THAT COULD BE GOT AFTER FOUR TRIALS.)

are possible for private use at any rate ; that they are not improper ; and that they are not spoilt by a sense of their humour. As an example of a sensible plan, we witnessed how the students at Fräulein Wilke's gymnasium were told to blow their noses before the class began. Many of them smiled or laughed. Both the blowing of the nose and the smiling or laughter were good for the pupils.

That is one of the instructions, the blowing of the nose, which should be impressed upon children as a regular

if you can get it, then with cool or cold water ; rub yourself well ; breathe fully ; take a little exercise ; walk out, if you can, and breathe ; eat leisurely ; enjoy yourself ; don't worry.

Immediately the objection will be made : What has "wishing people well" to do with a physical Course for children ? It has everything to do with such a Course. Next time you are injured and angry and worried, say this with feeling, but express it in your own words, and see if the effect is not physical as



FIG. II.—OUTWARD LUNGE WITH ARMS STRETCHED OBLIQUELY.

New Syllabus.

WE ASK THE READER TO TRY THIS EXERCISE IN ORDINARY CLOTHING AND BOOTS. (THE EXPERT WHO ARRANGED THIS PHOTOGRAPH CHOSE A VERY SMART SET OF BOYS AND TRIED REPEATEDLY, BUT THIS IS THE BEST RESULT HE COULD OBTAIN. THE REASON FOR THE FAILURE IS THAT THE LUNGE IS ABSURD, IN CONTRAST WITH THE ONE IN NO. 7.)

habit. Here, once more, the child should be, but is not, taught at home. Let the child be taught at school what it is to do at home and elsewhere. Let it be taught that, among its early morning-duties, besides such prayer as is thought advisable, will be the following : Blow your nose ; brush your teeth ; breathe through your nostrils and relax your muscles ; massage yourself ; wish everybody good health ; determine to "play the game" this day ; take the first opportunity of excretion, if you have the inclination ; wash well with warm water,

well as mental : "I really want everyone to be healthy and happy and helpful."

It is the grand error of the "experts" of the narrow school that they do not realise how wide the physical is ; they ought to claim the mental as their sphere also, whenever they can.

Then there should be, in any model Course, exercises to help better position perhaps as in the ordinary Courses ; but we do not advocate the stiff "heels together" position ; we cannot imagine the purposes for which it is of real value. It is a matter which needs careful

discussion; but for our own part we prefer to have the feet at least twelve inches apart, with the toes turned only slightly outwards.

And certainly much must be taught that is hitherto omitted with regard to the best positions for sitting, and the reasons why they are the best. Words must be added about writing, about reading and the light, about relief from sitting—as by rising on the toes and stretching. For if such things are not taught now, they will probably never be taught.

With the neck movements of nearly all Courses, with the trunk-circling, with the crouching and rising, we have little or no fault to find, so long as the movements are made slowly, and without the frowning or the opening of the mouth. Also the swimming-drill, as at present practised, is good, though we would rather have the two sides used independently at first, one moving while the other rests.

We should add to these, and to some other exercises in Chesterton's Course, certain athletic exercises for the two sides independently. And here advantage should be taken of the child's faculty for hero-worship. Indeed, the exercises we would suggest could be called after the leaders and models—at least when the children had reached a certain age. Whoever was the best left-handed bowler—let us say Rhodes or Hirst—would give his name to the bowling exercise. The child would go through the left side bowling exercise as the Rhodes exercise. The child would stoop and go through the fielding exercise as the Quaife exercise. The child would lunge and play forward as the Fry exercise. The child might run out and pull an imaginary ball as the Jessop exercise. And so on.

One would add exercises for football,

boxing, fencing, and rowing, and certainly one would teach all children how to walk—partly by George's "Hundred-Up." This exercise, which we have so often recommended, could be called after the best walker or runner, according to its pace.

Then, equally important almost, and far more attractive, would be the organised games as we have already outlined them, and as they are practised in large rooms, playgrounds, and playing-fields, in many schools already.

Throughout these games there must be emphasised the spirit of play, not objectionably, but still clearly, the idea being that the child is playing the game chiefly in order that it may play the game of life afterwards in every sphere—fairly, skilfully, cheerfully, pluckily; not dishonestly and discourteously, not clumsily and carelessly, not worriedly and gruntingly, not cowardly and despairingly. All these faults it is so easy, comparatively, to correct in the playground, so hard to correct in the schoolroom.

Once more, there will be the objection, This cannot come in a physical Course. We insist that it *must* come in a physical Course, for it does not come in the intellectual Course, it does not come in the religious Course, it does not come in the home-training. The physical Course is the best opportunity for it. And, after all, let a child mentally understand what it means to "play the game," let a child determine to "play the game"; and watch the physical effect. Remember that the mastery of the expression of the face, even of the expression alone, is every whit as much physical as stretching the arms out sideways and then sending them down.

But teachers are not yet ready; that is the vital objection. Hence, side by side with the model Course, we urge that

teachers be trained by a revised text-book, not concocted by one or two people privately, but representing *all* branches of physical education. Let experts on all subjects connected with physical education contribute to this text-book for the training of teachers. Let theory and experience be blended together harmoniously, the theory and experience of games and athletics, as well as of different systems.

Such men as Sir Lauder Brunton, Sir Frederick Treves, Sir Michael Foster, and we could name a dozen others, could be the final court of judgment.

Our proposal, then, would be to leave a great deal of Chesterton's book as it is, because it is already working well among thousands of children as well as teachers, and because it gives safe exercises for most children ; but to add to this book such matters as we have outlined, and especially the explanations of *why* this or that thing is good, the hints on health, leisurely mastication, washing, massage, etc., a more thorough system of breathing, practice of muscular relaxing and economy, more independent use of the two sides, and organised games. A considerable amount of the general advice in the New Syllabus—some of this is excellent—could be utilised by being applied to instances. For example, the advice about fresh air is good. But children seldom have control of the window. Let the teachers be taught how to keep a window open without draught, and let the children be taught when to take every advantage of fresh air—namely, when they leave their home and their schoolroom, etc.

This would be the more feasible plan.

An alternative, however, would be to devise an entirely new Course, which should keep such points in view and should have an athletic colouring, so

that the nation might be trained for play, trained to take its pleasures sanely, at football, etc., instead of loafing. The best way of arriving at such a new Course would be a national competition. Let all be allowed to compete, sending in the best exercises they could devise. Then let representative experts be chosen as a committee to select the best from the various schemes. The majority of these representatives have not been consulted at all with regard to the advisability of the new (third) model Syllabus. We believe that it is a matter on which all experts should be consulted and heard. Without exception, we have found them willing to give all information that they possess. And they certainly possess ever so much more than Government seems to imagine.

In the above account we have tried to confine our criticism to general principles, avoiding petty details. We have tried to keep in view all the time an average child as it is in an average school and an average home ; to lay stress on the simple physical (really physical and mental) practices which such a child both is able to manage and should master as early as possible—to breathe leisurely and, when the air is fresh, fully ; to masticate leisurely and to drink more leisurely ; not to frown or worry ; not to hold wrong positions and attitudes ; to massage a little in order to prevent constipation ; to wash well ; to attend, and perform as skilfully as possible, partly because reasons are understood ; to understand some reasons ; and so forth.

If there were a Commission which was willing to cross-examine "experts" and cranks, I believe it would be far better than a Commission composed chiefly of school-teachers themselves, or chiefly of orthodox "experts."

The objection of the so-called "practical" person will be to the cranks. But we believe that it is just the cranks, or extremists, who make any given practice clear. We cite one or two instances from our own experience. One receives many letters of suggestions and criticisms; in them there has been most valuable information by representatives of the Ambidextral Society and the Complete Chewing System.

The Honorary Secretary of the Ambidextral Society sent an excellent little pamphlet urging the importance of the training of the left hand (as affecting the speech-area in the brain, etc.). The concentration upon this one aspect of Physical Culture impresses the fact upon one more forcibly than if one had seen the fact only in its proper perspective; the due perspective follows naturally. This is the sort of pamphlet that the Commission would welcome.

The same applies to the study of Complete Chewing. It has often been set forth as practically the only physical art in life. That is the way to regard it—at first. Then, very soon, we see it

in its fair proportion, as compared with other arts.

As a third example, let the Commission study Miss Call's "Power through Repose" and the art of muscular relaxing and physical economy, and the value of it can scarcely fail to be realised.

But the orthodox "experts," grand as their work has been and is, do not seem to us to welcome new truths. They do not seem to us to want to build new wings to their house.

So, we should say once more, let the Commission (including medical men) hear and *see* and consider everything that "experts" and cranks and others have to offer; then let them set such things in proportion and perspective; and, after deciding on the general principles that appear best at the time, let them then leave the carrying out of these principles to a committee of those who have spent most of their lives in actual teaching. For we cannot possibly dispense with the varied experiences of these practical men and women without very great loss to the nation and posterity.

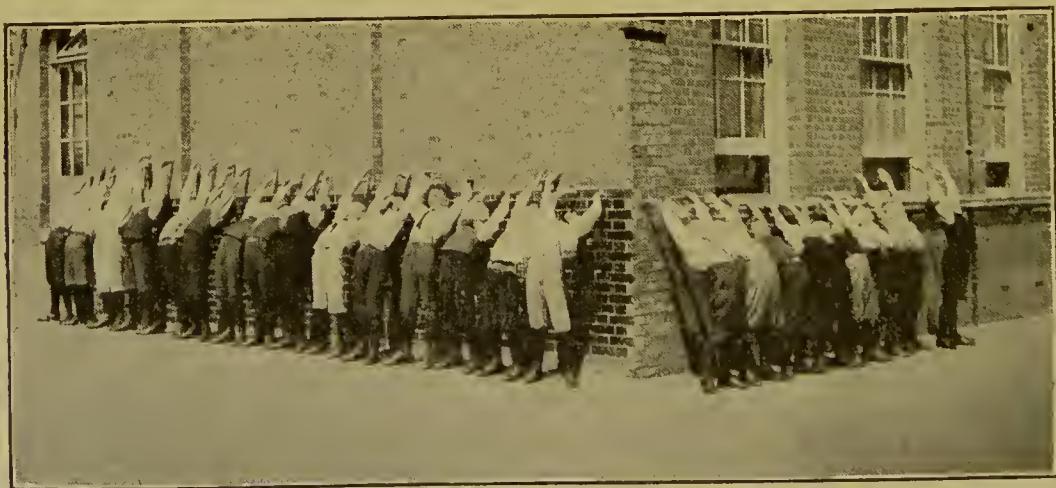


FIG. 12.—SUPPLEMENTARY EXERCISES.

New Syllabus.

MANY CHILDREN TAKE SUCH EXERCISES AS A COMPLETE FARCE. IT HAS BEEN FOUND HARD TO CONVINCE EITHER TEACHER OR SCHOLARS THAT THEY WERE NOT BEING "FOOLED." IN THE CASE OF MOVEMENTS NEW TO TEACHER AND LEARNER, THE VALUES SHOULD BE CLEARLY SET FORTH. THIS ONE IS CALLED "SPAN-BENDING WITH HANDS SUPPORTED AGAINST WALL."

CHAPTER XLIV.

BETTER TRAINING FOR THE LEFT SIDE.

Tendency to Train the Skilful Boy and Neglect the Duffer—Similar Tendency to Train Man and Neglect Woman—To Train the Right Side and Neglect the Left—This not a Plea for the Same Training of Both Sides—A Plea for Better Training of the Left—Against the Extremists—How Many are Naturally Left-handed?—Occasional Use in Play, as a Handicap—A Fault of Most Systems—How the Left Side is Trained Already—Gymnastics—Games—Macdonald Smith—The Left Learns by Sympathy with the Right—The Left already more Skilful in some Spheres—Unsuspected Importance in Golf—Dr. Kellogg's Tables—Strongest Muscles—A Few Exercises—New Competitions—Everyday Occupations—Writing—Modelling—A Contrast—Sandow—Nostrils—Lungs—Advantages—Repose—Ease—Philadelphian Success—Cheapness—For the Deformed—Testimonials—Against Aphasia—Handicrafts—Athletics—Advantages to the Community—Mental Merits—Self-respect—Money-earning—What We do not Advocate.

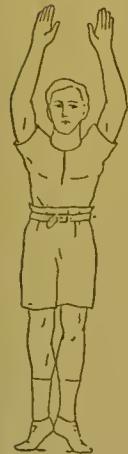


FIG. 1.—AN
ORTHODOX
EXERCISE FOR
THE LEFT
SIDE WITH
THE RIGHT.

MANY complain that our schools push on the clever boys and the genius-athletes, but neglect the duffers; that schools are judged by the performances of the exceptional boys—*i.e.* less by the standard of the whole school at a general all-round competition than by the standard of a few at a few "educational" subjects or a few branches of games and athletics. The same will apply to the right side as compared with the left; we push on the clever side and neglect the duffer side; we judge people largely by what they can do with their right side, not by what they can do all-round.

Or perhaps one might more aptly compare woman and the left side. In early ages, in many countries at least, and to-day in Turkey, woman is neglected. Important aspects of her nature are left to atrophy. We would not have her educated precisely as a man is, for she has some different functions; and it may

be that the purpose of civilisation is to educate her on very different lines from man, so that man and woman may become even more widely diverse than before, till at length each is so fully educated, *beginning with what each can do best*, that each has most or all of the good qualities of the other.

So it is with the left side. Only as yet we have scarcely begun to educate it at all, except by a somewhat feeble imitation of what is appropriate to the right side, and, for certain tasks, on the principle of division of labour—that is to say, chiefly in order to relieve the right side as if the left side only existed for the sake of the right.

Throughout this chapter we shall not fall into the fault of the extremists, and urge a similar development for the two sides. We wish to keep in view a different skill in many things: for instance,



FIG. 2.—ORTHODOX EXER-
CISE: BOTH SIDES MOVE
TOGETHER.

as at present, in the playing of the piano and the violin, and in the conveying of food to the mouth. Nor shall we insist on equal skill with the two sides. We wish for some skill with the left, more skill at any rate than we see at present. To bring the left side up to the standard of the right at all the games we play, would be a vexation of spirit and an extravagance of time and energy.

For throughout we are trying to write for average people who will not go to extremes. They wish to be shown the direction ; they do not wish to be forced along a narrow line all the way up to the supposed goal.

Average people seem to be right-handed by nature. We need not go into the details about the exact physiological differences, but they do exist in the body and in the brain. Some people—perhaps over 2 per cent.—are naturally left-handed. In the Bible we read of about that percentage of left-handed slingers. Malgaigne, a French savant, found that $2\frac{1}{2}$ to 3 per cent. (out of 182 persons) were left-handed, and 2 per cent. were ambidextrous. Not only this,

but ancient illustrations represent warriors as holding spear or sword in the right hand as a general rule. The very words dexter (cp. dexterity) and sinister may be compared with such words as "manly (virtue)" and "feminine (inferiority)" as showing how the right and man were regarded as naturally more to be honoured than the left and woman.

We repeat, then, that we do not wish all people to learn all things equally well with both sides. What we do plead for is more skill,

less clumsiness, with the left side in many occupations in which it would be really useful, if only to give the right side a rest and a change.

How far is this difference really natural ? We know that the heart is rather towards the left side of the chest-cavity, the liver is on the right side of the abdominal cavity, the spleen on the left ; the diaphragm-arch is also higher on the left side. The symmetry of the two sides, as we have shown in "The Training of the Body," is not absolutely even. Now it seems that in two people out of every hundred, on the average, the right subclavian begins behind the left —further from the heart than the left. In these two people the left arm will receive blood at higher pressure, a more vigorous circulation of body-building fluid, than the right arm.

But it is one thing to be able to prove that the left side is naturally different from the right, another thing to be able to prove that the left side is naturally inferior to the right. Man alone of all animals has the foot widely and finely differentiated from the hand, while still each is valuable for work and for health ; and has the right hand finely differentiated from the left, the left hand often holding while the right hand does minute work, as in writing, sewing, etc. For other examples we refer to the above-mentioned



FIG. 3.—THE LEFT SIDE MOVES UP AS YOU INHALE, THE RIGHT SIDE HANGS RELAXED.

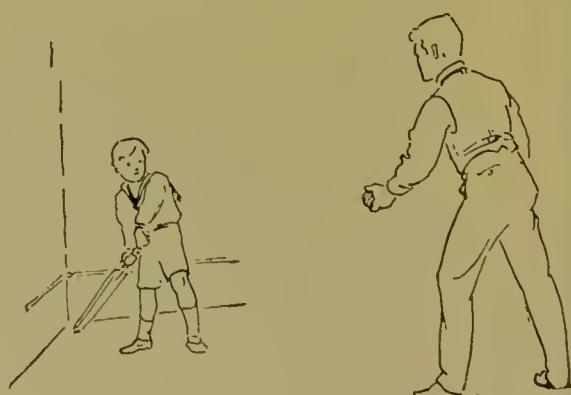


FIG. 4.—THE USE OF THE LEFT HAND AS A HANDICAP.

book. Suffice it to say that our eyes and our instruments are now adapted for skilful work by the right hand rather than by the left. And this has, on the whole, been of great advantage to "progress." But the use of the right hand has been carried to an extreme; many important uses of the left side have been neglected, in play as well as in work. In ordinary games, for example, such as lawn-tennis, an occasional attempt to play left-handed will be of immense value. Think what a handicap it gives at once. Those opponents who cannot easily get good sport when they both play right-handed can get excellent sport, an absolutely even match, when the better player plays left-handed.

Even with the educational exercises we suggest a new principle. These exercises—we have a dozen Courses or more before us now—generally urge the use of the two sides together. We do not urge that nearly so often. We wish for more independent control of either side while the other side *rests*.* The Ling System has no such independent control. We find in Ling exercises and in the views of most teachers who have published their exercises, that there are no instructions as to the non-use of the non-used side.

But there is a good deal of training for the left side already, far more than ambidextral enthusiasts imagine.

The training of the two sides together



FIG. 5.—AN UNUSUAL BUT USEFUL LEFT-SIDE EXERCISE FROM THE LYING POSITION.

does a great deal for the left. Most Courses—for instance, the British system

* Thus Lieut. Flynn's Course for developing boys—*q.v.*—has scarcely any exercise in which one arm (and part of one side of the brain) rests while the other works.

Courses—do pay as much attention to the left side as to the right, though they do not pay attention to the rest of either side. Most gymnastic exercises, again, are for the two sides equally. Take the exercises on the bars or the rings or the rope; here, again, is no repose of the one side while the other works; both sides always work together. That applies to rowing also; it applies to the breast-stroke at swimming; it applies to the feet and legs in cycling, where there is the rhythm also, as there is in club-swinging. We shall speak of some disadvantages of rhythm in a later chapter.

Many games, moreover, do use the left side, as we have shown in analysing Doherty's service. Cricket and hockey and golf and other games use both sides, and use them differently, somewhat as knitting uses both hands, but uses them differently.

And, indeed, some games use the two sides independently, as we would have them used. And the best exponents let the other side rest. Here we must class boxing, fencing (when taught in the best way), wrestling, and fives.

The Macdonald Smith system was the first to deal with this matter in a more thorough manner. Almost every one of his movements is for independent control of the two sides as well as of their parts. Lately he has added other desirable features in Physical Culture. His original plan was crude; he has not yet altered that plan in his published pamphlet. That pamphlet urges the independent use, but

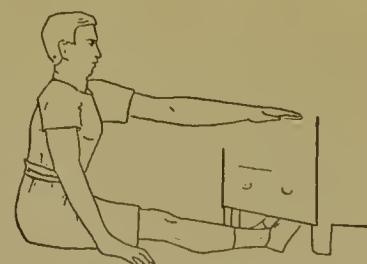


FIG. 6.—ANOTHER UNUSUAL EXERCISE: LIE ON THE FLOOR AND RISE THUS, KEEPING RIGHT SIDE RELAXED.

does not urge the independent rest, of the two sides.

Few realise, again, that quite apart from any movement of the left side, the movement for the right side is training for the left side also, as certain American researches have proved. A number of experiments show that, if you try to learn any exercise with the left side, you take far longer than if you first learnt it with the right side, and then with the left side afterwards. We refer to these experiments in the chapter on America (*q.v.*).

Again, the left side is regularly used as the more skilful side for certain functions in piano-playing, type-writing, juggling, and so on. And its importance in games has not always been realised by athletes. Study a golf-swing. You call it a right-handed golf-swing. Compare it with a

racquet stroke in a racquet game, however, and you will find that, to a great extent, it is a left-handed swing also : the left side is making a back-hand stroke. If you want to practise the golf-swing, practise, among other things, a left-handed back-hand stroke, says Mr. Gaskell.

In the animal world, of course, there is almost, if not quite, equal power and skill for the two sides, as in the case of apes ; and little children use their hands and sides indiscriminately.

Last, there are those left-handers whom we may provisionally call the 2 per cent. among us.

But not nearly enough is done yet. It is all very well to say that the function of the left hand is to hold the paper while the right hand draws or writes on

it. That is true, but is no reason why we should use the right hand so exclusively for all our commonest acts. For statistics have shown that, when the left side has been trained, the appearance and the health are much improved, even if the left side never reaches the skill of the right.

Dr. J. H. Kellogg has given some most interesting tables which bear on this point, though, with all his hygienic experience, he attaches too much importance to size and power to lift weights. Such virtues may exist quite apart from skill. We deal here not with mere size or weight-lifting power, but with all-round fitness of the left side. We want to go far beyond the tests of Kellogg's dynamometer.

Dr. Kellogg says that in only three instances do the muscles of the left side exceed those of the right side in the average man : they are the thigh-muscles—the flexors, extensors, and adductors. This is the case in the average measurements of more than a thousand men. Kellogg suggests that, while we are right-handed, we have a tendency to be left-legged. With a woman, however, the three points of left-side superiority are the shoulder-retractors, foot-flexors, and leg-extensors. Women, he says, are less symmetrical, more one-sided, than men. The total strength of a man's left side is 99 per cent. that of his right side ; of a woman's left side 98·6 per cent. that of her right side, or less. But Dr. Kellogg finds that the left side may be brought



FIG. 7.—
BREATHING
EXERCISE FOR
ONE SIDE.



FIG. 8.—SOMETIMES OPEN
THE DOOR LEFT-HANDED.

up to the standard of the right side, if one restores the balance by exaggeration.

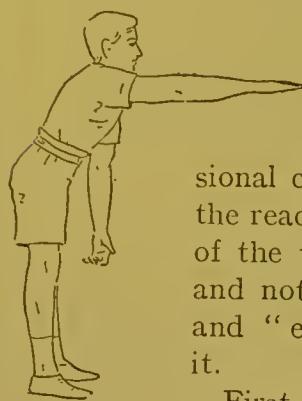


FIG. 9.—ANOTHER LEFT-SIDE EXERCISE.

We suggest a few exercises, not as the sole exercises, but for an occasional change. We advise the reader to make a game of the thing where he can, and not to be too gloomy and "educational" about it.

First, there should be new forms of competition. Already we play cricket left-handed against ladies.

Why do we not play cricket left-handed oftener against one another? This would give us what the game often lacks—shorter innings and more change. Then there is reversed fencing, and, we may add, fencing with foil and rapier, as good practice for independent control. People should box more frequently with their sides reversed. Lawn tennis, Badminton, and ping-pong are among popular games that suggest themselves for left-sided play. Already we have outlined the left-handed throw. Then left-handed golf would be interesting as well as healthy, again as an occasional practice.

Coming to more commonplace and trivial things, we might try peeling apples, eating eggs, opening doors, moving furniture, lifting our sponge, brushing our hair, rubbing our head to make the hair grow, all with the left hand.

In many schools writing with the left side is being taught, and drawing also.

Here is an illustration of writing with the left side simultaneously with the right side. It is a most striking example of independent control, and seems to



FIG. 11.—INDEPENDENT CONTROL OF THE TWO SIDES.

result naturally from the Macdonald Smith system.

Left-handed modelling is taught in Philadelphia. Left-sided shooting is taught in not a few schools.

As an instance of a contrast between our exercises for the left side and the stereotyped exercises for both sides together, consider rowing. In a previous chapter we have outlined the stroke, with illustrations. Now practise this stroke with the left side only (the right side hanging relaxed), keeping the shoulders as square as possible. Practise it also not rhythmically, but with different

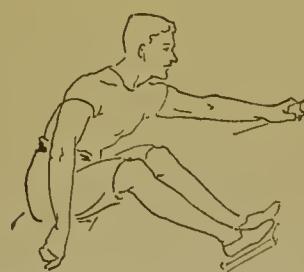


FIG. 12.—LEFT-SIDE EXERCISE (SOMETHING AS IN ROWING).
RIGHT SIDE HANGS RELAXED.

times. We suggest this as an occasional change for the rowing man. We believe, to judge by results, that the rowing man

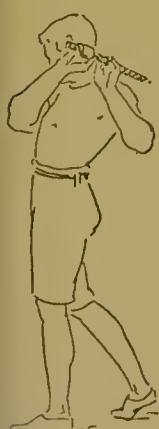


FIG. 10.—BEGINNING OF THE LEFT-SIDE GOLF SWING.

is very seldom a good player of quick games. We believe that the rowing—we know of exceptions—does his games much harm by its regular use of the two sides together, and its rhythm, to say nothing of the grip and strain.*

The spring-grip dumbbell has its use in certain cases. Take any Course—Sandow's, for example—and, while you rest the right side, do the exercises with the left side only. Do not do them so often with both sides together. It is in his advice given indiscriminately to all alike, that Sandow is liable to do harm to players of quick games.

Most Courses are open to the same objection. That is why the Editor has, in our Courses, strongly urged the use of the two sides independently. Take the exercises in stooping, for example. In most Courses, as in Fig. 2, the man stoops with both hands straight to the front. Try stooping with the right side relaxed and with the left hand straight to the front; stoop first to one side, then to the other.

Or, again, notice how, in the Course for boys, devised by Mr. Flynn, both hands come up to the front together. Rest the right side, and bring only the

left hand up, palm to the front, while you rise on both your feet.

In football the tendency is to drop and punt with the right side. Practise dropping and punting with the left, or go through the action in your bedroom.

Then there is the left nostril. Look at it in the glass, and, if it is smaller than the

right, then hold your right closed while you breathe through your left.

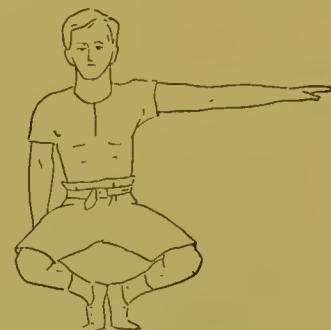


FIG. 14.—BALANCING EXERCISE. RIGHT SIDE HANGS RELAXED.

Our object is not to bore and worry the learner, but to restore his normal balance; and we believe that, with some of his own ingenuity brought to bear on the question, he will soon make the practice very interesting.

As to the advantages of the training, we must mention them here, obvious though they may be.

It must be remembered that we are not speaking so much of two-handedness as of independent use of the two sides. In gymnastic exercises, let us repeat, neither side is usually resting; neither side is taught to move while the other does not use any appreciable energy at all. True, both sides are developed (and that is something), but not to the ideal of independent use and of economy.

The repose of the unused side is one of the chief advantages of our suggested exercises. *It is as important for the right to rest as it is for the left to move.* At present we give the right side far too much work, the left side far too little. We give the left side far too much rest, the right side far too little. The song says, "Men must work and women must weep." We say, "Men must rest and women must laugh" as an antidote, and the right side must rest and the left side move.



FIG. 13.—A BREATHING, LEFT ARM, AND TRUNK EXERCISE. RIGHT SIDE HANGS RELAXED.

* We believe that correct rowing is not nearly so tense as non-expert rowing.

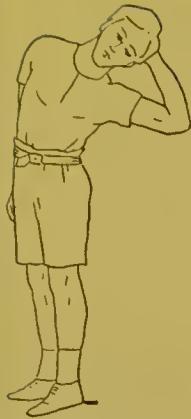


FIG. 15.—NECK AND
ARM EXERCISE FOR
ONE SIDE.

The training is not so hard as it sounds. Children naturally use their left side almost or quite as well as their right, but their skill is discouraged, as indeed most of their healthy instincts are. The child has been obliged to do what its ignorant betters have themselves been crushed into doing. American experiments by Dr. W. G.

Anderson and others show that training the left side is not like teaching an absolute duffer. It has had sympathy with the right side in its movements. It has watched the right side, and played with it in imagination. The game is not an entirely new one.

And the system is being actually worked with great success, not only by Macdonald Smith, as the Editor can testify, but at a very large school in America, and, though to a smaller extent, we think, in England. The Philadelphia Education Department has prescribed bi-manual training in all its schools. The School of Industrial Art, with 1,200 pupils, has trained the left side for years with great success.

Professor Liberty Tadd, a pioneer in this direction, says that his pupils stand better, hold their heads better, and generally have better balance and symmetry, than other pupils, and he believes that the balance and symmetry must extend to and influence the mind also.

The advantages of this training are obvious in what are called more practical ways. The training needs no extra apparatus. Take the case of writing. While upright writing may have its advantages, still sloping writing is the custom. It can be practised left-handed

as well as right. This will help to remedy some forms of spinal curvature. It will

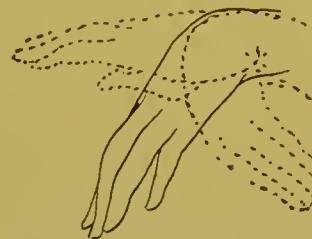


FIG. 16.—SHAKE THE LEFT HAND TO FREE IT.

help to rest the right hand. It will get through more work with less effort, and will be invaluable in case of injury to the right hand or in case of writer's cramp.

For the deformed—not only the spinally deformed, but others as well—and for the lop-sided, the training of the left side is of the greatest importance. It is certain that its effects on weak-minded people, on lunatics, on criminals, would be not only physical, but also mental.

Its effects on the lungs must be obvious. One lung is generally weaker than the other. It is not merely that the apex of the lung is liable to consumption: one side of the chest is almost sure to be an easier victim than the other.

The Ambidextral Society has given a list of professions and occupations in which the left side has been trained with advantage. Sir William Gowers found it good for surgeons (we may add its value for dentists also). Baden Powell recommends it for soldiers; Lord Charles Beresford for sailors; others for musicians; Sir Edwin Landseer, for artists (we may add for modellers also). Then



FIG. 17.—AN
EXERCISE
FOR ONE
SHOULDER.
THE OTHER
ARM HANGS
RELAXED.

there are microscopists, gardeners and farmers, cooks (a very important class), jugglers, inventors, chemists, and workers in general with their brain, and especially workers who rely upon their speech-area.



FIG. 18.—CROSS SECTION OF BRAIN. S, SPEECH CENTRE; L, A, F IN RIGHT SIDE OF BRAIN ARE THE MOTOR FIBRES CROSSING TO THE LEFT LEG, ARM, AND FACE.

importance, besides that of speech.

As to money-making pursuits, it is surprising to hear that nearly three hundred handicrafts, including weaving, and, we may note, shopkeeping, require skill with the left hand already. In domestic duties also the control of the left side will be found a time-saver. The Ambidextral Society, of St. Dunstan's House, Fetter Lane, E.C., will supply further information to inquirers. It now publishes a useful pamphlet, by its Secretary, Mr. John Jackson.

In athletics the merits are obvious in

cases of strain or injury of the right side, and also in the devising of handicaps, which would bring the two sexes and people of different ages and classes and standards of skill together in a friendly way. Indeed, the left-handed game is nearly a new game. We can almost double the number of our present games by playing them left-handed. We can only compare the attempt to play left-handed with a visit to a foreign country and an attempt to speak French or German.

In certain games the advantage shows itself even for ordinary play. We have already alluded to the value of the left-handed backhand stroke for the golf-drive. It will apply to the cricket-drive, to the hockey-stroke, to the throwing of the hammer. Then, again, to be able to bowl left-handed is an advantage, as well as to be able to throw left-handed. The Australians are much puzzled by left-handed bowlers still.

For motoring, for angling, for a number of other recreations, the control of the left side is of clear advantage.

Then there is the improvement of the right hand by sympathy, by rest, and by the fresh work which it is called upon to do, work which the left side had previously done. It is rather as if, for a day or two in the month, the husband and wife were to change places. Each



FIG. 19.—FIELDING AND THROWING EXERCISE FOR LEFT HAND AND ARM.

would thus have the mind opened, and would get more sympathy and understanding of the other and of the other's work.

The advantages to the community are

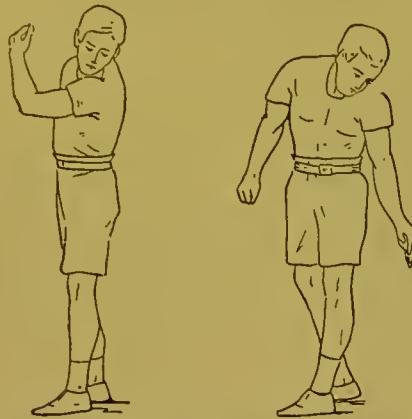


FIG. 20.—ACTION OF A LEFT-HANDED (BACKHAND) RACQUET STROKE.

equally striking. Among others is this: the Greeks knew how bad was the effect of the sight of deformity upon those who would some day be parents of children; there would be far less deformity if the left side were sensibly trained. Such a restoration of upset balances would give individuals as well as the nation a reasonable pride in the body, more pride in more of the body. It is hard to arouse such a pride at present, except by the sight and sensation of a huge biceps. The training of the left side opens up a number of branches of skill which would certainly give people far more self-respect. They would be able to do more

things well and to earn more money, for example, by manual skill.

Dr. George Wilson, one of the most original of medical writers, cleverly suggests that most people take their recreation and rest wrongly.



FIG. 21.—BRUSH THE HAIR WITH THE LEFT HAND SOMETIMES.

They are worried to earn money, yet they earn money only in one way—their trade, which perhaps they hate. Why should they not take up at least one other trade which they like, as a recreation and *also* as a money-earning occupation? This would lead to less idleness, more money, less worry, more skill.

It would be easy to enlarge on the effects of the exercises upon the body, to show how they would help the secretions and excretions of the stomach and other organs; and how they would get rid of certain waste-products, about which at present we understand little.

But the mental effect is likely to be the chief one after all, the effect in opening up new possibilities and rousing up our inventive faculties, in developing a certain power of seeing two sides of a thing, a power which nearly all of us lack. For everything has two sides, or else it would not be a thing at all; it might only be a very thin slice of a thing, but even the thinnest slice has two sides.

Now our training is not to be merely manual, though a better control of the hand—that marvellous instrument and vehicle of expression and gateway of the emotions—is in itself desirable. We wish to train not only the left hand, but also the left leg, the left eye, the left ear, the left nostril, and the left lung—indeed, the whole left side.

Nor is it mere development that we



FIG. 22.—LEG AND LEFT-ARM EXERCISE, THE RIGHT ARM BEING RELAXED.

aim at. We do not wish simply for a big left side or for a left side just the same size as the right; we wish for a left side under independent control, not a left side to be used always together with the right, not a left side to be used only while the other side is tense.

Nor again, we insist, is it a left side with absolutely equal skill with the right. We do not want men and women to have absolutely equal skill in all things yet; there is not time for such all-round skill. We, as human beings, have the right of delegating, one to another and within ourselves. We do not wish to

give the right hand an equal skill with the left—let us say in lifting the food with the fork as well as in cutting it with the knife—for there are things that the left hand does better than the right, just as there are things which a woman does better than a man. She is generally supposed to be less liable to fatigue in the speech-area of her brain.

Our object is not equal and precisely identical skill in all spheres, but more skill, more sensible skill, for the left hand, less exclusive skill for the right hand in many spheres, and especially in some of the commonest acts of life.



FIG. 23.—TRY THE SPONGE IN
THE LEFT HAND FOR A
CHANGE.

CHAPTER XLV.

POWER OF THE MIND OVER THE BODY.

Clichés about the Power of the Mind over the Body—Stock Examples—Power of the Surroundings and Body over the Mind—A Still More Striking Example—Effects of News upon the Mind and the Body—Mind Forms Habits, which Form Body—Will-power Overtaxed—Need of Intelligence to Devise Tactics—The Permissive Will—The Power of Desire and Interest—Intelligence will Find Desires and Interests—A Schoolgirl—The Easier Way—Mind Influences Body, which now in turn Influences Mind—Power of Imagination—By Pictures—By Words—Self-suggestion—Ideals and Their Value—Pre-Suggestion—No Occasion too Small—Professor Gates on the Chemical Effects of Emotions—Independence and Intelligence—Against Sheer “Bull-dog” Pluck—The Play-spirit—Examples of Intelligent Forethought to Relieve the Will—The Editor’s Reliance on Desires—Attend to the Body: It Proves and Improves the State of the Mind.

WE are now used to certain quotations and certain *clichés*. “As a man thinketh in his heart, so is he”—this Biblical quotation I have read upwards of a hundred times lately in American “New Thought” literature. Of course it does not allude to thinking with the surface of the mind, in mere words without realisation. “As a man thinketh”—that means as a man thinks and lets himself go to the influence of the thought, realising it and becoming passive to it, as the anxious man does in Fig. I. Then again the (modernised) quotation from Spenser is familiar:

“For of the soul the body form doth take,
For soul is form, and doth the body make.”

Almost as disgustingly unctuous as the saying, “I believe we all eat too much” is the saying, “I believe the mind has a lot of influence on the body.” A person has read some cheap literature, and reproduces the stock examples. So-and-so had a panic, and his hair turned white in a single night. A man with paralysis was convinced that his house was on fire, and jumped out of bed perfectly cured. A mother was filled with anger for some reason or other, and her milk, poisoned by the anger, killed her child. Soldiers, unable to march a step

further, are roused by the band and begin afresh. Here, by the way, we notice that, like nearly everything else, in the final analysis this is not mental alone, but physical also. The music reached the soldiers through their ears.

But how far does this principle work? How far does the mind control the body? We cannot dogmatise, and, as usual, must quote personal experiences; only let us urge each reader to think of his own and to note them down in the margin. Here is one of ours.

It was a dull day, dull and damp and sticky, as it often is at Cambridge. We were going to play a game of football, but that game was put off. In those days we had eaten and drunk “accordingly”—that is to say, with a view to a match afterwards. We did not work off the bad effects by exercise, and were depressed in mind.

Then we went to a Turkish bath. We had a good sweat, and after a massage and cold plunge we felt fit again. Our mental state apparently had depended almost entirely upon our body and the conditions to which we had submitted it.

A still more striking case is that of a friend of ours who never desired tobacco

or alcohol until he had flesh-foods. For a fortnight we have known him to live on the simpler (fleshless) foods. Then a kind friend urged him to "keep up his strength" by "a more generous diet." He asked him to supper, and gave him ham and sausages—two irresistible attractions! After these he invariably fell. In spite of the claret drunk with them, he would come back and take whisky and soda and cigars; then, the next morning, whisky and soda, lager, cigars, magazines and novels. By Monday evening (for the feast was on Sunday) he was a human being again. In his case the body absolutely dominated the mind, and, of all the minds we have met, his was one of the most brilliant. The sensual dominated the spiritual. If one had needed an instance to prove that the outside conditions had an effect upon the inside conditions, this would have been the one. Here was a man, as inventive as one could wish, suddenly becoming a slave to a habit which in his inmost heart he despised. That gets to the very root of the matter—the contempt within the inmost self as it appears at its best.

Take a similar case. A man has somehow or other reached a condition below the normal; let us say it is through over-eating and over-drinking. Then news comes that a friend is in need of help. In a moment his attitude changes. The telegram gives him energy, and he is up to anything.

Or, once again, he receives a letter informing him that he has been somehow or other swindled. Again he becomes vivid and alert. He has been roused by the news. Or he submits to what we may

call in technical language environmental and physical helps. He does nothing at all himself. He merely *permits*. Possibly he goes to a Turkish bath, has the bath and massage, and then is filled with vigour; and the cold water, with some simple pill afterwards, reinstates him as a human being. That shows how the body and its condition can influence the mind. How far the body can influence the mind is a subject we mean to treat in a later chapter. Here we must consider the mind as if it were separate from the body—an egregious fallacy, but still extremely useful for editorial purposes.

Really the body may be a sediment of the mind. We know that, every moment of our conscious life, we are choosing this or that. Repeatedly our mental choices develop into mental habits. Repeatedly our mental habits develop into body—actual body which we can see and feel and touch and so on. Conversely, of course, the body itself gives rise to mental habits, and these habits

to mental choices.

But here we hope to throw a little new light on the subject. Hitherto people have used the word "mind" chiefly in the sense of will-power. A person has to decide to do something, and to stick to that decision. Let us take a case of slackness. You are tempted to be slack and to go to sleep; but, through force of will, you become alert. You move, even if you move at the expense of great energy because the movement is dull. This we fully admit may make a grand—or at least a controlled—character. But we are not ourselves quite sure that that is the aim of existence.



FIG. 1.—POWER OF THE MIND
TO MAKE THE FACE UGLY
AND TENSE.



FIG. 2a.—A MAN EATS AND DRINKS TOO HEAVILY AND FEELS DEPRESSED.

Ourselves, we think it is most important to devise tactics for victory ; in a word, that the victory does not eventually rest only with the will needed, though that may do great work, but with the intelligence reinforcing the will.

We may, then, divide up the processes and the effects of the mind over the body into at least two sections : first of all, the will to decide and to stick to a thing ; then the intelligence to devise the tactics for doing the thing and for sticking to it.

In war, it is one thing to have the will to be victorious and to persevere ; it is another to have not only that will, but also the intelligence to devise victorious tactics.

If we may diverge for a moment, two points are worthy of attention.

In the first place, scarcely one in a hundred people understands the meaning of the word "will." Nearly everyone imagines that to "will" is to have two things brought before us, and to say, Not



FIG. 2b.—HE HAS A TURKISH BATH, COLD PLUNGE, AND MASSAGE,

that, but this. Such decisions are not the commonest. We should limit them to comparatively few occasions. The usual decision is what we may call a *permissive* one. Something is presented to the mind, and the mind does not forbid. If it would not make you morbid, analyse your next ten actions. Why do you do them ? Because nothing forbids. Not because, after a fair debate inside, you come to the conclusion that this is better than that. In a word, you have not decided for it ; you have failed to decide against it. This is the commonest use of will. We imagine that the will is to say "Yes" ; the will in most cases is the permissive will—not to say "No."

Next, the will is closely connected with the desire. "Where there's a will there's a way," is a familiar proverb. We might put it more accurately by saying, "Where there's a strong enough will there's a way," and add the corollary, "Where there's a strong enough desire, there's a will." Now what is the desire ? The desire is mainly an individual matter.



FIG. 2c.—AND FEELS PERFECTLY CONTENT IN MIND AND BODY.

When it comes to a matter of will, even here tactics appear. A man who practises with the will to win, does not necessarily win in the end. Where there's a will there's not always a way. How many of our proverbs are even approximations to the truth? Where there's a strong enough motive, then or there there's a way.

swing—is worth while, and by which one may find occasions to practise the golf-swing.

As an example, here is a girl who has no exercise, and who is seedy, and mean by "nature." Then, through the tact of her teachers, she is made to play games, because the spirit of competition comes



FIG. 3.—A RACE IS A GOOD INCENTIVE TO GIRLS WHO OTHERWISE MIGHT NOT LIKE EXERCISE.

But "where there's a will there's a way" is sheer nonsense.

It is the motives, after all, that become the will. Add motive to motive, strong motive to strong motive, and eventually you have the will, and the way, if only you have the intelligence also. *The intelligence can find motives for you and means of reminding you of them.*

So that, eventually, you may have a magnificent set of tactics, a scheme mapped out for you, and you must win the victory inevitably, almost without the use of force of will.

In this chapter dealing with the power of the mind over the body, we wish to deal with the power both of the will and of the intelligence. But, we must repeat, these two meet in the power of the intelligence to find interests and to connect these with practices; to find the ways by which one can remind oneself that this or that exercise—let us say, the golf-

in. Partly owing to the influence of the looking-glass in her bedroom she gets the desire to appear more attractive. The result of it is that, through the body, guided by the mind, she becomes well, and she becomes an honourable person.

Or consider this unexpert instructor, not born to be a tactful teacher of boys. He does not find it easy to keep the attention of the boys (Fig. 4). Then he begins to use his intelligence, rather than continue to bully the boys by thrusting his will forcibly on theirs. He explains the value of a movement; he shows how it will help success at cricket or football. At once the boys are interested. The tactics of appealing to a motive have succeeded in making the drill pleasant—and healthy.

Here let us again turn aside for a moment to touch on an eternal problem. Is it better to have plugged away and probably lost than never to have plugged

at all, but to have won as easily and simply as the person can who by the mind intelligently finds motives and reminds himself of them? Religion used to be against this broad opening. Now it is moving towards this opening. At first it said, It is almost impossible for anyone to be saved. Now surely it says, Find your interest, switch on to that a healthy practice, and you will be saved inevitably.

The most interesting instance is where the mind influences the body, and then the body influences the mind. Let us consider diet.

The mind chooses a certain diet. That diet, whatever it may be—let us suppose it to be a glass of hot milk and a plateful of slowly eaten brown bread and salad—influences the body: it begets a certain blood with a certain temperature and pressure, and so on. That state of body

your body makes your mind feel comfortable.

The mind may influence the body in another way also. You feel thoroughly seedy; you go into fresh air, and feel thoroughly well. Entirely due to environment, you say, and you are almost right. You would say, This is a case not of the mind, but of the environment or conditions influencing the body. The mind, you would say, is under the conditions of the body. And it seems to be a true statement. But if you can vividly and realistically imagine yourself in that particular air, then, with practice, you can get that particular feeling. That is clearly the mind.

As another instance of the power of the imagination over the mind and the body, consider exercise. Imagine yourself doing an exercise, and you will actually do it in

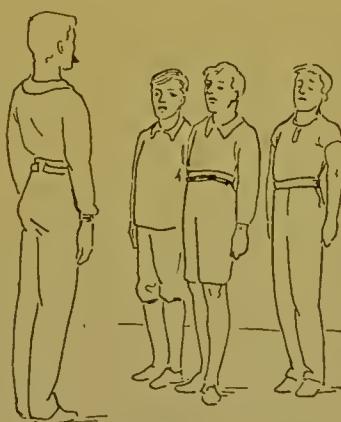


FIG. 4a.

AN INSTRUCTOR MAY FIND IT HARD TO
KEEP THE BOYS' ATTENTION—

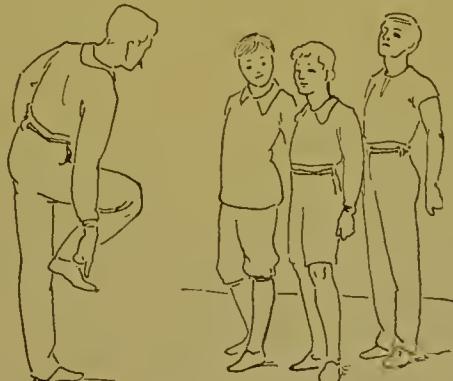


FIG. 4b.

TILL HE STOPS HIS LECTURE TO EXPLAIN TO BOYS THE
SPORTING VALUE OF A MOVEMENT.

must inevitably influence the mind once again. If such is the diet for the individual, the individual feels fit. Here the mind has influenced the body, and the body has afterwards influenced the mind. That is the almost universal procedure.

Or you feel tired yet restless in mind and body. Your mind makes your body sit comfortably, as in Fig. 5. As a result,

a mild form. And you can imagine by anticipation as well as by remembrance. A great jumper told us that he imagined himself as doing a certain jump, and he immediately was able to do that jump.

You may imagine this as a picture. It may be present before you as yourself doing a record jump. Or you may imagine it as a series of words, the words

being, as it were, the shells of realities. But, whichever way you choose, whether of pictures or of words, the result after constant repetition must be the same : you improve yourself. There is a theory (which we need not spend time over) that when you create a picture of a thing, this picture is the matrix of this thing, that it creates a mould into which the thing itself is attracted, so that, when your picture and mould are destroyed, there is left the thing itself which is attracted. In a word, thought is creative, as well as re-creative.

The power of the mind over the body may be exercised by means of words as well as of pictures. Words have myriad forms, suiting different individuals. Let us suppose a man to be under the tobacco habit. About the effects of tobacco we will assume he has no doubt, but he does not know how to give up the tobacco habit. What words can be used as a matrix for the idea of giving up that habit ? There are various degrees. Each assertion will influence the body.

He may say to himself, " I *want* to give up the tobacco habit"; he may add, " because it produces such-and-such effects." There are a dozen books we could mention that sum up these effects. Or he may say, " I *will* give up the habit." Or he may say, " I *do* give up the habit," or " I *have given up* the habit." " Whosoever ye ask in prayer, when ye ask, believe that ye have received." He fulfils that commandment ; he believes that he has received his request to have given up the habit. He finds the habit leaving him. He becomes fit in body.

It is not only in words that he can live ; he can live also in pictures. He may picture again and again and again the result or ideal, whichever one likes to call it. This is among the most striking examples of the influence of the mind

over the body ; the mind, by imagining and repeating ideals, can alter the body.

This imagination is a harmless inducement to a person to keep to the straight path. He sees himself as he will be, and he says, " In view of that future, it is not worth while to deviate from the straight path. That future is so delightful in every way that nothing else can divert me from the road to it." Or the ideal may be regarded as the seed of the reality. You imagine the ideal, repeat the imagination, and in course of time you get the reality. It does not matter how ridiculously above you or beyond you the ideal is, so long as it leads to sensible intelligence to devise tactics and to practise tactics.

No occasion is too small for the practice of these tactics. Before exercise—apparently a trivial matter—you can say, " I'm going to attend to the exercise," and especially you can say, " I'm going to do it leisurely." Remember that you are the mind. The mind is or is to be master of the body, not for the sake of the body, but for the sake of the mind : the mind is a selfish thing. Your face, your breathing, your hands, all of them are abnormal. It is comparatively unimportant that they are abnormal, except that they injure your mind by being so. Now you are going to reform your face and breathing and hands for the sake of your mind.

We have noted already the case where fear, and any other emotion you like to mention, has influenced the body. Professor Gates at Washington has proved that these emotions influence the body chemically ; they change its chemical composition. We know also how circumstances influence the body ; for instance, how change of climate, even change of water, influences the body. The great majority of people rely upon

external helps for their physical state. But the mental helps are infinitely more reliable than these external helps. To will to take exercise—for instance, to suggest to yourself that you will or do take exercise—that is a far more valuable way towards health than to go to a place where some one or other would force you to take exercise.

In a word, get your own dynamo within you. Do not be dependent upon some alien gas or electric supply company.

And devise and use your tactics sensibly, as if you were practising wrestling or Jujitsu. Do not imagine that there is any great merit in rushing straight at your opponent and being knocked down ! How is it that so many wrestlers and boxers and other athletes who in their athletics practise the newest tactics, together with fair play, yet in their work practise the oldest tactics, which are also the hardest, and get beaten again and again ? How is it that we rely so much upon sheer will and despise tactics ? That is the gigantic fault of Great Britain—that it calls attention to its “bulldog” pluck. Of what avail that “bulldog” pluck if another clever dog, by some ingenious device, can seize hold of our throat and throttle it ? Surely it need be no less plucky because it practises skill also.

What we urge is the play-spirit of the best kind, which we have tried to describe in a book called “Let’s Play the Game.” There we maintain that the ideal man will be supremely skilful, through tactics intelligently devised, and through practice of these ; that then he will show cheerful patience, more practice, more

observation. He will give the thing time to work ; he will not expect an instantaneous reformation. That is the spirit we advocate.

Applying this to yourself, we should say to you, Study yourself ; make a chart of yourself and for yourself. Consider when and where and how you should practise. All this is mental. It will influence your body and hence your mind. Perhaps you will distribute your practice over the day. At such-and-such a time you will imagine this or that good exercise. At another time you will practise breathing. At another time you will relax your face and your eyes.

Faddy, you may think. But the supreme criterion is your all-round fitness, not the opinion of dyspeptic and otherwise orthodox Jones. You may find that your best plan is to master one exercise ; then to add to it another, and then another, without giving up the first. You will copy out each suggestion on your own paper, with a blob for the head, a line for the spine.

and two lines for the legs, two lines for the arms. That drawing of yours, due to your own mind, will be of more value than a myriad photographs. You will not try too much at a time, but will first master one exercise thoroughly.

Then you will find all *your* motives. These you will write down. Of these you will remind yourself, so as to have incentives to action.

You know the values now of proper exercise, on the body and on the mind. These values are, to repeat once more, physical, hygienic and athletic, aesthetic, spiritual and moral, intellectual, econo-



FIG. 5.—YOUR MIND MAKES YOUR BODY SIT COMFORTABLY ; YOUR BODY MAKES YOUR MIND FEEL COMFORTABLE.

mical, social and domestic, and prospective.

You will ask at once, What is the proper exercise for me? This PHYSICAL EDUCATOR will not be able to dictate. It will be able to give you a number of exercises from which to choose, and a number of criteria by which to choose.

But your own mind must tell you which you must choose in order to restore the upset balance.

Let us conclude with a personal example. We ourselves have to do much in order to restore the upset balance. We have to exercise the neck, the left side, and, in general, the repose.

But, to reinforce what we have said, we must assert that we do it because it is worth while all round. The reason is in our own mind. We shall use no sheer effort of will. Ours is a practice based upon desire and interest: we do these things because we want to.

So the power of the mind over the body is enormous: The mind, to take the case of exercise only, must find the exercises that are best. These should be

the fewest possible in number, rather than some huge chart taking an hour or two. The mind must find the motives for exercise. Here the reverse is true: the motives should be as many as possible. Then the mind should use its will, now exerted more easily because the exercises and the motives have been discovered. Then the mind should use the body, not for the sake of the body, any more than a carpenter uses his chisel for the sake of his chisel, but for the sake of the mind and what it produces.

In a word, the mind uses the body and exercises its power over the body, because the body is its instrument, its expression, and its consolidated form: The present body is the past mind. If anyone says, in contradiction of our tenets, that the body does not matter, let him remember that the body is the criterion of the past mind, because it has a form which that past mind has built, and that the present mind must inevitably be the result of the past mind. By a man's present body he is condemned or acquitted or praised.



FIG. I.—ATHLETES CROWNED BY LADIES AT THE ATHLETIC FÊTE OF CHAUX DE FONDS.

(Photo by Messrs. Link, by permission of Mr. E. Lawrence Lévy.)

CHAPTER XLVI.

ATHLETIC SPORTS, AND AMERICAN METHODS.

(*The plain-line drawings are adapted from Walter Camp's "Book of College Sports" and Harper's "Track Athletics in Detail."*)

Apparent Simplicity of Races—Yet they Consist of Different Parts—Any Inferior Part may Ruin the Whole—Great Concentration Needed—Long Preparation—At First Sports were Haphazard—Then came Method—Need of Brain-work for Technique and Tactics—Useful Lessons for the Mind—Fallacy that we take our Sports too Seriously—Distinguish the Competitions and the Practices for them—A Personal Experience—Sports not Complete Physical Education—Must be Judged by All-round Effects—A General Rule—Practice with a View to Greater Enjoyment Afterwards—American Exaggeration—Slavery to a Trainer—Self-devotion to a Group—“Grouching”—Neglect of the Majority—Resting on Laurels—Over-development—A Lesson from the Continent—The Standard—Lessons from America—Practice a Real Business—W. Travis—Practice of Part-by-part—Practice of apparently Alien Things—Example from Baseball—Ingenious Contrivances—Running-tracks in Gymnasia—For the Sake of the Team—Search for the Best Ways—Baseball again—Squad-work—A Mastery of the A B C—No Precaution Neglected—Massage a Matter of Course—Long-distances and Why the Americans Fail—The Hundred—Starting—The 220 Yards—The Quarter—The Half—The Mile—The Hurdles—High Jump—Pole Vault—Long Jump—Hare and Hounds—Walking—The Shot or Weight—The Hammer—Water-sports—Suggested Improvements—New Sports—Left-side Competitions—Dribbling—Archery—Handicaps—Team-running—Advantages of Athletic Sports—Hope for All—A Few Final Tips.

HOW simple a thing it seems to run a few hundred yards! You start as soon as you can; you run as fast as you can; you scarcely think of the other people at all. Yet in reality several arts

are combined in this single sprint. For instance, take the start. Conceive this: there are only a hundred yards to be run, and if you are the fifth part of a second late in starting you may lose

nearly two yards of the whole race. It is not easy to catch up two yards in a hundred ; you need extraordinary nerve, natural or acquired, to set yourself in motion without that fraction of a second's delay ; you need extraordinary skill, natural or acquired, to get into your stride at once. And then that stride itself—straight and not too long.

You have no notion, if you are not a sprinter or a theoretical student of the art, what a vast amount of labour you save by the straight movement of the legs. How much of swiftness is connected with straightness we seldom realise (business-methods would lead us

At first, however, it was not so in any sport. At first, except with the genius, it was all haphazard. The man started anyhow, ran anyhow, as we see most performers doing in rustic sports, and as we see them in public school sports, as a general rule. Perhaps this comes out more clearly in the hurdle-race. Many boys still run between the hurdles and jump over them, as if it were an ordinary high jump. How carefully mapped out is the whole process of the expert hurdler to-day !

Not only has there been this change, this system and method introduced into each part of what was once a recreation ; but there are better implements connected with it ; a better track underfoot, uniform hurdles, a better hammer (which now is utterly unlike a hammer ; you could not safely knock a nail in with it), better running shoes, better everything—except recreation ; certainly more and better head-work before and after the race ; without such head-work so many records would not have been broken. The records are broken not merely because a certain person has an extraordinary aptitude—being, for example, very tall—but also because he profits by all the art of all previous performers.

Mr. Graham has written admirably on this art and head-work in his little volume on athletics, published by Ward, Lock & Co. His words on a famous race in the sports between the rival universities of England and America are worth reading.

In fact, we shall find athletic sports full of intellectual and moral and nerve lessons, as well as physical lessons. The danger of such a point of view is that we shall take the athletic sports "too seriously." Let us try to remove this objection once more. It crops up again and again, very like any other sort of



FIG. 2.—LONG AGO THE AMERICANS WORKED OUT THE WAY
TO MAKE A BASEBALL CURVE IN ITS FLIGHT.

(Adapted from Walter Camp's "Book of College Sports.")

to suspect the reverse, until we see the end of these men). And no small amount of nerve is required for the sheer concentration. Not an alien thought must enter in, not a thought that So-and-so, being some distance behind you, cannot possibly win. You must go for all you are worth all the way. The tax upon the breathing is gigantic. The start itself may need weeks of practice and almost—so a high authority in America has asserted—years of experience, till, he says, it comes to look like a dishonest collusion between the starter and the sprinter.

fungoid growth ; all that we can do is to cut it off every time we see it.

People make a great mistake through loose thinking, when they vaguely disclaim against our taking our athletics "too seriously." To take *the practice* for athletics seriously, does not mean to spend much time



FIG. 3.

A SPRINT,
FROM START
TO FINISH.

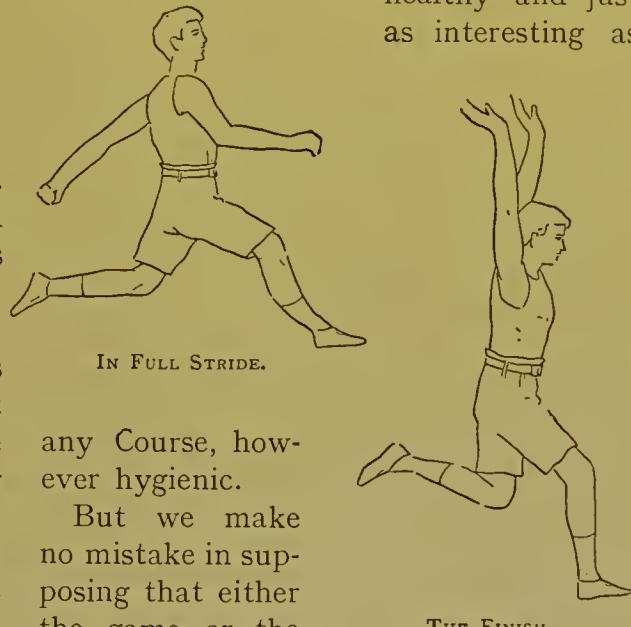
over that practice.

We would guarantee to improve an average man's skill more by five minutes of sensible practice in a plain room every day than by hours spent in constant repetitions of the sport itself. About this bedroom practice there is one great advantage : it need in no way interfere with the sport as a recreation. During the sport you must have the recreation-spirit, the play-spirit. It is before and after the sport that you practise—seriously indeed, but not grimly. In a word, our course is to *keep the seriousness for the practice*—outside the sport itself, so that during the sport itself we may enjoy ourselves with a free mind.

Once again let us be egotistical and quote personal experience. There is nothing that we enjoy more than a game of tennis, let us say, against Sir Edward Grey. During that game we are thinking of tactics and the play ; it is a matter of surpassing interest ; yet still a recreation, a thorough change from work. But this is only because outside

the court we have spent innumerable spells of five minutes, more or less, over the practice of the positions and movements of the feet, legs, trunk, shoulders, arm, and wrist. That has been the serious part of the occupation ; the game itself has been a real game ; we throw our whole life and soul into it at the time.

Afterwards we talk it over for a bit, perhaps ; then we drop it, except that we think a bit of our chief faults, and try to remedy them during some bedroom-practice. That bedroom-practice seems to us just as healthy and just as interesting as



any Course, however hygienic.

But we make no mistake in supposing that either the game or the practice or the two together are complete physical, mental, and moral education. They are nothing of the sort. They are things worth doing : not the only things worth doing.

Now apply this to athletic sports before you condemn them, or even before you condemn the excessive devotion to them that some rather empty-headed athletes have displayed. The whole lot of athletic sports put together are not complete physical education. Still less

are they complete education for the intellect and the character. They are full of valuable physical, mental, and moral lessons, but they are not self-sufficient.

And it would be an error to take them too seriously and too "educationally." A far better plan seems to be to find out first what they are worth all-round; then to find out what is their technique, what are their tactics; to study the sports, in fact, as very fine and wholesome hobbies: wholesome, because they are a grand form of social life and of competition, in which the man can go to his extreme of ingenuity and originality, yet still be honourable and courteous. Having worked out the technique and the tactics, we can devote a certain amount of time to practising these, outside the sport itself.

During the sport, which now becomes much more of a recreation, since the mind is more free to be *the* mind, it is almost impossible to devote too much attention to the matter in hand. During the sport, then, we must attend to it. Outside the sport we have two duties: first, to improve our technique and our tactics; secondly, to see the sport and the practice for it in proper perspective, merely as members of the whole all-round life.

Now the Americans observe one of these rules, not the other. We shall speak of them more in detail directly; here we must condemn once for all their attitude towards sport (at least the attitude of those who go in for it at all). The practice for it is sheer slavery. The moment a man is thought to have any chance of representing his college or university—his "college" may contain several thousand men—he is taken in hand by a trainer; he submits to a *régime* which sets excellence in that particular sport—perhaps a narrow sport

—first and foremost, and everything else nowhere. True, this training commands purity of life, moderation, self-sacrifice with a view to the success of the team, and a number of other virtues. But the training is slavery. Brain-work is second or third, not first or second.

The typical college-athlete cannot understand how our 'Varsity men are allowed freedom. "Are these your rowing Blues?" one of them said to us at Cambridge, after he had competed in the Olympic games many years ago. "But where are their trainers? How can their trainers let them go out of sight?" And the result of this slavery is that "grouchy" expression of face which, to be candid, we simply abominate; it seems to us a vile countenance. Let the man be as keen as he likes on his game while the game lasts, but, for Heaven's sake, let him not transfer to daily life the grimness and sharky desire to devour lesser fry which he thinks it necessary to display during the competition. Americans are better now in this respect than they were, but they still have much to learn from our quieter athletic representatives.

And among other lessons which they must learn from us is this: that the success of a few athletes is of little importance compared with the failure and the want of participation in athletic sports shown by the majority. When a whole university of many thousand men does not seek minor games, each man choosing his own exercise and recreation, but is content to watch and applaud, and perhaps pay, a few gladiators, then we do not call that college wholesome; that is indeed athletics taken too seriously. The worst athletics for you to take too seriously are vicarious athletics, in which you belong to a crowd that watches a few acrobats.



FIG. 4.—A HURDLE RACE. (*From right to left.*)

It is not as if the athletics were complete physical education: they leave many parts of the body not properly developed, while they over-develop the other parts, probably the chest and the heart.

Another evil is the tendency to rest on laurels. The word *laurel* suggests a comparison. It seems as if its effect was mental as well as physical. We know what a powerful opiate the natural laurel is. The metaphorical laurel may be a powerful opiate too. What huge numbers of footballers, rowers, and sprinters treat their laurels as opiates, rather than as stimulants to prolonged and continued feats—perhaps feats of a milder kind. Here to-day is the athlete playing football or rowing or sprinting or jumping for his college. The year after next, what exercise does he take? Little or none. He is now in an office. The lungs, once so fully—if not over-finely—exercised, now get practically no exercise at all.

On the Continent there is a better plan. The athletic feats there, for which numbers of gymnasts are crowned with a wreath—sometimes by lady-distributors of prizes—are not for gigantic record-breaking achievements: they are for milder feats, done in competition less against others than against the past self. The object is not so much to beat an opponent as to reach a standard; and the man who at the age of twenty-two reaches a not very high standard in one form of exercise, will not rest on his laurels, but will go on and reach a higher standard there and an equally high standard elsewhere. That is where America errs: too much attention is paid to the few conspicuous athletes; and even they are conspicuously athletic only for a few years of their life; after that, the deluge—the unresisted deluge—of business

Yet we on our side can learn a number of lessons from America.

The first lesson is that preliminary practice should be made a real business. The Editor has made his preliminary practice for games a real business. It has not taken much time—certainly not more than a few minutes a day. It seems now abundantly worth while; he does not regret a single second of that time. In England we are too prone to do things again and again *anyhow*, hoping that we shall “get along” and “find ourselves right enough at the other end.” It is a rotten principle, and already the nation is suffering for it. We say, “Let us do it *any how*.” The Americans say, “Let us do it *the how*.” The Americans search for the very best; they wish to go one better than anyone else has ever gone before. Their devotion is supreme. They must win, and therefore they must find out the technique and the tactics.

Take again the case of Travis, the amateur champion of the world at golf. The Editor has heard many Englishmen complain of the grim and absorbing “business” which Travis made of his golf. So he did. For many whole months he studied the training of body and nerve. By that concentration he was able to find out about these matters, and about implements, about technique and about tactics, and so on. He found out, and practised sedulously. For at least six months he seemed to have had no other aim in life but to win the English championship. Our people complain that this is carrying the matter too far; that Travis has been doing no work during all this time. But as we run our impartial eye down the list of names, how many of these competitors—and, we may just add, hundreds of inferior players all over England—have done much steady brain-

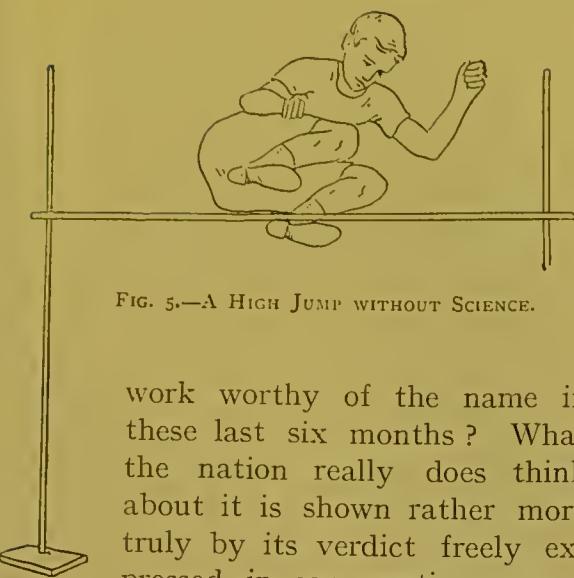


FIG. 5.—A HIGH JUMP WITHOUT SCIENCE.

work worthy of the name in these last six months? What the nation really does think about it is shown rather more truly by its verdict freely expressed in conversation everywhere. First, there is the respect for Travis, and congratulation to him upon his victory. He played well enough to win; he practised well enough to win. Then there is a feeling of disgust that our men, perhaps with superior physique, certainly with equal opportunities, when fighting for their nation, did not put more sensible practice into their last six months. Of course, if a man is only going to play every now and then, and to regard the game just as a change, well and good; but if he is going to fight for a national honour, for the people's sake let him regard the matter a little more seriously at the time, and study and practise a little more intelligently and patriotically. If it is worth while going in for a national tournament, it is worth while preparing for it with heart and soul.

The lesson from America is not merely to do the thing itself, not to practise sport itself alone, hoping to get along somehow—that does not content the American at all. The A B C of the art must be mastered—the correct A B C—till it becomes easy and a part of the

self. Then the art itself becomes worth doing. Thus Mr. Walter Camp says, of the arts of walking, etc., "The walkers, together with the weight-throwers, should have some expert to teach them at the start the proper motions." Now the Editor went through his school- and university-life, almost to the end of his third year at Cambridge, without any such expert telling him the proper motions or the proper positions. He acquired extraordinarily bad habits at all forms of sport, and had to teach himself and drill himself out of them.

Surely *if* we are going to spend so much time over our sports, as we certainly are, it is worth while to spend a few hours over the mechanism of them. The stupidity in refusing to consult the expert at the very start, so as to secure the best positions and movements, has absolutely nothing to be said for it; it is simply crass. Among other errors, it deprives the player of his full enjoyment afterwards. If he is not doing himself justice, he cannot possibly get his proper pleasure out of the game.

There seems to be a theory that practice makes perfect. Practice of a bad habit may improve the standard up to a certain point; but *there* comes the dead wall: beyond that point a man

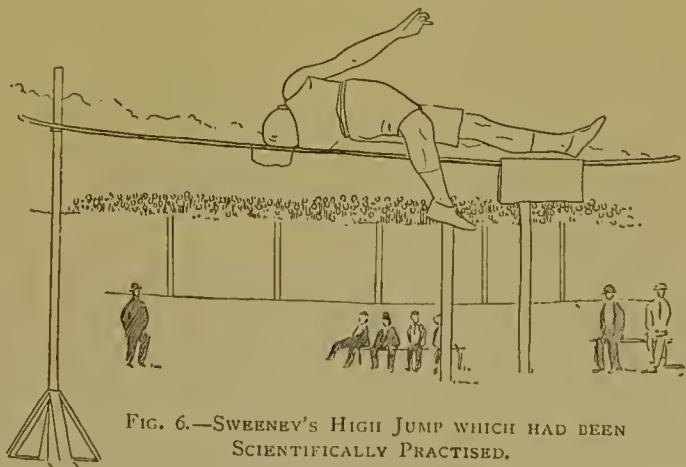


FIG. 6.—SWEENEY'S HIGH JUMP WHICH HAD BEEN SCIENTIFICALLY PRACTISED.

cannot go, so long as his technique is wrong. Give him a good technique to start with—it may be a matter of a few hours if we start early enough—and here is a foundation on which he will succeed, and from which he will get more pleasure, with less than a tenth part of the time spent afterwards on the play itself.

Take a race as an example. In order that he may excel at that race, the American does not practise that race itself. He will perhaps usually run a half to two-thirds of the distance, and the whole race once every week or ten days. Meanwhile, he will practise starting daily "under the pistol." His longer running he will vary with short, sharp bursts.

Then he will find out about himself. Not only will he study his weak points and correct them, but he will run with the watch, not to overtax himself, but to learn himself—*i.e.* he will run thus till he can judge his pace and time without the watch. That is thoroughly sensible. He is less dependent on runners-up: he is more self-complete.

And he will practise a good many apparently alien things. He will practise skipping. The weight-men through the winter will practise with chest-weights and pulleys. The baseball-players through the winter will practise with ropes to harden their hands. They will practise throwing by means of the spool on the inclined string (we have described it elsewhere). All this in addition to the practice of the parts of play, such as running to bases, ordinary throwing, catching, and so on.

Indeed, the whole team usually has its daily course of gymnastic work, with a view to its play, during the winter-months, before the baseball-play itself begins.

And the practice is devised with a

singular ingenuity. The man who is going to put the weight will find in the gymnasium imitation-weights covered with felt or canvas. The man who is going to do the high jump will find mattresses arranged for him.

Above all, the man who is going to walk or run, or, indeed, any man who is going to train for any athletic feat, will find a gallery running round his gymnasium, with a track for walking or running. We believe that such a track already exists at Liverpool. It may exist elsewhere in England for all we know. What we do know is that it is the exception *not* to see such a track in an American gymnasium belonging to a college or club or Y.M.C.A. institution.

All through the training, preparatory to the event so far off, there is implicit obedience to the trainer *for the sake of the team*. We have no idea in England of the devotion of the American to the club to which he belongs. A good deal of the dishonesty that the Americans have been accused of in sport is dishonesty not so much for the sake of the individual—in individual sports we found dishonesty comparatively rare—as for the sake of the team; dishonesty which the Romans would have considered quite justifiable. Such a man as Cato, scrupulous in relation to the State, was unscrupulous in relation to enemies of the State.

It is not merely practice of parts of the sport in a mechanical way: there is also study and practice of the best ways of doing any given thing. Let us note a few instances. At one time the pitcher at baseball simply threw the ball anyhow, though of course as straight as he could. Then it was found that the pitcher could make the ball curve in the air. Bowlers in England are beginning

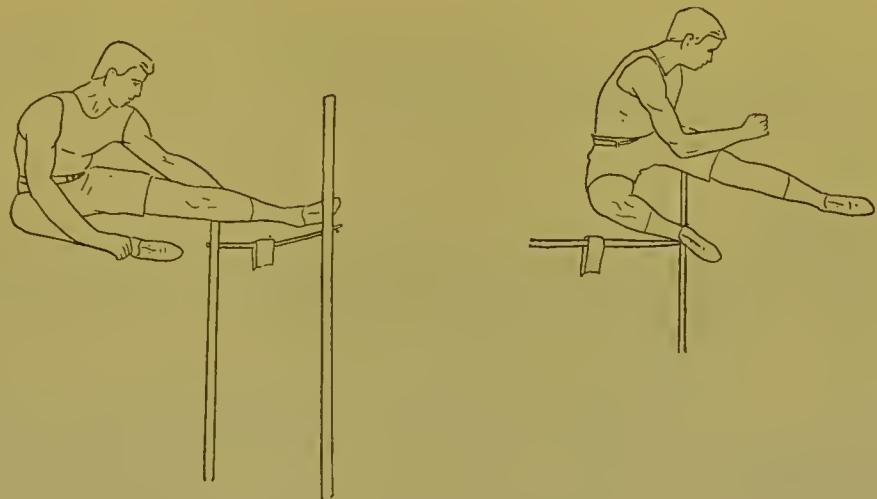


FIG. 7.—POSITIONS OF A HIGH JUMP.

to discover this; Trott and Hirst and a few others use it when they can. But in America it is a regular and mechanical practice. The hands and the fingers are used in a certain way to produce the curves upwards, downwards, to right, to left, or various combinations of these. The result is that,

observed and known. In fielding at baseball, again, how wonderfully accurate the Americans are, even the American boys at school. A ball is coming towards the face of an English cricketer, and the chances are that he will try to catch it with his hands held in the same position as for a catch low down. Abel himself

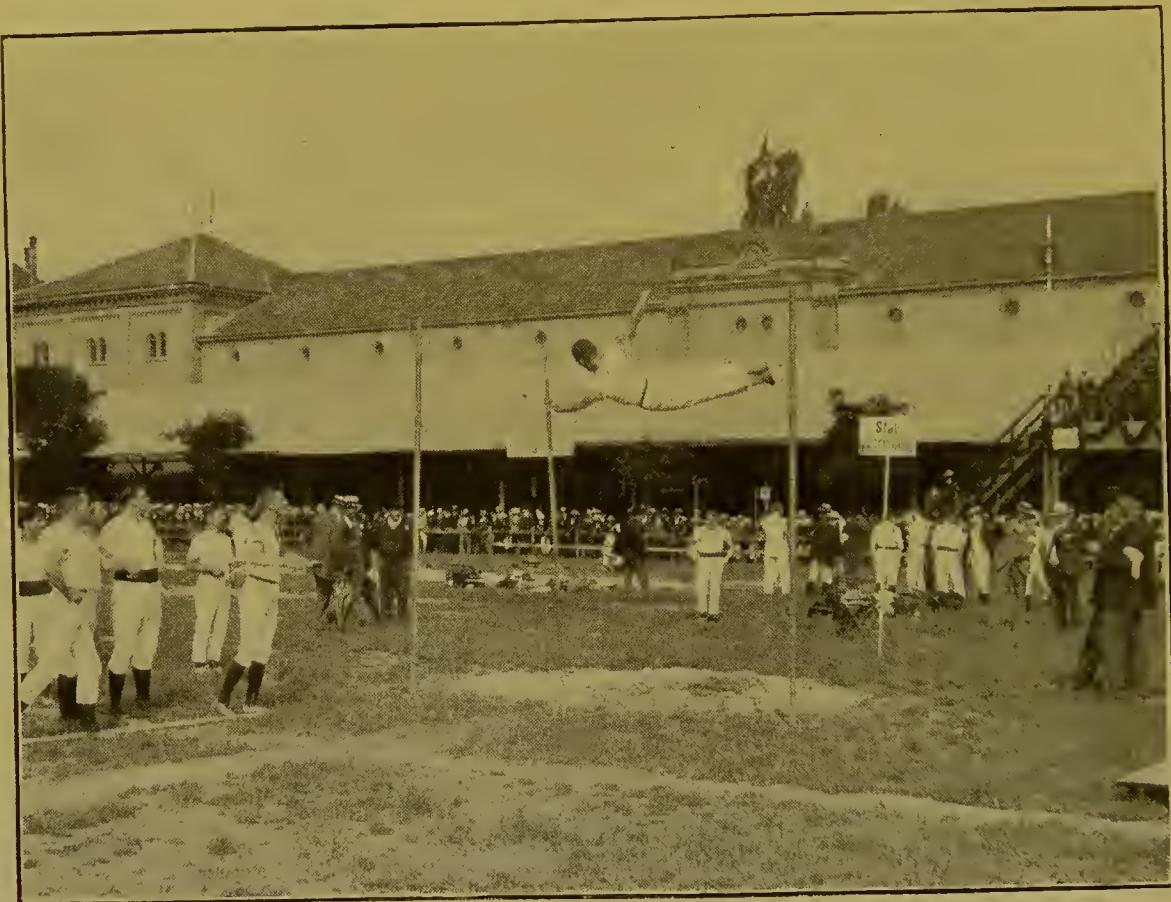


FIG. 8.—POLE-JUMPING AT ZÜRICH.

(Photo: Ph. and E. Link. By permission of Mr. E. L. Levy.)

as you stand opposite the pitcher, the ball comes straight for a certain distance; then suddenly it swerves. You strike where you think it is going to be, and you miss by many inches.

As in the case of Travis's golf, there is nothing left to chance; it is all worked out. The cause and effect—or at any rate the effect—of every change is

told the Editor that this was the hardest catch to hold; Shrewsbury said the same. The American has found, by experience, that for this catch it is easier to hold the hands with their backs towards the face, so that one is looking at one's finger-nails; one's fingers are pointing upwards. When the ball comes straight at the face, the American scarcely ever

misses it. Then, again, watch him throw in from a short distance. How marvelously he gets the direction and the elevation. Study how he gets it. He pays careful attention to the position of his legs and to their movements. He practises with the spool on the inclined string. He brings his hand well up behind the ear; then brings it forward well in front of the face, so that his eyes may be nearly in a line with the direction and the elevation.

Another feature is the squad-work in America. Inventive as the original American is, and able to take care of himself, he is yet wonderfully capable of acting together with others, whether in unison, or on the principle of division of labour and specialisation. Hence, whereas we have individual races, the Americans have far more team-races, in which it is necessary that each of several runners shall be good. Whereas we leave our university-men to get their exercise as they can, at Yale the first-year men are drilled in squads. The teams are coached in squads whenever such squad-coaching is thought to be of advantage to the team.

But, above all, the American learns the A B C of his craft before he practises the craft frequently. He knows the difficulty of eradicating a bad habit. At the beginning he goes to the coach, and, if necessary, he practises part by part, putting up with the present drudgery in view of the future success.

It is impossible to over-estimate the difference made by this preparatory practice of each part of the complicated art.

In addition, however, to this practice, which by itself might be enough to secure victory, the American neglects no precaution. Before the race he will be massaged and rubbed. Now the value

of massage is realised by such high authorities as W. G. George and his brother, and by Harry Andrews, whose views on training we have cited in a previous chapter. Our athletes are beginning to know what massage can do in limbering up a man and warming him, and starting his circulation before the competition. *But what our athletes do now and then, the Americans do habitually and as a matter of course.* We believe that no American athlete would dream of competing in any important event without previous massage.

In long-distance races alone is the American inferior. That is partly because, during the winter, he does not take much exercise in the open air; partly because he is too highly strung; partly because, hitherto, his system of feeding, and indeed his whole system of training, has not been adapted to his special needs.

We have never yet heard of any American team practising relaxing. Our athletes need it little: they are a more peaceful set of men on the whole; but the Americans, with their jerkiness and jumpiness, cannot expect to endure the three miles unless they practise physical economy and repose. Consider this advice, for instance: "He must grit his teeth, squeeze his corks, and go ahead, though he feels he will drop." It is a thoroughly rotten piece of advice to a man already nervous. It may help him for that race; but he should have been trained to dispense with these unscientific ways. We believe many breakdowns are due to this idiotic and hideous tension.

Now let us consider some of the advice which American and other authorities give about ways of training for various events in the sports.

We draw freely from the advice offered

by such high authorities as Walter Camp and the writers in Harper's excellent work on "Track Athletics." That work is admirably illustrated, and should be on the table of every boy who intends to take up Athletic Sports—that is to say, of every healthy British boy.

The Hundred Yards consists of three parts—the start, the stride, and the running itself. With regard to the start, opinions used to be divided between the crouching- and the Sheffield-positions. In the crouching position the fingers are on the ground, one foot is on the mark, and

he was able to reduce only to half a yard or a yard at the finish.

The American hundred-yards-sprinter will practise light work and various gymnastic work during the previous season. He will practise starting and then running twenty-five or fifty yards at racing-pace on alternate days. Sometimes he will practise a hundred yards at a jogging pace. Here is his scheme of practice from Harper's book. It is a good object-lesson in American methodisation. It is for a beginner who has never undertaken any systematic training

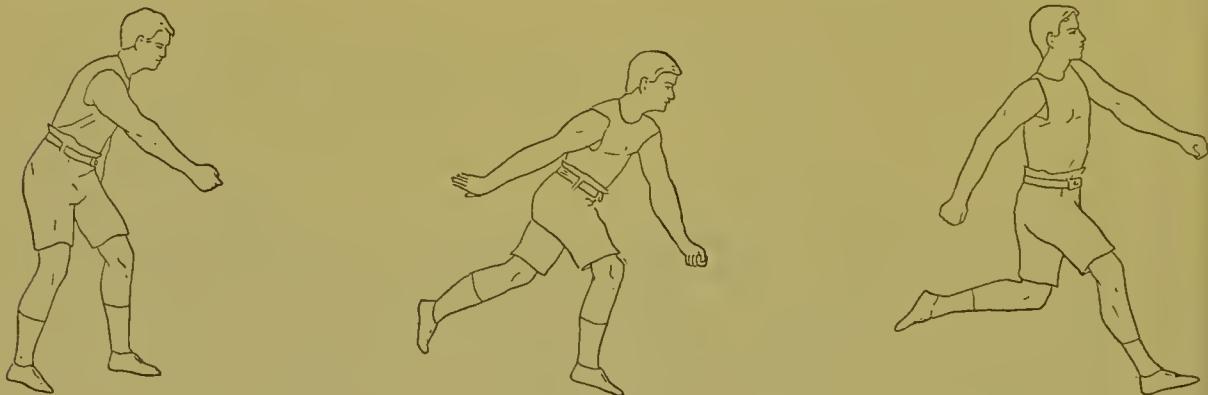


FIG. 9.—POSITIONS OF LONG JUMP

the other behind the mark. The fingers and the feet all help in the start. The Sheffield position is more upright. "The man bends slightly forward with his body partly turned; one arm projects in front; the other arm is lifted behind." The American will practise the start again and again, frequently with the actual pistol, so that he may become accustomed to its sound. The Editor remembers how it used to give him the wrong kind of start at school, so that, though he was fast in the "ninety and nine," he was slow in the start. He used to catch up his opponents, but not quite enough to win the race; the one or two or three yards he lost at the start

in sprinting. He must carry this out for three weeks:—

"*Monday*.—Practise the start six times, running at speed only about 20 yards from the scratch. Rest between each attempt, and end up by jogging 50 yards, finishing up the 100 at speed.

"*Tuesday*.—Jog a quarter of a mile, for the purpose of developing the stride.

"*Wednesday*.—Run 75 yards at speed; rest, and then run 50 yards at speed.

"*Thursday*.—Practise the start ten times, running, as before, not farther than 20 yards each time; jog 220 yards slowly for stride.

"*Friday*.—Run 50 yards at speed twice, with a rest between.

"Saturday.—Run a trial 100 yards on time, and, after a rest, jog around the track for 220 yards.

To an ambitious young athlete who feels that he is a future record-holder this schedule may seem altogether too light. There are no words strong enough, however, with which I can urge him not to attempt to do a bit more at the beginning. What is more, at the slightest sign of fatigue at this work, quit for the day.

"For practising starts, where a pistol is unavailable, get someone to snap

that you can make a stronger finish if you ease up a trifle for five or ten yards at the 200-yard mark—although this is merely *comparatively* speaking, for this race is a dash from start to finish. It will be better not to experiment with this suggestion until you have become a pretty good judge of pace."

In addition to this we recommend once more George's "Hundred-Up" as invaluable for all athletes. Part of its merit is that it can be used anywhere for a short or long period. Part of its merit is that it develops the straight



FROM START TO FINISH.

two boards together. Don't start by oral command. Get in the habit of getting off the mark at the crack of a pistol, or to a sound as nearly like it as possible. The jogging round the track should be taken very slowly, and is intended purely as a leg exercise and to develop the muscles of the calves and thighs. A long, loose jog will lengthen the stride. When preparing for a contest, lay off altogether the day immediately preceding it, and don't run your distance against time for three or four days previously. Run only 50 yards at those times if you are going into the 100, and try 150 if you intend entering the 220. In a 220 race you will find

movements of the legs, so that no force is wasted in curves. It is a principle that the Editor has worked out for various games—rather, perhaps, for the arms than for the legs. The white line along the floor of his bedroom helps him to keep his stroke straight, just as the two lines which George puts on his floor help him to keep his legs straight.

We need add little with regard to the 220 yards. The practice will be slightly different, though there is scarcely any difference in the pace. "Go as if death were after you"; that is a typical American piece of advice, and it is not bad, so long as you are quite sure—thanks to a medical examination—that

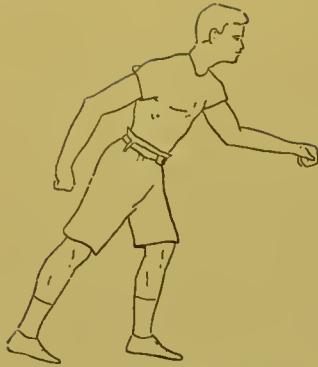


FIG. 10.—POSITIONS OF WALKING.

you can stand the strain ; indeed, a medical examination should precede all such training.

The *Quarter-mile* is not at quite so severe a pace, even though it may be a more severe tax upon

the system. The quarter-mile-man runs at the rate not of ten yards a second, but of ten yards a second with quarter-seconds in addition : that is to say, if he divided up his quarter into hundred yards sprints, he would do it about four seconds more quickly.

The American will probably practise his quarter by previous training of a general kind, especially light work. Then he will do a few easy quarters, sometimes an easy half mile, sometimes a three hundred at nearly full pace. Once a week he will do a quarter at his best time. Often he will practise under the watch, so as to see how he is going and to make it an instinct to know his own average pace and time. There is a strenuous piece of advice, unsafe for those who have weak hearts : "Run your first 220 as fast as you can ; then finish on your sand." We are not sure that this advice is altogether sound. The start should be as quick as possible ; however quick it is, it will not be the full pace of the runner. The full pace should certainly come at any rate during the middle of the quarter, and of course at the end of it the man should put his last kick into the effort. But we are not sure that the whole of the

first 220 yards should be a supreme effort.

The Half-mile runner is given very elaborate instructions. He is told what to do daily for a long period before the race, and what to do at each stage of the race. He is told to keep cool and calculate the thing out.

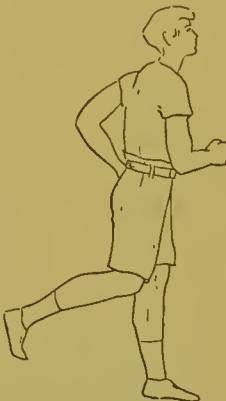
The Mile-runner should always take a half mile and a three-quarter mile under his best time, and then finish fast ; in a race he should keep to his own pace for the first quarter.

We should like to quote many more little tips from America and elsewhere, but our space is limited.

The Hurdler should try to clear the hurdles by as narrow a margin as possible. At first, as we have said, the hurdler had no definite number of steps ; now he runs with an unchecked stride, which he just exaggerates as he gets to the hurdle ; indeed, he only loses half a second at each hurdle, as compared with the full sprint without hurdles.

As preparatory work, he practises the "take-off" and the sprint, and then the race for about three or four hurdles at a time. For high hurdles he takes three steps. His jump and stride is analysed as follows : There is a fourteen feet jump ; then a five feet step ; then another jump. Here is a typical American hint for previous practice : "At first try the hurdles near together, till you can get your full stride ; then gradually increase the distance between the hurdles."

"All *Jumpers* and *Vaulters* should first



run easily till they strike their mark and get into stride ; then they should speed confidently to the 'take-off.'

The jumper has to wriggle. The high jumper at first tried to get over the line somehow. Then the snaky movement was discovered ; it was found that he could just get one part of his body over ; then by a jerk, using every possible advantage, worm the rest of his body over, no part of it being unnecessarily high above the line at any time.

The *Pole-jumper* in America will practise on the parallel bars during the winter. He will also do indoor vaulting. The Americans do not climb the pole while they pole-vault ; they keep to their original grip.

In their *Long Jump*, of course, they get well into the air—in fact, some people have practised with a string,

eighteen inches high, put twelve to fourteen feet from the take-off, so that they may be forced to go upwards. The man regards his body as if it were a cricket-ball which he has to

throw for a long distance ; the longer the distance the higher the throw.

At *Hare-and-Hounds* there is also leading-up work. The man does not practise by going the full distance daily : he does far shorter distances and ensures correct action.

This applies to *Walking* also. One has little conception of the pace at which



an expert can walk. Content with four miles an hour, one is amazed, when one comes to walk beside the expert, to find that he goes at nearly double that pace ; one begins to trot so as to keep up with him ; still one lags behind. Indeed, he does his mile walk in only two minutes longer than the mile-runner does his mile run ! We begin to see that this hideously ugly effort which he makes is not without purpose : there is science in it ; though, as we have pointed out elsewhere, the action for very long distance walking might be altogether different ; probably the bent leg method, after practice, would be the one at which most people would do their best feats, especially if part of the ground were uphill.

The rule for walking is that the heel must strike the ground first, and that some part of one foot must be always on the ground.

Mile-walkers will practise not merely by walking miles, but also by fast quarters, and occasionally half-miles and three-quarters, as well as long distance jogs. Here, once more, we must cut ourselves short from a long string of tips. What we wish to say is this. It is a lesson for

the whole of life that a man need not learn his own feat best by performing that feat ; it may take him years to work out for himself what the best preparation is. Perhaps in a whole lifetime he might never guess by

himself that the best preparation for a mile-walker was what we have just described, in addition to George's

"Hundred-Up" and breathing and other exercises.

With regard to *Cycling*, we need add little here. It is not altogether a delectable art, this cycling, considered as an athletic sport, except that it is an incentive to many to keep in training. There is considerable science in it, of course, but we cannot regard it altogether as a "sport" to-day.

The Shot is apparently a dull pursuit. It is a fine exercise for many trunk- and shoulder- and arm-muscles, as well as for the legs. It is an exercise in poise and control over the weight, especially after the effort. It, again, is an exercise in straightness: the weight must move straight and fly close to the ear, not out and away in a curve, lest it lose force.

The Hammer is a somewhat similar exercise with respect to its effect on the body. The illustrations show some of the movements which it involves.

Water-sports, again, may be passed over with a word. There is much fun in the greasy pole; much skill and health and other advantages besides in water-polo; magnificent exercise, for various reasons, in skating, when we can get it, and especially in hockey on the ice. It has been suggested, in *C. B. Fry's Magazine*, that roller-skating, with indiarubber rollers to prevent noise, should be tried in plain rooms, if only as an exercise in the extension of the limbs and the control of the weight and balance.

We should like also to make certain suggestions with regard to other forms of athletic sports; for we cannot but consider the present orthodox programme somewhat narrow, giving scope for too few physical abilities.

There might be throwing the cricket-ball at a mark, and a competition for teams in catching, with a penalty for each miss. The victory would go to

those who did the throwing most quickly, with fewest misses.

Then there should be plenty of left side exercises, such as throwing the cricket-ball, throwing the hammer, and putting the weight. Too much attention is paid to the one side, and it is over-developed at the expense of the other.

Then there should certainly be dribbling, with an Association or a Rugby football, through gaps between hurdles. That was one of the finest items in the athletic sports at Marlborough; we do not know whether it is still kept up; it certainly ought to be. There should also be competitions for dropping and placing, as well as punting, the Rugby or Association football; that is a fine exercise for the legs, as well as an exercise in judgment and accuracy, especially if there is wind. Of course, here again, the left foot should be used as well as the right.

There might with advantage be competitions in archery, that grand old English sport, which has similar advantages to the drop-kick, including the advantage of judgment in case of wind, and accuracy. Rifle-shooting might also be added at very little expense. As a help to national defence it justifies itself in the eyes of patriots.

There should certainly be more home-handicap-meetings to keep up the interest in the sports. At present, perhaps, there may be only one competition in the whole year, as at most public schools. There should be many more House-competitions, corresponding to the College-competitions at Cambridge.

And there should be more team-running, so that the prize would go not so much to the one sprinter who excelled as to the three sprinters who had the best average and who co-operated best.

Now for a few of the advantages of athletic sports.



FIG. II.—PUTTING THE SHOT.

First there is the variety of choice, which variety could easily be increased so that more people might be interested and get self-respect through the new outlet for their individual faculties.

In athletic sports there is hope for the duffer who has not, perhaps, a very good eye, nor, indeed, a very good physique, and who might be unlikely to excel at most ball-games. About him one of the best captains of an American athletic team said : "No man knows what he can do in track athletics until he tries, and I think, almost without exception, that, of all my record-holders, not one had ever tried his respective event previous to entering the college. It is therefore well," continues Mr. Camp, "to bear in mind this fact, and by having men take part in little competitions, determine what each is likely to do best. Many times an unexpected star is thus discovered. In track athletics, as in the other sports, it is hard, persistent work that wins ; so that no individual need become discouraged when some veteran beats him. Practice tells ; in the end it tells more than sheer natural ability without practice."

In favour of athletic sports is not only their variety of choice and their encouragement to duffers who will practise, but also their use of handicaps, and their regulation of races to some extent according to age.

And now, in conclusion, for a few tips. Get correctness before you get a habit. Therefore do not confine your practice to the event itself.

Coach at the start, to ensure correctness and to learn what will help the race, however alien to the race it may seem.

Make your event or events, *and* the practice, a real hobby ; they are well worth while. Make your future success

the motive for sensible living and method to-day. Having studied and practised the method, transfer it to other spheres of life, especially to your brain-work and moral training.

Practise attentively, and analyse movements if you find them difficult as wholes.

Study your achievements, as the Americans will study their pace, "with the watch" ; and in fact study American literature on athletic sports, and study American ways. Note how, in their gymnasia, they have running-tracks and felt-covered weights for putting. You can get similar devices for your own private room or garden.

Choose the exercises appropriate for your age and for your build ; if you are young, no strain, but rather short, sharp sprints. Study ten of the best figures in each event—walking, long distance running, weight-putting, etc.—and see which you resemble.

But do not be a specialist too early. Do a little of everything, if only in order that you may master the paying way of doing it and of learning it.

Train sensibly—for life, as well as for self-respect. Even if your immediate motive be success in the race, there is no harm in that.

Among forms of training you simply *must* learn how to walk. All are agreed here.

Most authorities will add the occasional run. For our own part we should put the alternate walk and run as among the ideals of training-exercises.

Massage also we must include. All who have tried it commend it. We shall deal with it more thoroughly in a later chapter. The massage by pinching each part of the body, and the massage round the navel—these are among the best.

With regard to other items, we cannot be so emphatic. It is generally assumed

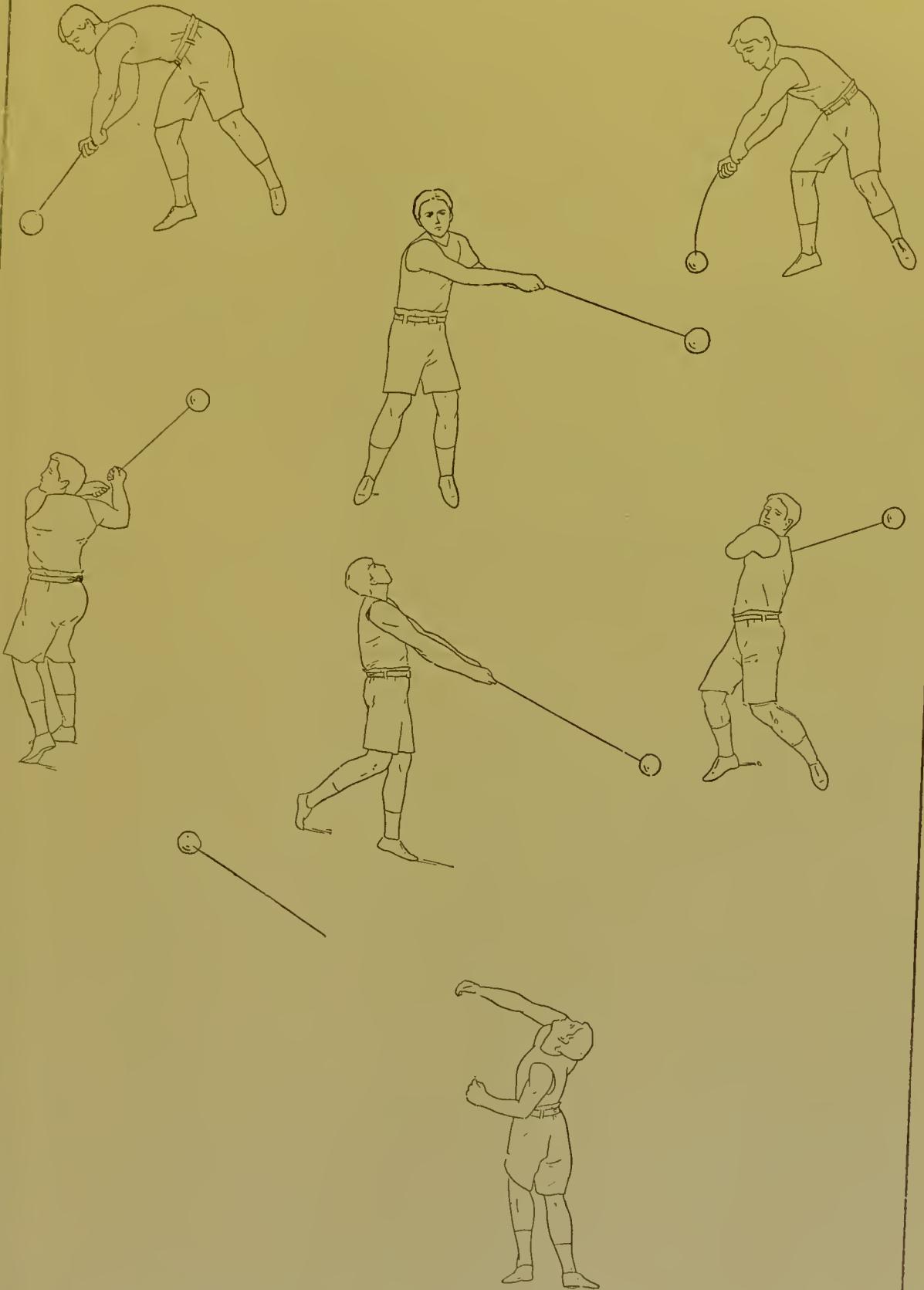


FIG. 12.—THROWING THE HAMMER.

that daily exercise is necessary. We doubt it, if the breathing and diet be sensible.

But with more confidence we recommend "Early to bed, early to rise"; fewer stimulants, if any at all; less starchy and other clogging material.

Not least, for the sake of economy and against "the needle," as they call nervousness, practise better breathing of different kinds, better relaxing and repose of the various parts of the body which you would gain nothing by using.

The Editor recently started a discussion in a daily paper on "What's in a Game?" He maintained that a game or sport should be played and trained for in proportion to what it was worth all-round to any given individual; that its pros and cons should be fairly estimated. He admitted that for some individuals this or that form of sport might not be worth while at all. But he insisted that, if play *is* going to be sought, it should be practised sensibly, one of the reasons being that it can teach lessons for the whole of life, and can teach them in a

province interesting and attractive as well as healthy.

A so-called reader, who, needless to say, had not read, objected that games exhausted the best energies and made people stupid and unfitted for work. But we are not advocating excessive devotion to sport. What we are urging is this. If the sport is worth doing, it is worth studying. While you are doing it, do it with heart and soul; "play the game." But, before and between whilsts, study and practise, if only to keep yourself fit, to improve your standard of skill, to enjoy yourself more during the play, and during the play to relieve your mind of all thoughts about mechanism and technique.

The study will reveal principles of success. "Correct a fault sometimes by exaggerating the opposite fault." "If a thing is hard, divide it into parts and learn each part by itself." And so forth.

If you consider that sports are sheer frivolity; that you had better be doing something else; then do something else, for heaven's sake. But first weigh the pros and cons fairly.

CHAPTER XLVII.

PHYSICAL EDUCATION IN ANCIENT TIMES.

[Most of the illustrations are adapted from Schreiber's excellent "Atlas of Classical Antiquities" (Macmillan).]

Fallacy that "the Greeks" were Ahead of us in Physical and other Education—This Applies only to a few, the Free Citizens—Others (Slaves etc.) Neglected—Good Ancient Conditions of Life—Interesting Subjects Neglected in Classical Teaching—Persians—Egyptians—Hebrews—Chinese—Breathing, Massage, etc.—Hindus—A Mistake—Greeks and Romans—National Games—Modern Parallelism of Games as Bonds of Union—Neglected Greeks—Many Lived for the Welfare of a Few—Plato's Attitude towards Slaves—Our Attitude towards Poor Children—Towards Women—Towards Resident Foreigners—The Athenian Citizens Regarded as Bullies—Athenian Degeneracy—Roman Cruelty—Professionalism and the Watching Habit—Good Features to be Studied—Respect for the Beautiful and Healthy Body—Patriotism—Training of Citizens—Children—Games—State-Control—Buildings—Baths—Athletes' Diet—Oil and Massage—Pentathlon—Curious Running—Quoits and Javelin-throwing—Wrestling, etc.—Military Aim—Recreation—Roman Gladiatorial Games in Addition to Imitations of Greek Physical Education—Subordination of Individuals to the State—Training of Body as well as of Mind, in Agility, etc., as well as Sheer Strength.

THE reader of this article may expect to find the stereotyped remark that the physical education of the ancient Greeks was perfect, whereas that of the modern Anglo-Saxons is thoroughly bad. It will be refreshing for him to find that we hold no such view. To encourage the reader to read on, let us anticipate a sentence below: "Perhaps on no subject has such arrant nonsense been talked as on the subject of the physical education of the Greeks and Romans."

We are not going to praise the Greeks up to the skies. From many points of view their ways seem intolerable, simply intolerable to-day. There was scarcely any care for the individual, unless he happened to be born into a certain class. There was no care for the resident alien, no care for the slave, little care for the woman, except in a few States such as Sparta. In ancient times the fine education was mainly for free citizens—for the tiny minority.

Of course in ancient times there was sensible dress, there was good air, there was attention to cleanliness, there was a simpler diet, healthier outdoor life, with such physical occupations as war and farming; there were not smoky cities. These were advantages in the nature of things not dependent on the virtues of the Greeks.

Now should not boys at school be taught such facts about the ancients, such practical daily-life lessons as we have selected here, instead of being forced to learn lists of dates, kings, archons and other magistrates, journeys and campaigns and battles, and what not? Why not begin to teach the boys what interests them—physical training, diet, and so on? It would undoubtedly interest a boy, and it might help him, to know on what the Greek and Roman athletes did train—namely, that they trained on simple foods, at least until grosser times.

In this article we are bound to refer to special books for full information. One of the best is an old book by Hieronymus, but it is written in Latin. To English readers we cannot too highly recommend Schreiber's "Atlas of Classical Antiquities" (translated by Anderson and Gardner), and a small book by Harvey,

was not for the later and degenerate but for the earlier and hardy Persians.

Nor can we say much about the Egyptians. They held games, as the Etruscans did, in honour of the dead, but of their physical practices we know little, though such practices may, for all we are told, have been most elaborate.



FIG. 1.—THE PENTATHLON (ATTIC) FOR FREE CITIZENS.

called "The Fighting Gladiators." It is from illustrated works that boys should be taught most of their classics.

We need say little about the Persians. It is stated that the nobles taught their sons to read, shoot, and speak the truth; and that they inured them to fatigue and to coarse food, which they had to earn for themselves. Such a training

The Hebrews certainly attended to many kinds of hygienic details, especially cleanliness of dwelling and of body, and also of food, certain kinds of food being condemned as unclean. Then, again, there were laws or injunctions about rest. This being the case, there was less need for a regular physical system and for remedial exercises. Besides this, the

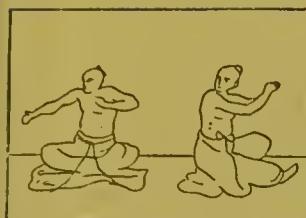


FIG. 2.

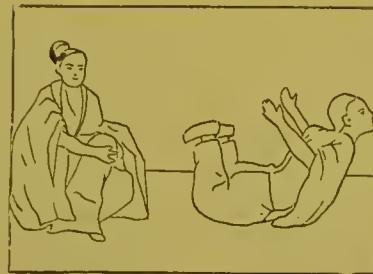


FIG. 3.



FIG. 4.

SOME OLD CHINESE EXERCISES: REMEDIAL, BREATHING, AND MASSAGE.

(Adapted from Harvey's "Fighting Gladiators.")

people were in training for war. But, from the constant allusion to breathing, we may conclude that the Jews realised its importance. In one thing they seem to us deficient—that is, the play-spirit. There was little play, though there were dances of a religious kind for women.

The Chinese paid attention to breathing, together with remedial movements. It is said that they had a system which combined these, and perhaps some massage, many thousands of years B.C. In addition, they had a system of military training, and they had dances. There was also fencing and driving and physical culture in general. Confucius trained his body most religiously. As to the diet, it was simple, but that was from necessity rather than from self-restraint; the country naturally grew simple foods in abundance.

Most interesting in the Chinese system are the remedial positions and exercises which are shown in Figs. 2, 3, and 4. As the Hindus in their exercises, illustrated in a previous chapter, so the Chinese also gave great care to breathing in connection with the movements. One good rule for keeping the mouth shut was to half-fill the mouth with water or saliva. Besides, there were passive movements and various

sorts of massage, including rubbing, pressing, slapping, and vibration. Needless to say, the dress was less cramping than ours, if we except the foot-gear of the women. Harvey is quite right in praising the Chinese system, but he is wrong in what he says of the Hindus. He says that their exercises were merely for amusement and show, and had no high educational purpose. Our previous chapter showed that the exercises of the Hindu Yogis were neither for amusement nor for show, and that they had the highest educational purpose of all, aiming as they did at spiritual welfare.

But perhaps on no subject has such arrant nonsense been talked and written as on the subject of the physical education of the Greeks and Romans. It has been talked and written not only by people ignorant of their *mensa* and *dominus*, but even by professors.

It is perfectly right to praise the statuary and art of ancient times, but the statuary does not represent Greece in general. Nor was all ancient art beautiful. The slipshod writers centre their attention on a small part of Greece, omitting most of the rest. They speak of Greece as if every Greek could produce such a statue as did Pheidias. They

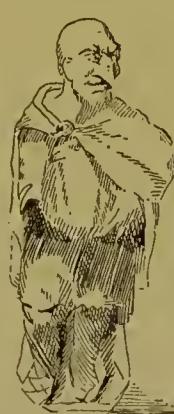


FIG. 5.—ANCIENT
STATUARY IS
NOT ALL
BEAUTIFUL.
(Terra-cotta Statu-
ette from the
Campana Collec-
tion.)

speak of the national games of Greece as if everyone in Greece joined in them or had a right to join in them.

Let us give these national games their due. They were a wonderful bond of union, as now our own games are, between different classes or nations. As distinct

it, any more than we should be idiotic enough to decry the architecture, sculpture, and drama of Athens in her prime.

But, when there is talk about *the freedom of the Greeks*, we object at once. Especially do we object when, by contrast, such writers abuse us for our ill-health and our slavery. Perhaps the matter will be clearer if we consider Athens rather than the whole of Greece, if we leave out, let us say, the Epirots, Acarnanians, Thessalians, Boeotians—who were all for the most part comparatively rude, and the Corinthians and others who were far too civilised and luxurious: we will simply speak of those who lived at Athens—admittedly the show-city of Hellas.

Now so long as they were free-born males they certainly were healthy and well-educated, physically as well as mentally. But what of the slaves? We do not know their exact proportion as compared with free-born Athenian males. What we do know is that there were many slaves who were chattels of the Athenian citizens.

Even a philosopher like Plato could discuss whether the slave had rights. And the slave was not necessarily an uneducated person himself in his own country; he may have been a prince there; in Athens he was degraded, uncared for. Perhaps it was worse in Rome. The much-praised Cato speaks of slaves in the most abominably callous way. It was cheaper for that sort of Roman to work slaves to death

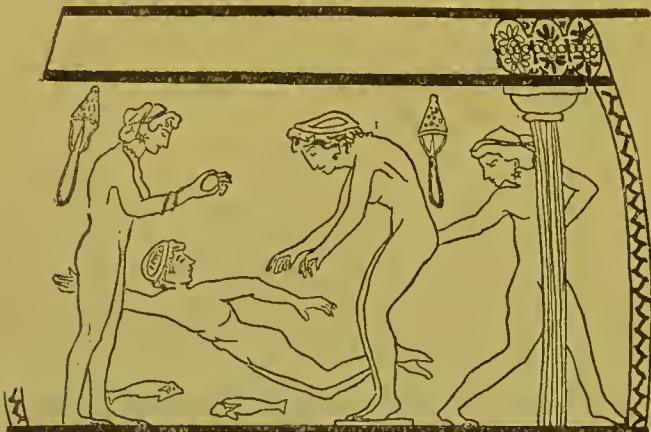


FIG. 6.—GREEK SWIMMING BATH FOR WOMEN. (OIL WAS PUT ON AFTER THE BATH.)

from the influences of war and commerce, competitions in sport help people to understand one another. In a single year we have a competition in athletic sports between English and American Universities. Just before the competition, French and Belgian lawn-tennis players had come over to England to play for a cup which the Americans had won two years ago. The South Africans play and win matches at cricket. The French, needless to say, are victorious against English, Belgians, and Dutch in fencing. Everywhere there is a friendly feeling.

The Greek games were at first connected with religion, but they tended, like so much that had that origin, to become secular. They were also connected with literature and art, and what we may call idealism. They worked towards an improved physique; they were in the open air. All this sounds and is magnificent. We do not wish to decry



FIG. 7.—ITALIAN GIRL DRESSING HERSELF. (GRAECO-ROMAN.)

and get a new batch than to keep slaves healthy by food and rest. Contrast with this state of affairs our modern physical education in recent years at our Government schools, at Board schools, Poor Law schools and cottages, Reformatory Industrial schools, in all of which children of both sexes are trained physically as well as mentally. This kind of thing was utterly unknown in ancient times.

In ancient times women were neglected as a general rule. True, there were States which honoured women and trained them; true, there were baths (*see Fig. 6*) and a few other sensible privileges for women; but the ordinary woman, except for her dress (*see Fig. 7*), was neglected so far as health was concerned. To-day the ordinary woman is not so neglected. More and more she is allowed freedom to be healthy. We must remember that women form the majority of our population. The care for the health of women is almost a modern invention.

Then there are the resident aliens—not such criminals and paupers as are dumped into England, but men of distinction and wealth, living in Athens and benefiting it, we might almost say, as some resident foreigners benefit England to-day.

Then there were the allies (so-called). At first Athens undertook to protect them, and she did her work well; then she used these allies merely as a source of income. Praise the Parthenon as much as you like, but remember that source of Athenian money, the pockets of the allies, who were treated almost like purses belonging to the queen of the sea.

Nor must we forget how lovely a country the Greeks had to live in—a country near the sea on all sides like ours, but with a clearer air, an absence of smoky, nerve-destroying city-life. The

Athenian citizen had the best chance in the world for being physically as well as mentally fit. It was no virtue that he was fit; it would have been a disgrace if he had been anything else. In a word, we hope not to hear any more slipshod nonsense about *the* ancient Greeks, as if what the professors and others say about the idealised forms of Greek statues were true of the inhabitants of Greece in general. Probably less than one out of ten was educated either physically or mentally. Beyond a few like the Spartans scarcely any women and still fewer slaves were so educated. If we were to sacrifice ten or twenty people to produce a brilliant Englishman, we might, of course, consider the sacrifice worth while, but it would be utterly unfair to take that person and call him a typical Englishman and pretend, as these careless thinkers do, that he was an average person. To repeat, the one, out of ten or more, belonged to the exceptional class of free-born citizens; he did not belong to the class of slaves, women, resident aliens, or, we may add, allies or enemies. Such people were almost beyond the pale of education altogether.

But the severest condemnation, even of the free-born Athenian citizen, remains to be spoken. We hate the praise lavished upon him. Look at him a few generations after his prime. Look at the



FIG. 8.—FIGHT BETWEEN NAKED HUNTER AND WILD BEASTS.

free-born citizen, the flower of Greece, after Philip and Alexander had conquered Greece. Here is this free person submitting servilely to the Macedonian

yoke, and, it is said, setting up to some Macedonian tyrant, as if he had been the greatest of all gods, hundreds of statues in Athens, one for every day in the year !

As to the Romans, much the same will apply to them, only the Romans showed more cruelty and showed it on a larger scale. Perhaps they were kinder to women, but they were less kind to slaves, who were pieces of machinery to be worked till they died. And, like so many of the "Romance" language-speakers to-day, they were simply brutal to animals.

Resident strangers at Rome were better treated, perhaps, than among the Greeks, but they were not honoured unless they had much money. As to the conquered provinces, they were completely drained in the most disgraceful way both of men and of money. The Roman citizens grew terribly degenerate. When will historians



FIG. 9.—GREEK BOYS SCRAPING, WASHING, AND RUBBING AFTER EXERCISE (A PUBLIC INSTITUTION, AS THE WORD ON THE BOWL SHOWS).

learn to judge people by their descendants, not merely by one or two generations of privileged people ?

Here, however, our task rather is to emphasise the good lessons from ancient times. Let us consider Greeks first, with the above proviso, that we are speaking not of Greeks in general, not of the

average, but of the free-born citizens of certain States.

In the first place they regarded the beautiful body, the body that was not over-developed nor yet under-developed, that was strong yet swift, firm yet supple, and clean, as a basis for the beautiful mind. That is the first claim of the Athenian citizen to greatness.

Then he had a genuine pride—so had every Greek citizen—in his city, especially

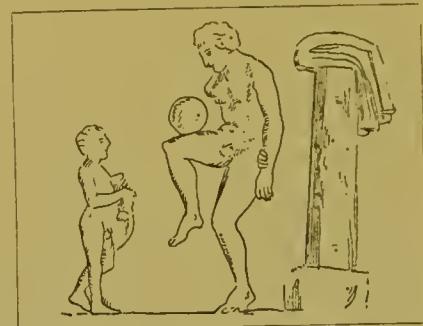


FIG. 10.—ATTIC EXERCISE WITH HEAVY BALL.

in its success in war. We must remember that in those days more depended on the individual, his fitness and his fighting skill ; but he, like the American, with all his faults, had a very genuine and unselfish patriotism.

It was the State to which the Spartan child belonged from the age of seven. From that age he was hardened by fresh air, by play, by marching, running, dancing, wrestling, by practice of endurance and courage, and by being inured to bare feet, to hunger, thirst, and coarse fare.

The training of the Athenian child began at seven also, but was not so severe. We have one grand lesson from these peoples, namely, that the body was trained before the mind—the Palaestra came first, letters came afterwards. In addition to this, the boys played many games, including ball-games.

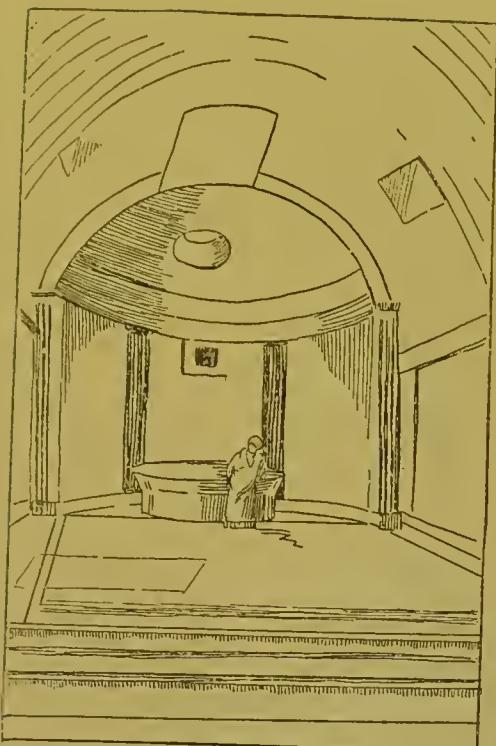


FIG. 11.—BATH AT POMPEII.

Among the games were several forms of hand-ball, an approximation to Læcrosse, a game of jumping and standing on a full goat-skin oiled—a magnificent exercise for balance. Then there were rope-climbing, tight-rope walking, dumb-bell exercise, weight-lifting.

Besides these, there were remedial gymnastics, recommended by Galen. We might include here shouting and laughing, and a special exercise in holding the breath. Of course there were errors, as when people imagined that the arteries were air-carriers; but these did not prevent the practices themselves from being wonderfully healthy.

Moreover there were splendid public buildings, open exercise-ground, as well as closed gymnasias. There were race-courses; there were magnificent public baths.

The bath at Pompeii was built and organised by the town council. Fig. 11 shows the warm room with warm-water

bath; and close at hand was a court for exercise, and a large lecture-room.

The buildings were, to a great extent, under the control of the State. A State officer regulated matters; they were not left to slipshod and ignorant amateurs. The public was not left to be gulled by fraudulent advertisements: the State took care of its own men and women.

Of course it was not every citizen that trained as severely as the athletes did, but we doubt whether a much better diet could have been found for any purpose in that country than the training-diet of nuts, dried figs, fresh cheese, coarse bread, no wine; a diet which was in vogue among the earlier athletes.

Add to this the use of oil and massage to increase the suppleness; add to this also the simplicity of the rewards, the plain wreaths for which men strove; and we see how it was that in those days the free-born citizens thrived in mind as well as in body.

The basis of the training in the Palaestra was what is called the "Pentathlon." It included jumping, running, quoit-throwing, spear-hurling, and wrestling.

The jump may have been a hop, step, and jump (we judge this from the distances). The races included sprints, as well as longer distances with arms. The running was of a curious type. Appar-

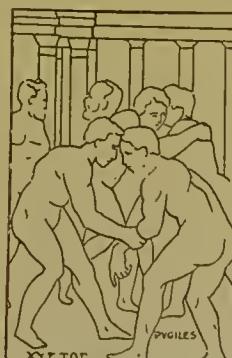


FIG. 12.—WRESTLING.



FIG. 13.—BOXING.

(Adapted from Hieronymus.)

ently some runners moved their arms with their legs, rather than in the opposite direction as our runners do. Sometimes they kept their arms out; sometimes, seemingly, they shouted as they ran. There were horse and chariot races also.

The javelin-throwing at a mark was magnificent training for the citizens, encouraging accuracy as well as quick-

The boxing (Fig. 13) was of a very cruel kind, the "cestus" being made of leather with pieces of brass in it. Apparently the blows were, to a great extent, from above rather than direct. We imagine that the best of Roman boxers would have been knocked-out in a very short time by an average modern pugilist.

The Pentathlon was an all-round con-

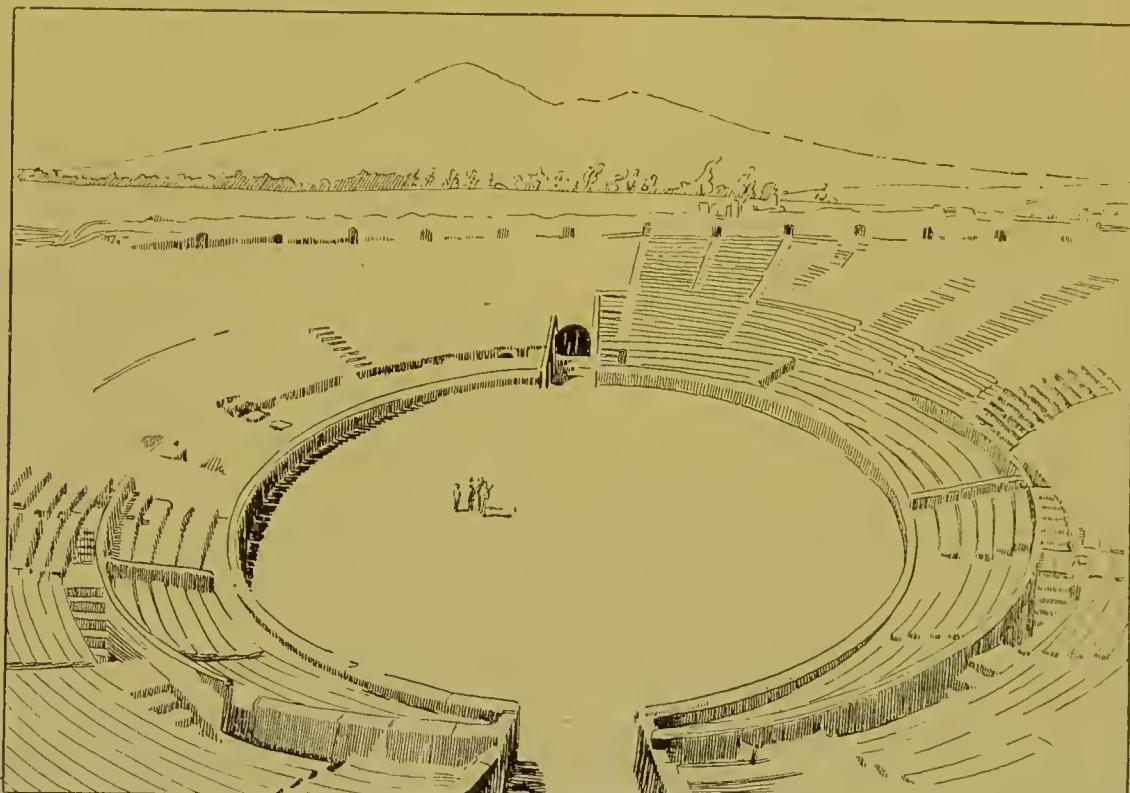


FIG. 14.—AMPHITHEATRE AT POMPEII.

ness and strength. The quoit-throwing had similar effects.

As to the wrestling, there were apparently several kinds. In the first kind the opponents (see Fig. 12) used only their hands. Sometimes they actually broke one another's fingers. In the second kind they practised the "catch-as-can" methods. In the third kind they combined wrestling with boxing in the "pancratium." Milder forms of wrestling were tried as a cure for fatness.

test such as we should like to see—but adapted—to-day. The specialist in one particular branch had little chance of winning. In time, however, as in our Football, the competitions came into the hands of professionals: not only the free-born competed in them, but others as well, and the number of watchers grew ever larger and larger. That was the case among the Romans also, as their huge amphitheatres show.

Still the military aim was kept in view,

though the system was not the same as the strictly military system. The physical culture system included some recreation ; the military system apparently did little in that direction. There were ball-games among the Greeks as well as the Romans. Ball-games were popular from the time of Nausica up to the time of Augustus.

Their object was health, as well as pleasant change. They were not frivolous, any more than our ball-games are ; they were educational as well as recreational. Augustus played ball-games chiefly for the sake of his health. When he gave them up, he became less healthy.

The Romans in early times imported Greek ways, imitating them almost servilely—Greek exercises, Greek baths. But there was another element as well—the Etruscan. It was from their neighbours that the Romans borrowed their gladiatorial sports, which were such a curse to the country in later years.

Among the Romans also, especially in these sports, we see the professional element coming to the front. We see the crowds of watchers increasing. We see cruelty—never unknown to the Romans—reaching its highest pitch, or lowest depth, when men fought to the death against men or fought to the death (see Fig. 8) against wild beasts. Then there were sea-fights, too, in a flooded arena ; sea-fights which were not mere acting, but, in many cases, also fights to the death. Slaves and criminals performed in them. The chariot-races were far less objectionable. There was about them, of course, some danger, but it was danger of a sporting kind.

The first lesson from the Greeks and Romans is the subordination of the in-

dividual to the State and the care by the State ; in those days a care only for its free citizens and its soldiers. To-day, of course, the lesson would be the care of all who live in the land.

The second lesson is the training of the body as well as the mind. In ancient times there was care for better breathing, more massage, more sensible remedial exercise, as well as training in agility and in strength.

Then there were the good conditions of life, as distinct from our civilised conditions. Some of these conditions were provided by the State : for instance, the magnificent open-air exercise grounds and

gymnasia, the magnificent public baths, either free or very cheap. As to the climate, the diet, and the clothing, these were less under the direction of the State : they were matters of ancient custom. But the Greeks and the Romans did attend to air and light and other details : for instance, they attended to the sand of the gymnasium floor or wrestling ground (notice the pick, which is used for loosening the sand of the gymnasium, in Fig. 1).

The combatants were stripped, not harassed by cramping dress. Thus the exercises of the ancients not only developed the muscles ; they also gave the body an air and light and sun bath.

After the exercises there was careful scraping with the "strigil." Observe in the illustration (Fig. 9) the sponge and the oil-flask, as well as the strigil. These were especially for wrestlers.

Another feature of the best physical training in those days was the symmetry. The muscles which were not wanted did not stand up all over the place like whip-cords. Such abominable models as are



FIG. 15.—ROMAN PROFESSIONAL ATHLETE.

before the public in advertisements would not have been tolerated by the best of the Greeks. Of course, there is the Farnese Hercules—a vile and bestial type—but it was exceptional. Such Greek exercises as quoit-throwing tended to produce the figure of the Discobolus. Some of our sports do this also. Lawn tennis, when properly played, has very similar movements; so has putting the weight.

And here we may remove a fallacy—that the ancients had the monopoly of gracefulness. In order to equalise matters we shall, in a future chapter, represent the Discobolus by our regular athletic model, and we shall take for a change certain positions and movements of the pitcher at baseball. We reserve this for a later chapter on physical education and artistic beauty. We think the modern positions every whit as graceful as the ancient; and we must always remember that the ancient statues were not copies, but idealised copies.

The ancients, then, have many lessons to teach us; but it would not do to copy them slavishly. In Greece there were other things besides beauty, as Fig. 5 will show. In Greece there was a lack of science in the physical culture and in the athletics; for instance, in the way of running and in the plan of jumping with weights.

To imitate slavishly the way in which the Athenians confined their physical education to free-born citizens would be hopeless to-day. In order to test this conclusion, let us ask those who praise the Greek system whether they would like to have been born in Athens in the time of Demetrius, or even in the time of Pericles. The answer would be, “Yes, if I had been born a free male citizen; but if I had been born a slave or a woman or an alien, or if I had been born outside Athens as one of her allies or subjects, or if I had been born outside Greece as a barbarian—certainly not.”



FIG. 16.—JUMPING FROM A SPRING-BOARD (ETRUSCAN).

CHAPTER XLVIII.

USEFUL PHYSICAL FEATS FOR MOST PEOPLE.

We Need a Series of Successes to Invigorate and Encourage Us—Mistake of Imagining that no Physical Feats are Possible for Us—Fallacy that Athletic Feats are the Greatest—How you can Surpass Athletes Physically—Exclude Feats of a Dangerous Strain—Offer Ambitions to the Masses—So-called Feats rarely Lead to Further Successes in other Spheres—A Personal Estimate—Two Invaluable Acquirements—Are they Physical Feats?—Comparison of Practice Against Worry and Practice against a Fault at Racquets—Each is Both Physical and Mental—Classes of Good Feats—To do Things Smilingly—To do Things Leisurely—To do Things Consistently—Not to do Things—Restraint—Leisureliness—False Estimates by Parents—Writing—Sending—Speaking—Listening—Walking—Washing—A Test: Can you do it?—Exercise—Breathing—Rhythm—Sitting—Self-suggestion—Consistent Practice—Not, *Do you do it?* but, *Can you do it?*—Will Alone, or Will with Intelligence?—Two Examples—Concentration—Sudden Appearance of the Progress—Advantages of these Feats—Unobtrusive—Basis for Other Feats—Should be Acquired Early—Effects on Character—Value in Times of Trouble—Need to Remind Oneself of Motives—Use of Athletic Feats as Helps—An Early Morning Feat—Exercise Regularly—A Good Device—Decide for Yourself—Jessop and a Writer Contrasted—The Work is Really Physical as well as Mental—Preaching—Feats of Not Doing—Not Sending Out Bad Thoughts—Not Expressing Worries—Graduation—General Effects—Feats for the Aged.

WE all want healthy vigour. Success invigorates healthily. Therefore let us all get success—a series of successes; not that we may rest upon our laurels, but that we may add fresh laurels to the old, which, for their part, shall not fade. What are the physical successes open to you? Is there a series? Is there even one?

Perhaps you see C. B. Fry or R. E. Foster make a couple of centuries in a match; you see Georges Hackenschmidt beat Madrali or Jenkins; you see Duffey sprint, Shrubb run, Butler walk, Chase cycle, Fitzsimmons or Corbett box, Peter Latham play Tennis or Racquets, the Dohertys play Lawn-tennis, Braid and Vardon play Golf, Roberts, Dawson, and Stevenson play Billiards; C. B. Fry, again, do his long jump, Sweeney his high jump; Flanagan throw the hammer, Sandow or Saxon or Levy lift weights, Vansittart bend nails, Cinquevalli catch impossible things. You imagine that the sum-total of physical feats is exhausted; that no niche is left

for *your* victorious statue. You imagine this because you cannot rival these men on *their* ground.

Yet we tell you that, if you *will*, within a year you can challenge the majority of these great performers to a contest at five real physical feats, every whit as real and great and useful as theirs; or even at ten such feats; and beat them in your own Pentathlon or Decathlon.

Perhaps you think that we mean some such feat as working in an office weekday after weekday with the pen; or in a factory with tools; and, indeed, you may excel some of these record-beaters in some such sphere as well. For everyone is a true genius at something or other—some feat which in the end is physical as well as mental. But we do not mean this. We leave the genius out of our book almost altogether, except as the model for *results*. For methods he is likely to be useless—worse than useless—to us ordinary people.

Everyone can be an expert at many feats which tend, one and all, to health,

to self-respect, to incentive and facility for other feats, one and all for the good of all.

And, one and all, they are feats not only in the brilliant final result. It is not always the feat itself that is the feat. It is often the practice for it—regular, perhaps dull, perhaps at first fruitless, mere scattering of many seeds broadcast.

We give you faultless ambitions to raise you physically, aesthetically, mentally, morally. We do not urge you—a clerk,

physical or intellectual or moral achievements. Such are not the feats we mean for you.

We do not belittle them. We only say that the performers and the spectators are apt to set them out of perspective; as goals, not as stepping-stones. About the feats which we mean, you will make no such mistake. Each will be a training-ground, a victory, a stepping-stone, a father of other feats, yet a feat to be reproduced up to the very end of life.



FIG. I.—IMAGINE BRITISH ATHLETES TRYING THE FEATS SO EASY TO HINDU ASCETICS.

perhaps, of ordinary physique—to be a record weight-lifter. Such men ere now have died young, of consumption, in more than one sense of that nightmare word. Seize and cherish these ambitions, or let them seize and nourish you. They and their accomplishment are worth our while. Never could we regret them, as one might some day regret a race won at the cost of a lifetime's health ; as a friend of ours to-day regrets his athletic victories for his college, glorious though they seemed and were, because to-day he feels broken in health, and incapable of these or any other

One of the greatest mistakes of our education is that we give the masses—and the classes—too few ambitions to keep them straight and strong and self-respecting. It has remained for amateurs at education (though they are professionals in another sense) to give the masses a pride (of some form or other) in themselves. Let other papers glorify some particular feat of an individual or a team, some victory of a British cricket eleven. Good ! The eleven probably deserve their praise. But let the PHYSICAL EDUCATOR be the first to glorify the really difficult feats,

especially in self-control, which could be performed by the whole British team of many millions, and by every individual in that team.

People imagine that the real feats of physique are those of which we so often hear or read, such as the following, taken from the British Almanac's "Best on Record":—

"On May 31st, 1902, A. F. Duffey, at New York, did the hundred yards in $9\frac{1}{3}$ seconds.

"On August 23rd, 1886, at Lilleybridge, W. G. George did the mile in 4 minutes $12\frac{3}{4}$ seconds.

"On September 21st, 1895, at New York, M. J. Sweeney did a high jump of 6 feet $5\frac{5}{8}$ inches.

"On November 13th, 1901, at Manchester, J. A. Jarvis swam a thousand yards in 13 minutes $32\frac{1}{2}$ seconds."

For many years Peter Latham held the world's professional championship at Racquets, as well as at Tennis.

It would be easy to prolong this list to ten times its size, but these will be sufficient as examples of what the public consider to be real physical feats.

These feats are against others, as well as against the best previous self. They may involve much strain, which perhaps will show itself in later years. They do not necessarily lead to greater health and all-round fitness. It is not a rarity for a distinguished "athlete" to die of consumption. The feats are performed on special occasions—say, once a week, or month, or year, or lifetime. They are almost obtrusively showy, reported in newspapers everywhere. Possibly they develop a self-satisfaction, and that awful curse of resting, or rather dozing, upon the opiate laurels.

The feat, however great, is of comparatively little use unless it leads to other feats. That is to say, as a pinnacle it does

not serve its true purpose; as a stepping-stone it does. If it will help you to such a virtue as self-control; if it will help you by enabling you to repeat to yourself, "I did that great thing once, I will do this thing now," then it is good. But, in itself, it is not particularly good.

It is necessary in a case like this to be egotistical. We ourselves have performed a few feats, trifling beside the above. Some of these feats have been reported in the press, but we do not think much of any of them; in fact, we should not be offended if the reader passed over the next paragraph without glancing at it.

Before leaving for America we played Racquets for two hours, then Tennis for two hours. In Canada we played three hard Racquet matches in succession. At Tuxedo we played three Tennis matches in succession. In Yorkshire, without previous practice, and after a sedentary fortnight or more, we walked forty-two miles; and also twenty miles before breakfast, though we do not pride ourselves on our walking. At the end of February, 1904, we played Racquets, did some running, and then had two hours of Tennis, before taking the first meal of the day. We have given up solid food at breakfast, though for the first few days the experiment was a failure, and brought on a sense of depression and weakness. We have given up flesh-foods. We have done foot-drill and other exercises for games millions of times in our bedroom.

None of these performances are at all great absolutely; but perhaps some readers may think that there was a certain merit in them as real physical feats. Others may prefer to commend eighteen hours of almost consecutive writing; but we do not. We consider all these things easy and unnoticeable compared with the following:

Quite recently we made slow eating an

easy habit. Probably the average number of bites for a mouthful (if one includes moist foods) had been ten to fifteen. Again and again we tried to eat more carefully, but in vain. Then, at a German Nature-Cure establishment, we gave up a week to the practice, and eventually mastered it. Now all the time we knew it was the right thing to do ; we were sure that the principles were sound ; a few only need be cited here ; the rest have been explained in a previous chapter.

There was the self-control which the mastery was bound to bring ; there was the greater enjoyment of the taste ; there was the need of less food, because more food was properly used ; there was the need of less effort in digesting food and in excreting waste ; a healthier instinct was created.

Indeed, if a fairy godmother had given us in our youth an insight into the present time, and had offered us control of two exercises, probably we should have chosen slow eating and muscular relaxing. The latter art includes as a preliminary full

breathing and extension of the limbs. But we should sooner have gained these arts than have received them as an unearned gift from a fairy godmother, as some Vanderbilt might receive a fortune from his father.

How can one master such arts ? This one of slow eating we mastered—not without a certain sense of its humorousness—when there was no hurry. We gave up a whole week to it, and since that week the practice has been quite easy, requiring less and less conscious thought every week, till eventually there is scarcely any conscious thought at all. We can eat faster, but we prefer to eat leisurely.

The second achievement, of muscular relaxing, we are only acquiring by degrees. We are making less tension, less frequent frowning, a habit. This is not nearly so difficult a task for us. The practice of relaxing is far easier than the practice of slow eating. It is short, requiring only a few minutes a day, whereas meals are long. It can be done in private, whereas many meals are taken in public, among those who set a very bad example in bolting their food. That sitting exercise which we have described elsewhere, and the inclined plank exercise, and the standing exercise, which eventually leaves one lying upon one's back upon the floor, are all simple.

Closely connected with this practice of relaxing is the getting rid of worry, anger, and disappointment, and the acquiring of the habit of better breathing. We have other victories to record, not as an unbroken chain, but as more frequent than before. There are plenty more in prospect, plenty more games to win, our object being to beat our own previous records without minding about anyone else's.

But, it will be asked, are these physical feats ? Are they not mental feats ? For our own part we cannot distinguish between the two. Think of it ; you have

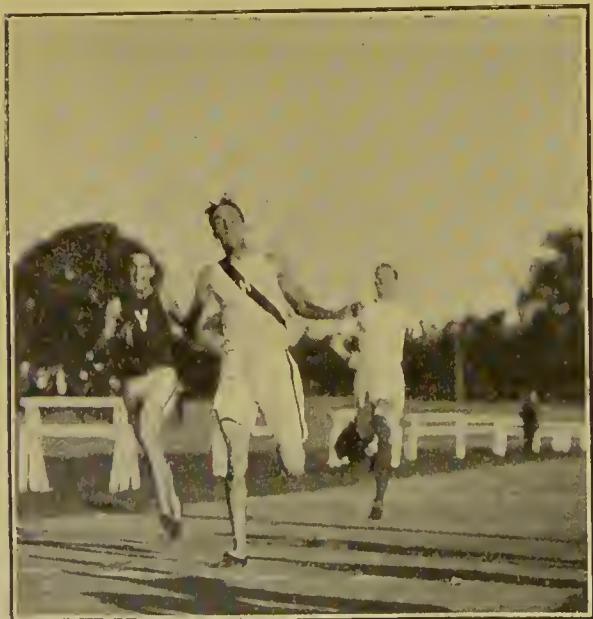


FIG. 2.—RUST WINNING THE QUARTER-MILE IN THE INTERNATIONAL SPORTS IN AMERICA.
(By permission of "Collier's Weekly.")

some thought, perhaps a grudge against someone—you can easily recall an instance; now that wrong thought has to be driven out, starved, crushed, or turned into a right thought—describe it how you will. You may drive it out by what has been called the expulsive power of a new interest and attraction. That seems purely mental, but, for us, it is physical also; certain bodily practices accompany it regularly. Now consider the mastery of a less incorrect Racquet stroke than we used to have. We think it out, and, eventually, we put down a straight paper line in our bedroom. We stand sideways with a small club in the hand (we devise a special club after a good deal of research and experimentation). Then we practise what we believe to be a better movement, making the club follow that white line in a vigorous stroke. First, we see that it starts correctly, well back. Then we see that it finishes up correctly, with a good "follow through." Afterwards, we fix our eye on a small ball, believing that the correct start and the correct finish will now look after themselves. We do this vigorously and with concentration, perhaps five hundred times on some days. By the ignorant that would be called physical. It is really mental as well as physical. Our most mental actions we can "sense" as physical also; our most physical actions we can "sense" as mental also, and can actually prove most of them to be so, if we trace them back to their origin.

And, indeed, it seems to us to matter little whether you get your habits and your character in a physical or a mental way, so long as you get your habits and character. Indeed, the physical way may be the healthier for you, and it may certainly be the more interesting and saner.

Now, after this long self-centred discourse, let us come to more general advice



FIG. 3.—WRESTLING AT A SWISS FETE.

(Photo: Ph. and E. Link, Zürich, by permission of E. Lévy, Esq.)

and discussion. Our object is to make it clear by examples that many feats of physical strength have been, in origin, feats of mental strength, and that others have been due less to sheer effort than to common-sense in choosing the easiest conditions for practice. In that Racquet exercise, we had found out the hopelessness of getting a good stroke during a game. The play was too distracting and too exciting. Perhaps in a minute no two similar strokes occurred, and repetition of similar strokes is surely the root of improvement. How could one stroke improve itself when it only occurred twice in a minute? During holidays, with others to help us, with a knowledge of the reasons, with strong motives, with the help of self-suggestion, an otherwise impossible task may become quite easy. There has been no strength of mind here; there has just been common-sense. We believe that many an expert could work up certain muscles without any appreciable fatigue or strain, so that a weak boy or girl could, after two years, perform a real feat of strength or endurance. To the un-

thinking observer this is a miracle; to the thinking scientist it is no more a miracle than any other; it is simply that he has found out a very easy way; it is not a sudden violation of a law of nature; it is just the result of a number of intelligent practices, all quite easy in themselves.

Now, here are the real physical feats which anyone and everyone can learn. They may be classified in many ways, but we believe that the following headings

or a state of mind? Who can be master of his circumstances, opening himself to some, closing himself to others? This is a favourite metaphor of a certain Hindu philosopher, and to his idea of restraint we might add the idea of repose.

To keep one's face inclined to smile rather than to frown, that is the first feat. Have you ever tried it for five minutes, when worries or fatigue are pressing on you? We are not speaking of a noticeable smile, but rather of a



FIG. 4.—AMERICAN FOOTBALL—A GAME NEEDING GREAT SKILL AND TRAINING.

will be useful: "TO DO THINGS SMILINGLY (WE DO NOT ALLUDE TO THE OILY SMILE OF PIOUSNESS); TO DO THINGS LEISURELY; TO DO THINGS CONSISTENTLY; AND, NOT TO DO THINGS."

Restraint may be a greater physical feat than action. Who cannot let the horses carry him along at full speed? Who cannot let every circumstance act upon him according to its own sweet or sour tendency? But who can pull in these horses or control them with a tone

tendency in the direction of a smile. It may be little more than a broadening of the face—the opposite of "pulling a long face." Neither are we speaking of the wrong kind of smile—one of idiocy or cynicism or bestiality. It is just simply the smile of repose and poise, which does not exclude promptitude and power.

Among the physical feats which we have classed under "Do leisurely," are the following, in addition to the slow eating of which we have treated just now:

that surely ought to be put before children as an important accomplishment. Why should a father be proud of his child because it can run a hundred yards quickly, or play "The Merry Peasant" on the piano, or wool-work a kettle-holder, or ride a pony, and yet give him to understand that reasonably careful eating has nothing to do

has tried our eyes. We believe that the hardest physical feat for him would be to write so slowly that his friends could read what he said. Besides the slowness in forming the letters, there is a second kind of slowness, that of putting ideas on paper, or, rather, of publishing them. We learnt from a friend a most valuable lesson,

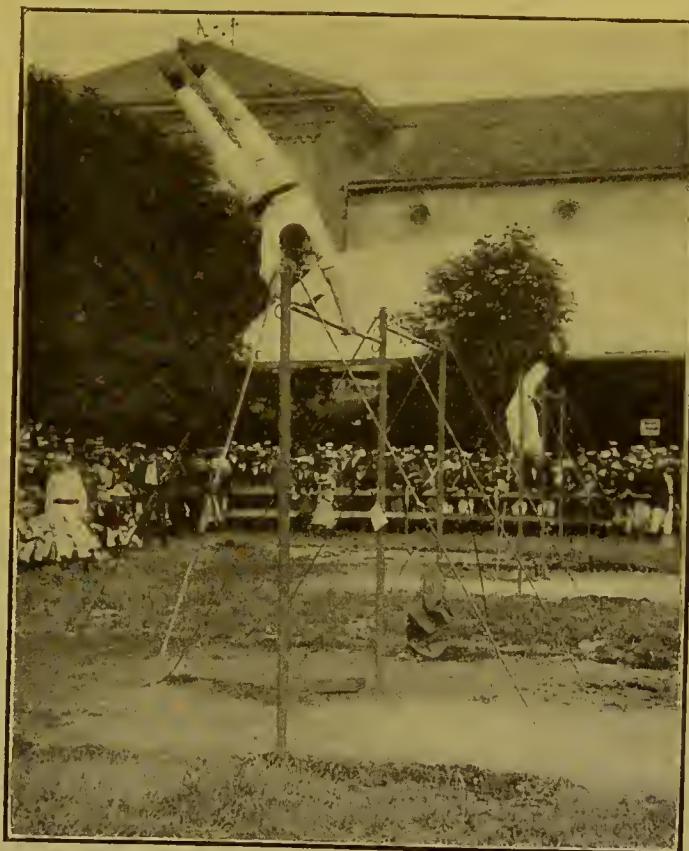


FIG. 5.—HORIZONTAL BARS AT ZÜRICH.
(Photo by Ph. and E. Link, by permission of Mr. E. Lévy).

with good behaviour or health or happiness? What silly people parents are! If they applied the same amount of persistent ignorance to their business as they do to their children, they would be bankrupt in less than a year.

Leisurely writing is another feat. We have in our desk a letter of which three-quarters is entirely illegible. To save a minute of his own time, the so-called writer has spent at least ten minutes of ours; he

which is a sort of compromise. Who has not written a hasty letter which he has afterwards regretted? He wrote it too fast; he thought it too fast; that is no reason why he should pass it on too fast. In the last year or two we must have posted nearly a hundred letters in the fire. That is the best place for them. First we had the relief of writing them; then, later, the relief of not having sent them!



FIG. 6.—BELL RINGING AT VENICE.

Next there is leisurely speaking. It is not a fact, of course, that we should always write slowly, or think slowly, or speak slowly; but we should always be able to. How very few speakers in the House or out of it can pause at will? (We are not alluding to pauses through unpreparedness or incompetence.) It is probably the hardest of all physical feats for them. They talk and talk and talk just as they eat and eat and eat. At their meals the servants compel intervals; in their conversation they are allowed to talk consecutively.

And how few people listen leisurely! It is strange that such a phrase should be possible; yet notice yourself to-day, and see if you cannot catch yourself listening far too fast. Then try to observe how your body is expressing that. Are not your hands fidgeting? Is not your face somehow tense? Is there not the tendency to the frown? Here, once more, we must be able to listen fast, to anticipate

the person's meaning, but we must also be able to listen leisurely.

That applies to walking. It is a blessing to be able to walk fast, though to run slowly may be still more effective and less tiring; but not to be able to walk leisurely is a confession of weakness. How tiring it is to go to the Academy or to show sights to ladies! You have not learnt the art of walking slowly. In New York City not one man in a hundred can do it without tremendous effort. We used to find ourselves scuttling along in order to catch an overhead railway train, when there was really no necessity; there would be another train in a fraction of a minute. So we used sometimes purposely to walk slowly, to look in at a shop, not because it was of any advantage to miss a train, but because we wanted to be sure that we had not lost the art of walking leisurely, without which it is at times impossible to think leisurely and in proportion.

Then, again, can you wash slowly? Here is a bit of instruction from "Avenues to Health." It is quoted from the *Westminster Gazette*. Have you the patience to follow it out?

"After describing dirtiness and alluding to some of its causes (*e.g.* excessive or wrong food, bad air, inadequate exercise), the article says:—

"It may be allowed that eight out of ten people living an ordinary London life of work, worry, and ill-chosen food, correspond to some extent to this description. How, then, should they wash? For we let the clean people alone; it matters little what they do with their finely functioning organs, their sound filtering skin, and their hardy morning tub.

"Not being a doctor, not intruding, therefore, upon the question of general health, and suggesting only that "inside cleanliness" should be secured at all hazards if possible, we come to methods

of washing. A warm bath, a superfatted white soap, a soft loofah, or a soft Turkey glove, one of the round-headed, convex-bristled bath-brushes, and a big open sponge. Two teaspoonfuls of one of the many water softeners or ammonia in the water ; go to work hard, but *don't touch your face*. Thin people are more difficult to wash than fat people ; if you are thin be extra careful. After the lathering, the sponging, with the warm water. Then turn on the cold tap and (unless you have any of the complaints that make this inadvisable) "shock" yourself half a dozen times under the chin and on the nape of the neck. *Not* a hard towel, please—a fine soft Turkey ; if bath-brush and loofah have been well used, not too much rubbing. (Ten-minute exercises are a fine thing after this.) Then the face. Warm water poured on oatmeal. Piesse and Lubin's, which has almond meal in it, is good. A Turkey sponge ; the best soap of the kind described. Sponge the face for two minutes (this is a very long time to hold your head down over a basin, you will find). Put soap *on the sponge*, not getting it in lather. People who tell you not to put soap on a sponge do not realise the uses of a well-cared-for sponge. Work it all over the face and round the curves of every feature, over shut lids, up into the hair, everywhere. Rinse it out and sponge for two minutes more, letting a lot of water *pour over* the face ; no wiping with the sponge ; by this time the water should be only tepid. Take the softest towel there is, Turkey or damask ; "clap" it over the face gently ; then the lightest rubbing. Exactly the same process at night. And now is the time for a dry-rub and an air-bath combined. Take a stiff brown towel of special make, or a long-handled brush—the brush is easiest to use. Three minutes of this friction and every pore of the skin which

has been hotly enclosed all day will breathe. Try it for over-work, for worry, for sleeplessness, for irritability, for the beginning of a chill, giving special attention to the spine. It is ten times as cleansing as a second bath would be. If your face is thin or lined, rub in a nutrient at night after washing, and work it well in for three minutes. The face, always bare, must have this extra care ; there is no need to make it coarse and rugged even if you are a man, by violent friction, coarse soap, untempered water. It should *never* meet London water only. In the country, and with rain water, no oatmeal need be used. This treatment greatly encourages the free action of the pores, and its natural fat not being constantly robbed from it by alkalies in the bad soap and water, it does not peel readily in an east wind or a frost. In the day, remove smuts with a handkerchief and no moisture ; you will find the skin supplies all that is wanted itself. If you have a fat face, and it looks too shiny

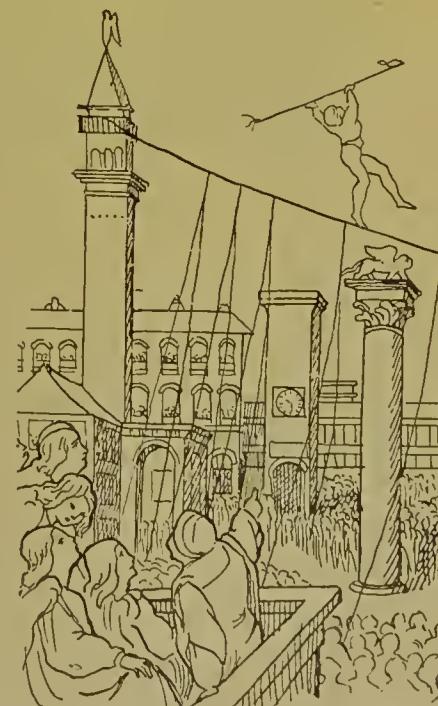


FIG. 7.—ROPE-DANCING IN VENICE LONG AGO.

(though this is unlikely if it is not rubbed and washed with bad soap), it may be given tone and the superfluous fat removed from it in the morning by sponging with a *slightly* astringent wash ; but this is so much abused by people, who will even put raw eau-de-Cologne upon their faces, that it is mentioned with the greatest hesitation. Four drops of eau-de-Cologne in a teacup of water, put on with an eye sponge, is enough.' "

learn, not only to draw the bow fast across the strings ; he or she must also learn to make one note sound for many seconds at a single stroke of the bow. The quick, smart repetitions of the full-movement system shall have their full praise, but they will not teach us to do things leisurely. It is the merit of the Delsarte system, and of no other to the same extent, that it will teach us to do things leisurely. It would be ridiculous always to do things slowly.

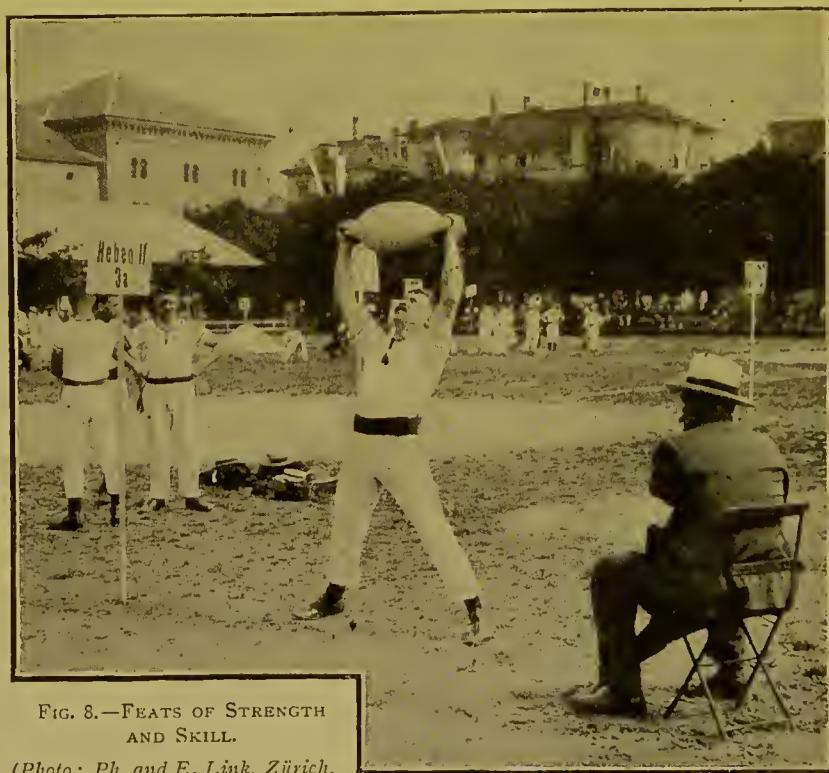


FIG. 8.—FEATS OF STRENGTH
AND SKILL.

(Photo : Ph. and E. Link, Zürich,
by permission of Mr. E. Levy.)

Why not enjoy your washing, which is one of the most delightful things in the world ? Why not soak in the water while you lie in your bath, as you might soak in the air while you stand naked in your bedroom ? Why close yourself to the water ? Why close yourself to the sense of washing ? Surely it is from atrophy of the senses that we make so many mistakes.

Then, once more, exercise—can you do it very, very slowly ? The violinist must

That is not our object. Our object is to give people the power of doing things slowly. The Swoboda system, though it is a private one, is, we believe, somewhat of this sort, only there is always effort and strain in it. We are speaking of a different method, that of *being able to* do things quite slowly and without strain.

Of all the slow arts, if we may call them so, breathing is the most vital. We wish we had statistics as to the number of shallow and partial breaths that the

average city-dweller takes in an hour. He neither fills his lungs thoroughly nor empties them satisfactorily. He has neither rhythm nor poise. His shallow breathing upsets the rhythm of his body. All nature has its rhythm, each part its own kind. All parts of the body have their rhythm, each its different kind; but it seems that the breath sets the lead. Depending to a great extent upon the mind, it still is manager of the body's rhythm. Can you breathe slowly—not necessarily fully, but slowly and leisurely—for ten minutes? Here we are not speaking of strained and forced breathing; we are speaking of a somewhat fuller and much slower breathing than usual.

And can you sit or lie still for a quarter of an hour, or even five minutes, or even one minute, and repeat to yourself without hurry, without flurry, without strain, some self-suggestion which you know perfectly well will help the whole of your life? You have some fault. You can suggest, picture, imagine, sense, the corresponding virtue. Try it here, and now—a quarter of an hour or five minutes or one minute of suggesting to yourself, if it appeals to your past memories of good actions, "I'm going to play the game and be sportsmanlike." That is a physical as well as a mental feat. It appeals to physical memories of games and competitions. In order to be effective, it needs physical repose.

To do things cheerfully, to do things slowly, to do things consistently—that is the third class of feats. Perhaps for a minute you have managed to carry out our suggestion. Can you carry it out not for one minute once, but for one minute each hour of the waking day every day? Or are you rather like the Oxford man who, one morning in Lent, gave up toast for breakfast, in order to economise as well as to deny himself, and then, for

lunch, celebrated his self-denial by a bottle of champagne?

Once more—we can scarcely repeat it too often—the question is not, *Do* you do it? but, *Can* you do it if it seems advisable to do it? This applies to alcohol. We would ask you, not do you take no alcohol, but can you take none, if you are convinced that abstinence is the right thing? Remember that it is not necessarily a matter of gigantic effort of will. We believe no psychologist or philosopher has given us a conclusive answer to this question: Which man has profited more in character, the man who has employed a gigantic effort of will to accomplish an almost impossible feat, or the man who has quietly sat down and intelligently worked out easy ways of practising so that he may eventually perform that feat, as it were, *without reaction*?

We recall the case of one lady who was a dipsomaniac. By sheer force of determination she gave up alcohol, and suffered several days of intolerable agony. Another lady tried many ways. Eventually, this one succeeded; every evening she repeated to herself for five minutes: "Alcohol does me no good; I do not want it; I shall not take it." In eight weeks she ceased to take it. There had been no particular effort, no particular self-denial. It was simply five minutes' easy self-suggestion every day. Now which of the two had profited more by getting rid of the alcohol craving? The problem applies to the whole of life.

It is a physical feat—that is to say, a physical and mental feat—not merely not to drink alcohol, but to be able not to drink at meals, not to smoke, and to give up a meal occasionally, especially on Sunday; and not to frown. That is where we began. We began with smiling, and we end by not frowning.

Yet many believe that you must frown

if you want to concentrate your mind ; that you must, so to speak, focus your frowning glare on a near point between the eyes if you want to focus your mind upon some intellectual work. It is a physical feat to concentrate. Suppose you go through the Sandow Course. Can you keep your attention fixed on the muscle which you are using during each exercise ? It is an extremely difficult task ; and perhaps, after all, it will turn out to be the wrong kind of concentration ! We have already alluded to the habit of keeping the eye on the ball at cricket, an exceedingly hard physical and mental feat for the batsman. But it is not the whole of batting, for the batsman has to keep in his mind's eye a kind of picture or background of the bowler's hand during the action of bowling, and also of the positions of the fielders. In other words, while his physical eye is on the ball, his mental eye has a wider range. So true concentration is concentration on the task in hand, not without a general under-consciousness, under-concentration, so to speak, upon the other things equally or more important in life.

This practice of concentration, like other practices, does not produce its fruits at once. It is a strange phenomenon with nearly all feats and nearly all successes that you practise and practise and practise in what you feel to be the right way again and again with no visible effect. You begin to despair. Then, suddenly, you find that *you have improved*. Your improvement comes as quickly as a telegram. The news reaches you that it has happened. The golfer has advanced one stage in his play. He feels to himself, "Yesterday I was worse ; to-day I am better ; I shall never be so bad again." That is the ideal of a physical feat of the kind we advise, that one never need be so bad at it again. Suddenly

comes the acquisition, suddenly, yet permanently.

Among the advantages of these feats of doing things cheerfully, of being able to do them cheerfully, of being able to do them consistently, and of being able not to do other things, is that there is no physical strain whatsoever.

Then they are unobtrusive. You do not pose. In fact, if you pose, you have failed to perform the feat. The very essence of them is that they must be unobjectionable.

The third merit is that, *when once you have acquired your habit, you need not go on with the regular conscious practice*. It is yours for ever, that habit. Therefore build for yourselves brain-cells and weave for yourselves brain-fibres representing good habits while you are young. It is never too late to build such cells, but they are most effective when they have been built in the very youngest.

These habits, these victories, are not ends and goals, but means and helps. To repeat our comparison, they are not the highest pinnacles, but are stepping-stones to higher pinnacles.

They affect the general character. They train it as nothing else can, because they are not things for five minutes a day, but for many minutes or many hours, or for the whole of a day. Go through the list—slow eating, slow thinking, slow washing, slow breathing—and count how many hours they take. Reckon also what a difference they would make to your whole mind. Consider a time of disappointment. You frown and fidget, and send out desperate, if not spiteful, thoughts against persons and things, and perhaps against yourself. You gain *nothing* by that. Now imagine the above habits acquired. Don't you see, you are an altogether different person, not wasting valuable energy now, but quietly doing the best you can in

the circumstances, not *under* them. What sort of character are you going to die with, and what sort of a physique, as an expression of that character? Form your ideal. Now what is going to lead you to reach that character? Map out your list; make your own plan. Your progress will not be reported in the daily papers. You can record it if you like in your own diary, as Benjamin Franklin did when each week he determined to acquire some good habit or quality.

Find out what is going to lead you to reach that character? What motives? Perhaps it will be competition. Get someone else to say that you cannot do it, or to bet you that you cannot do it (for that seems to be a very common motive to-day).

Hitherto, perhaps, you have despaired of yourself, and been wanting in self-respect, because you could not rival Latham at Tennis, Doherty at Lawn-tennis, Braid at Golf, Fry at batting, Rhodes at bowling, G. O. Smith at Association, Duffey at sprinting, Flanagan at throwing the hammer. You can, however, hold your own at such games as we have mentioned. Look at the illustrations in this chapter. Be as successful as these athletes were in their spheres, but *choose your own spheres for your own successes*. We have suggested many such spheres. Here are a couple more to conclude with:

Get up, or do your brain-work, as the Editor does, very early in the morning. A friend of ours, eighty years old, works and does exercises every morning at four or five o'clock. That is a great physical feat, though his name never has been and never will be mentioned in any set of records of physical feats. The same sportsman, at the age of seventy-seven, set himself another physical feat, by the way, and that was to become healthy. This he has succeeded in accomplishing.

Can you imagine any more creditable performance? Beside it fades away the splendour of Hackenschmidt's victories over all comers, or the Dohertys' triumphs over the American players.

Do good exercises regularly, day after day, week after week. Perhaps the Course for men or for women may suit you. Be sure that the exercises are good. Then, not only try them once or twice, but keep to them persistently, if only for the sake of strengthening your mind. Make a habit of them, and find out what will help you to keep them up if they are good. Here is an excellent suggestion from a correspondent. It may not be your way, but she finds that it is hers. It is a good way of carrying out the *résumée* plan which we suggested. She has a piece of cardboard the size of the Chart. She takes the figures on the Chart and cuts them out in sections. She takes the first section, the massage exercises, and pastes them on the cardboard, and practises them. When they are easy, she takes the second set, the arm-movements, and pastes them underneath, and practises first the massage, then these, and so on, until she has added the new to the old without giving up the old. You, perhaps, will think of some other way—for instance, forming a society or club for exercise.

The great advantage of this set of physical feats is that, when you have finished one lot, you can add other lots without giving up the old. The man who does nothing else but lift weights in a certain way has a somewhat monotonous future before him. We can think of not a few Lawn-tennis players who do nothing else, so far as we can see, except play Lawn-tennis. What will they be enjoying at the age of forty or fifty? Will not that single game pall on them? Now you, with your feats, are not like some putter of the weight or thrower of the hammer,

or runner of the hundred yards. You will have accomplished feats (as great as these) which you can still perform, however old you are. They will benefit your health of mind and morals as well as your body. To them you can perpetually add new feats. When you have mastered one habit, do not give it up ; do not doze on your laurels, but find out another which will help your health, and add that to the rest.

Do not think us pettifogging. We want to be fair. We want you to convince yourself, or else not to be convinced at all. You may object to what we shall now say ; you will tell us that it is a purely mental affair ; you will contrast it, perhaps, with G. L. Jessop batting at cricket. Hirst bowls, and Jessop jumps out and hits the ball to the boundary. Purely physical ? No. The chances are that Jessop acts nearly unconsciously. He sees the ball ; that is partly a mental act. The result on his mind is that his under-mind goes through a series of splendid actions, using the body. The Editor writes these words. That is just as much a physical action as Jessop's, only it is not nearly so brilliant. He is, perhaps, quite as conscious of the physical movements and the work of the pen on the paper as Jessop is of his own, and the work of the bat on the ball. The Rev. J. R. Campbell preaches. Again it is a series of physical movements of the lungs and mouth and tongue. It has been held by many that we cannot think without words, without uttering words, without moving our muscles of speech, if only ever so little. To speak well is a physical feat. It is a form of expression. All expression is physical as well as mental. The deceptive expression of a liar or an actor is perhaps far more genuinely physical than genuinely mental.

Not to express by words ; not to express feelings or thoughts by other ways—is it

much less physical, much more mental, than not to knock down that man who insulted you ? Not to relate that scandal—is it much less physical, much more mental, than to hold out your hand to your friend even though he slipped morally ?

Decide as you think ; but consider whether this would not be a physical, as well as a mental and moral commandment ; and obedience to it a physical, as well as a mental and moral feat :—

Never send out, or let out, or harbour any thought or idea against the all-round fitness of any person or thing. Think of the reality of telegraphy without wires as well as with wires. Is the sending out or letting out or harbouring of such a thought undoubtedly not a physical act, whereas shooting a pistol, or letting it be shot, or being ready to shoot it, undoubtedly is ?

Not to express petty worries at all, or not to express them before others—again, is not this a physical as well as mental restraint ? By expressing them, you know you sign a cheque, payable to yourself, for discomfort. That would be a physical act. Your attitude and expression of face, your spoken words, the depression or acidity of your voice, your written words, even the state of your breathing, your blood-supply, your stomach and other organs, your perspiration, your capillaries—these are physical. Not to express the petty worry is—indirectly, if you like, but none the less actually—physical and “physiological.” If you cannot or do not yet succeed in not expressing the petty worries at all ever, or in not expressing them before others ever, at least do not express them before others at meals.

Graduation—the victor's sure step after sure step, line upon line—this principle we have emphasised in “Training of the Nerves,” and in “Leisurely Eating.”

The non-expression will give you, not

necessarily a large biceps, but it will give you a more charming face with fewer unpleasant wrinkles; a more charming voice with less fire and less vinegar in it; a more charming manner. Some day—who knows?—you shall need all these things. It will give you better breathing-capacity, better circulation, better digestion, better excretion, better sleep, longer life, happier life, more influence generally—all these things also you shall need some day.

We do not tell you to visit Syria and bathe in Abana and Pharpar; we do not even tell you to bathe seven times in Jordan. But we do earnestly advise you to begin where you are, as you are, to-day. Look to what you command your body to do; look to what you permit your body to do.

To bring an end to certain "physical permissions," and to give and yourself carry out certain physical commands—these are the real physical feats for you and for all.

When you have mastered one or two of them—say, no frowning, and leisurely

eating—keep up the habits, and, recalling your mastery of them as an athlete might recall his great feats, be sure that you who have mastered these can master others equally useful.

Respect yourself for what you have done, but, like the best athletes, do not be uppish and obnoxious, and, unlike most athletes, always add new feats to the old up to the last day of life.

Some of the mightiest of physical feats—eating less, grumbling and grunting and insinuating less, walking and exercising a little more, showing more interest in new and young things—are feats for the aged. People have devised for them, just occasionally, some special tournaments at lawn-tennis and competitions at gym-khanas. Well and good. But let every old man and woman set himself and herself a few real physical feats of the above useful kind daily, and life will have considerably more interest, considerably more value, than if these old people drop all ambition, deciding that their days of learning and mastering anything are over for ever.



FIG. 9.—TRAVIS, THE AMERICAN GOLFER, DRIVING.
(Photo by permission of "Collier's Weekly.")

CHAPTER XLIX.

WHAT SHALL WE DRINK ?

For and Against Alcohol: A Summary—Causes of Desire—Simple Hint—Calculate the Effects Fairly—Generally Agreed Effects—Expense to Individuals and the Nation—So-called Substitutes—Apple-juice—Syrupy Non-alcoholic Drinks Objectionable to Many—“Ales”—Sugar Itself, and a Warning—Tea and Coffee—Tannin—Yerba—What One Must Expect at First if One Gives Up Tea, etc.—Substitutes for Coffee—Ordinary Cocoa Not Harmless; Not Very Nourishing Either—Government's Slackness—Degrees—Steps to Temperance may be Lighter Wines and Purer Beers—Buttermilk—A Nettle Beer—Lemon—Fruit-juices—Apple Tea—Bran Tea—Milk—Need of Care—Barley Milk—Barley Water—Table of “Salts” by Wolff—Bunge's Experiments—Plants Rich in Soda and Lime—Vegetable Stock—Distilled Water—How to Cook Some Vegetables—Salad-dressing with Lemon—Chewing—Not Drinking at Meals—Drinking Water at Night—A Warning—Individuality—Need to Restore Upset Balances—Therefore Experiment with Patience, and Gently.

IN a previous chapter we have tried to outline the case for and against alcohol. Our idea was that, if a person feels that alcohol is, on the whole, bad for him (he should weigh the pros and cons very carefully and impartially in his sanest moments), then he should either give it up, or else give up whatever makes or increases the desire for it.

We cannot say beforehand whether this will be, for example, flesh-foods, as in a large number of cases that we know, or too fast eating and drinking. (Mr. Horace Fletcher thinks that it is rather due to the latter). In either case, or when the craving is due to some other incentive, the remedy is clear. In the first case, avoid flesh-foods, and take some nourishing substitute in their place. In the second case, eat and drink more leisurely. Meanwhile, practise self-suggestion, and re-inforce your will. Be sure to win the first engagements.

This applies not only when alcohol is taken in excess, but when it is taken in what is called moderation. Some slipshod thinkers assert that “alcohol in moderation can hurt no one.” But who

has ever yet been able to calculate its full effects on physical, æsthetic, mental, and moral fitness? These effects every one who is interested in himself should try to judge fairly for himself. With regard to the physical effects, how does he feel the next morning after the alcohol? Does he tend to increase the amount he takes? Is he becoming a slave to a certain amount? Or, on the other hand, would he just as soon be without any at all? And what is the economical effect of alcohol, even in moderation?

Each must decide for himself, uninfluenced by such unwarranted statements as the above. An experience of many years seems to show that in a large number of cases almost the only real benefit coming from alcohol, apart from the immediate satisfaction of the taste, etc., is a certain social convenience. The physical, intellectual, and moral good effects are, on the whole, reckoned as next door to *nil*. The economical effects are undoubtedly bad.

The expense for the individual and for the nation is extraordinary. The literature which various teetotal and temperance societies publish is worth a close

study, even if it seems to lack perspective. How many hundreds of millions have been spent in "drink" in the last few years? how many crimes have been caused by excessive "drink"? how much illness? how much misery? You will not be able to detect many omissions. We must remember that uncontrolled drinking of alcohol, perhaps originating in moderate drinking, may lead to all kinds of excesses and crimes, besides the fact that it uses up a vast deal of that grain on which the people might feed and be healthy.

But for the special effects of alcohol we must refer to special writings, and particularly to the *British Journal of Inebriety*. At first alcohol may help the digestion; then it will probably hinder the digestion, shrivel the little corpuscles that carry our oxygen, turn our healthy tissue into connective tissue (popularly known as fat), prevent us from getting rid of carbonic acid and other waste. This is part of the verdict against alcohol, at any rate when used in excess, even when the alcohol is pure.

The effects of adulterated alcohol we can scarcely estimate. Many kinds of pernicious chemicals are introduced.

But the great question is, What can we take instead of alcohol? What can we take that will have similar tastes and similar effects?

The hygienists have a large variety of drinks that they call substitutes. Among the best of these is a non-alcoholic German apple-juice, very like cider in taste. It is not on the market yet, and it could be improved on. Surely, in this apple-growing country, Government might offer a prize for the best way of preserving apple-juice unfermented, without turning it into a syrup. Apples contain such valuable "salts" that it is a pity we cannot get the drink apart from cider.

An apple-tea, however, will be suggested directly.

Among non-alcoholic grape-wines is a German product called Weinmost. Much of the liquid which we bought has now gone bad; neither was the wine itself very palatable. A somewhat similar drink, but less insipid, is "Nektar," a badly chosen word, since it suggests syrup. This can be had in England. Both its tastes and its immediate effects are unlike those of alcoholic drinks; but it is the least objectionable non-alcoholic grape-wine that we have yet found. We should almost as soon drink treacle as drink most of the stuff that is offered to us.

For, when we have been used to alcohol, we ask for something with a sting to it. That is why ginger-beer may be useful, though some of the pleasure comes from alcohol, as well as from ginger!

Kops' Ale and other "non-intoxicating" ales might be worse; on the other hand, they might be much better; they seem to us to lack the sting of real beer. As to the fruit-champagnes, they are, to many of us, simply nauseating. This is partly because of their excess of sugar.

Sugar itself is found by many to be a substitute for alcohol. Ordinary sugar produces on the Editor far more unpleasant effects than alcohol. It is decidedly more irritating to the skin. He does not recommend that it should be given indiscriminately to children. There are pure kinds of sugar, but they are the exception. To let a child eat all sorts of sugars and sweets whenever it wishes to, may be simply cruelty; there can be little doubt that this is often the starting-point of the desire for alcohol.

The drink that comes nearest to taking the place of alcohol is certainly tea or coffee.

Much is to be said against tea, and

especially that the slavery to it is even harder to throw off than the slavery to alcohol. Against it also is the fact that so many people consider it harmless. Then, again, most of it is adulterated.

But there is no substitute for tea that we know of. Long ago we tried one kind which had less tannin in it ; it made us feel sick and giddy. We repeated the experiment, with the same effect. We have tried other so-called substitutes, but none of them had so pleasant a taste or so pleasant an effect. Some tea made from rose-bulbs, which we got in Germany, had the nearest taste, but had no such stimulating effect.

It is possible that many might like the drink "Yerba," used so much in the Argentine. If it is properly prepared, it is slightly stimulating, and, at the same time, it has a sting to it and a decided flavour of its own.

The person who gives up alcohol and tea, however, or one or the other, must not expect an equally stimulating drink as a substitute, unless it be a drink with similar disadvantages, such as coffee. He must be prepared for the exercise of a certain amount of will-power and patience. He must use all the helps he can, such as self-suggestion, and he must choose the time when there is least necessity for keeping up to the mark—that is to say, holiday-time, when, if he feels depressed or slack, he can rest ; if he feels restless, he can take exercise.

The substitutes for coffee are numerous. The Editor's experience is that all of them make him thirsty. He likes the taste of several kinds, especially Caramel Cereal and Postum Cereal. When rightly prepared, they are almost exactly like coffee in taste, and he knows many who take them in preference to coffee, and soon find their digestion, nerves, etc., much improved. Mr. Flynn likes Brunak.

Others may prefer a kind of coffee made from roasted wholemeal bread. No special prescription is needed, only we suggest that the roasted material should be half wheat and half barley. It should be fresh roasted, and then treated like ordinary coffee.

Cocoa is often advertised as a harmless drink. As a matter of fact, it contains theobromin, which is akin to the thein of tea and the caffeine of coffee. To the Editor most cocoa is narcotic and depressing. On others it acts in different ways. But it is not a harmless drink ; neither is it a particularly nourishing drink. It is said that, if we tried to get our daily allowance of proteid or body-building material from ordinary cocoa alone, we should need about eighty cups of it ! This shows that some highly coloured advertisements are not altogether to be depended on. Again and again they have been exposed by such medical and analytical specialists as Hutchison and Jago, but still there is no Government censorship. A vast amount of harm is being done to the nation through this carelessness and slackness on the part of Government.

In all the above things—alcohol, tea, coffee, cocoa—there are degrees : for instance, a new and fiery whisky must be more harmful than a milder kind of wine or pure beer. As a compromise between alcohol-drinking and sheer teetotalism, especially for those who find that tea and coffee, etc., are getting too strong a hold on them, a step towards freedom may be the use of some light wine, like the *vin ordinaire* of France, Italy, or Spain, or perhaps a good pure Lager, the Danish kind probably being the best. There is far less to be said against such things than against the strongest and most virulent forms of alcohol.

At least they have the advantage of a certain amount of sting and piquancy. The same applies to butter-milk, which Germans in the *Naturheilanstalt* find to be a substitute for beer. Sir Lauder Brunton recommends it as a help to digestion. Some prefer full milk butter-milk; others prefer skim milk butter-milk, which, of course, is cheaper. Both contain proteid, and so help to build the body, as well as to satisfy the thirst. The price of skim milk butter-milk from the Aylesbury Dairy Company, in London, is only threepence a gallon. It contains nearly as much proteid as full milk.

Another drink with some sting in it—though far from perfect hygienically—is nettle beer.

A NORTH COUNTRY PRESCRIPTION.

TWO QUARTS GREEN NETTLES, 1 HANDFUL DANDELION LEAVES, $\frac{1}{2}$ LB. VERY BEST DEMERARA SUGAR, LESS THAN $\frac{1}{2}$ OZ. CREAM OF TARTAR, LESS THAN $\frac{1}{2}$ OZ. CRUSHED GINGER, $\frac{1}{2}$ OZ. YEAST. (N.B.—LESSEN THE QUANTITIES OF THE FOUR LAST INGREDIENTS AS MUCH AS POSSIBLE: THEY ARE NOT HARMLESS.)

PUT THE NETTLES INTO A PAN WITH THE DANDELION LEAVES, AND POUR A GALLON OF BOILING WATER OVER THEM. LEAVE THEM TILL NEXT DAY; THEN POUR OFF THE LIQUOR; ADD THE SUGAR AND CREAM OF TARTAR, AND STIR TILL THESE ARE DIS-SOLVED. THEN ADD THE GINGER AND YEAST, AND SET THE VESSEL IN A MODERATELY WARM PLACE, SO AS TO LET IT WORK FOR A DAY. SKIM CAREFULLY, AND BOTTLE. TIE DOWN THE CORKS, AND THE BEER WILL BE READY FOR DRINKING THE DAY AFTER.

This drink may be useful in purifying the blood, and for other reasons.

Fruit is also good for the blood, and among the best of all fruits, partly owing to its sharpness, is the lemon. The lemon is valuable, whether we take a drink chiefly of lemon, or a drink flavoured with lemon-juice and rind.

One of the best of all drinks late at night is very hot water with the juice of half a lemon in it, and perhaps a spoonful of absolutely pure honey.

Fruit-juices, of course, are excellent.

Here is a recipe for apple-tea, which may be drunk hot or cold. The Editor wishes to thank the lady who sent it.

A RECIPE FOR APPLE TEA.

TAKE ONE OR TWO APPLES FOR EACH PERSON. WASH THEM. DO NOT PARE THEM, SINCE VALUABLE "SALTS" ARE FOUND NEAREST THE SKIN, BUT TAKE OUT THE SEEDS, AND PUT SLICES INTO A SAUCEPAN WITH BOILING WATER. REMOVE THE PAN AT ONCE FROM THE FIRE, AND LET IT STAND WITH THE LID ON FOR ABOUT TEN MINUTES. THEN POUR THE LIQUOR THROUGH A SIEVE, AND SERVE IT AS TEA WITH A LITTLE LEMON.

ANOTHER WAY—WHICH THE EDITOR PREFERS—is to let the slices of apple simmer in water for several hours before you strain.

This drink has very little sting in it, but, if you make it very strong, you can get the sting by adding some pure mineral water—there are a dozen excellent kinds on the market.

Another drink, supposed to be good for the brain and nerves, because of the soluble phosphates, and certainly useful for those who take too much white bread (which is poor in "salts"), is bran tea, with lemon. Here, again, there are many recipes. The following is one:—

A RECIPE FOR BRAN TEA.

TAKE A LITTLE MUSLIN BAG, ABOUT TWO INCHES ACROSS, AND FILL IT WITH CLEAN BRAN. SIMMER IN WATER FOR TWO OR THREE HOURS; THEN DRINK THE WATER WHILE IT IS STILL HOT. ADD A LITTLE LEMON JUICE TO IT FIRST, IF YOU LIKE. SOME FIND THIS DRINK AN EXCELLENT APERIENT, WHICH SEEMS TO SHOW THAT IT IS THE "SALTS" OF BRAN THAT ARE APERIENT IN WHOLEMEAL, AS WELL AS THE IRRITANT PARTICLES OF BRAN. IF YOU LIKE, PUT INTO THE BAG HALF A DOZEN RAISINS AS WELL. THAT WILL IMPROVE THE FLAVOUR.

SOME PREPARE OAT TEA IN A SIMILAR WAY; BUT IT DOES NOT AGREE WITH SO MANY PEOPLE.

Now for some tamer drinks, which are supposed to be more hygienic.

Milk is recommended indiscriminately

by certain authorities, but, in the case of most people, it must be fresh and pure, and it must be sipped slowly. We seldom get it fresh and pure in London. In one district during the hot weather we regularly found it mixed with a strong sediment of chemicals to preserve it. We were told that the chemicals were put in immediately the cow had been milked. We seldom have seen people with the strength of mind or common sense to take milk leisurely. They swill it down, and the result of this may be indigestion, constipation, and obesity, whether the milk be cool or hot.

With regard to hot milk, we recommend the use of the double pan in order to avoid the flavour of scalding, which some object to, and also in order to avoid the loss by the boiling over.

BARLEY MILK: A MILD DRINK.

THIS IS MADE PREFERABLY FROM WHOLE BARLEY, NOT FROM PEARL BARLEY, WITH A CUPFUL OF BOILING WATER AND A CUPFUL OF FRESH MILK. FIRST SOAK THE BARLEY FOR THREE HOURS IN A LITTLE COLD WATER. THEN ADD THE CUPFUL OF BOILING WATER, AND COOK FOR ONE HOUR. THEN STRAIN THROUGH A MUSLIN BAG, ADD THE MILK, SWEETEN WITH VERY PURE HONEY, AND BRING TO THE BOIL AGAIN; OR, PREFERABLY, HEAT IN THE DOUBLE PAN, AND EITHER DRINK IT HOT, OR FIRST LET IT COOL.

A RECIPE FOR BARLEY WATER.

FOR BARLEY WATER TAKE TWO TABLESPOONFULS OF WHOLE BARLEY. THE RIND AND JUICE OF HALF A LEMON, A TEASPOONFUL OF VERY PURE HONEY, AND THREE PINTS OF BOILING WATER. WASH THE BARLEY IN COLD WATER. THEN PUT IT INTO A JUG WITH THE LEMON AND HONEY. POUR THE BOILING WATER OVER THIS, AND LET IT STAND FOR EIGHT OR NINE HOURS. THEN STRAIN IT, AND IT IS READY FOR USE. YOU WILL FIND IN IT THE VALUABLE "SALTS" OF BARLEY.

As a guide to those who wish to know in which "salts" this or that food

abounds, we give some figures from Dr. Wolff's analysis. We have quoted them already in "Good Digestion" (Routledge). Wolff takes the "salts" of various plants, perhaps only 5 or 10 per cent. of the whole plant, and raises the amount to 100. Then he divides up that hundred as follows. It will be seen how rich many vegetables are in many of the most precious "salts" that are said to prevent or remedy gout, scurvy, etc.; only it must be remembered that those who boil vegetables, etc., and then pour away the water, pour away a large amount of these "salts" in the water.

The great chemist and physiologist, Gustav von Bunge, found (in 1891) that the iron in various grains was well used in the body, being "assimilated and converted into haemoglobin"—he assigns to 100 grains of rice 1.2, of pearl barley 1.4, of wheatmeal 1.6, of whole barley 4.6, of whole wheat 5.5, of bran 8.8 milligrams.

Among the plants rich in soda and lime are spinach, endive, radish, carrot, and dandelion. The soda may help us to get rid of, or counteract, some of those acids which are found present in nearly all diseases. The lime may prevent some weaknesses in the teeth and bones.

We have found it possible to make, from vegetables and salad, materials which have simmered for many hours and then have become a stock so thick that it is almost ready to be used as a jelly. This is remarkably rich in the elements which seem to be needed for digestion and nerve-building, as well as for excretion, and to counteract over-acidity. With a little flavouring, and a few boiled beans with parsley, etc., the jelly may be made very palatable, and may take the place of a drink.

Distilled water is preferred to ordinary water, by some of the highest authorities.

THE "SALTS" IN VARIOUS RAW FOODS.

PROF. E. WOLFF'S ANALYSIS, QUOTED BY DR. LAHMANN.

		Potash.	Soda	Lime.	Mag-nesia.	Oxide of Iron.	Phos-phoric Acid.	Sul-phuric Acid.	Silicic Acid	Chlorine.
FLESH-FOODS—										
Flesh of animal	...	41.27	3.63	2.82	3.21	.70	42.54	1.56	1.11	3.85
Flesh of fowl	...	30.90	18.70	3.25	4.15	—	36.40	—	—	8.05
Flesh of sea-fish	...	21.80	14.90	15.20	3.90	—	34.50	—	—	11.40
ANIMAL PRODUCTS—										
Egg	17.37	22.87	10.91	1.14	.39	37.62	.32	.31	8.98
White of egg	31.41	31.57	2.78	2.79	.57	4.41	2.12	1.06	28.82
Yolk	9.29	5.87	13.04	2.13	1.65	65.46	—	.86	1.85
Gruyère cheese with common salt		2.46	33.01	17.82	.81	.17	20.45	—	.08	33.61
Cow's milk	24.67	9.70	22.05	3.05	.55	28.45	.30	.04	14.28
VEGETABLES AND LETTUCE—										
Cabbage	38.86	9.46	17.63	4.00	.69	8.99	13.91	.87	8.51
Spinach	16.56	35.23	11.88	6.38	3.35	10.25	0.87	4.52	6.20
Cauliflower	44.36	5.89	5.58	3.66	1.02	20.22	13.01	3.76	3.44
Dandelion	38.86	10.44	19.96	8.38	.86	7.84	2.24	7.01	2.65
Asparagus	24.04	17.08	10.85	4.32	3.38	18.57	6.18	10.09	5.98
Cucumber	41.16	10.04	7.30	4.15	1.40	20.00	6.92	8.03	6.59
Lettuce	46.01	9.43	6.05	2.17	—	8.52	3.89	20.23	4.75
Cabbage-lettuce	37.63	7.54	14.68	6.19	5.21	9.19	3.76	8.14	7.65
Summer-endive	25.30	35.30	11.86	4.33	1.26	10.90	3.87	2.99	4.19
Leek (Porret)	30.72	14.15	10.37	2.92	7.61	16.69	7.35	7.36	3.11
Onion	34.03	2.48	22.87	4.65	2.27	17.35	5.68	8.50	2.41
Mushrooms	50.89	1.65	1.01	33.37	1.62	33.71	3.94	.98	.88
ROOTS AND TUBERS—										
Radish...	...	32.00	21.15	14.94	3.10	2.84	10.86	6.47	.91	9.15
Celery (the stalk)	43.19	—	13.11	5.82	1.41	12.83	5.58	3.85	15.87
Potato	60.06	2.96	2.64	4.93	1.10	16.86	6.52	2.04	3.46
Carrot	36.92	21.17	11.34	4.38	1.01	12.79	6.45	2.38	4.59
Cabbage—turnip	35.31	6.54	10.97	6.84	3.03	21.90	8.85	2.48	4.95
PULSES—										
Pea	43.10	.98	4.31	7.99	.83	35.90	3.42	.91	1.59
Lentil	34.76	13.50	6.34	2.47	2.00	36.30	—	—	4.63
Bean	41.48	1.06	4.99	7.15	.46	38.68	3.39	.65	1.28
GRAINS AND CEREALS—										
Winter Wheat	31.16	2.07	3.25	12.06	1.28	47.22	.39	1.96	.32
," Rye	32.10	1.47	2.94	11.22	1.24	47.74	1.28	1.37	.48
," Barley	16.33	4.14	.74	12.53	1.72	32.82	2.98	28.74	—
Oats	17.90	1.66	3.60	7.13	1.18	25.64	1.78	39.18	.94
Rice	25.04	4.21	3.73	11.08	1.43	53.76	.56	2.59	.13
NUTS, Etc.—										
Walnut	31.11	2.25	8.59	13.23	1.32	43.72	—	—	—
Cocoanut (fresh)	43.88	8.39	4.63	9.44	—	16.99	5.09	.50	13.42
Cocoa-bean	55.89	2.26	5.44	11.06	.03	38.61	3.43	1.51	.85
FRUIT—										
Apple	35.68	26.09	4.08	8.75	1.40	13.69	6.09	4.32	—
Pear	54.69	8.52	7.98	5.22	1.04	15.20	5.69	1.49	—
Cherry	51.85	2.19	7.47	5.46	1.98	15.97	5.09	9.04	1.35
Grape	56.20	1.42	10.77	4.21	.37	15.58	5.62	2.75	1.52
Plum	59.21	.54	10.04	5.46	3.20	15.10	3.83	2.36	—
Strawberry	21.07	28.48	14.21	—	5.89	13.82	3.15	12.05	1.69
Gooseberry	38.65	9.92	12.20	5.85	4.56	19.68	5.89	2.58	.75

NOTE.—The Table is very misleading, unless one understands that the "Salts" in any food are taken as having 100 parts, and are proportioned in fractions of 100. One food may have 8 per cent of "Salts," another may have 1 per cent. of "Salts"; but in both foods the "Salts," 8 per cent. and 1 per cent. respectively, are here represented as consisting of 100 parts.

If you can get pure and soft water of a natural kind, so much the better; but it is a rarity. Water is usually hard. There are, however, several kinds of distillers on the market, and the trouble which they give to produce quite a small jug of water may not be wasted. Or, if you like, you can get distilled water ready-made from the Salutaris Company through any chemist. It is said that such distilled water, whether natural or artificial, takes up more of the impurities in the system, and then carries them out of the system.

But fruits give us the purest and softest water. Besides, they contain cooling and cleansing "salts."

The "salts" of vegetables, as the Table will show, are not the same as those of fruits. The way to cook most vegetables is to put them in the inside saucepan of the double pan cooker, while boiling water is put in the outside saucepan. In the inside saucepan add a little butter as well (a piece about the size of a walnut for two people). You need scarcely any, if any, pepper or salt. Let the vegetables stay thus on the stove for half an hour or more, then serve them with their juices. Do not pour any of the contents of the inside saucepan down the sink, for the "salts" should help not only to repair the body, but also to remove uncleanlinesses and counteract over-acidity.

That is the effect of most salads also. They should be dressed with lemon-juice rather than vinegar, and with the very purest oil that you can obtain. To make them nourishing, an excellent plan is to sprinkle a little grated cheese or some milled nuts over them.

When we remember that fruits and vegetables and salads are composed chiefly of water, we see that they are really another form of drink, better than

most drinks, because they are comparatively harmless and are rich in valuable "salts."

If, however, all these drinks fail to attract you, then you may be glad of two more hints.

The Americans are in the habit of chewing. The act of chewing serves as a stimulus to the brain, as well as to the digestion. Besides, it sends into the stomach alkaline saliva to counteract acidity and fermentation. Exactly what to chew we cannot say. Probably some form of "gum" may be nearly harmless. The more acid the thing is, the more likely it is to satisfy the thirst and craving. There are some who chew dried camomile flowers, which can be obtained from any chemist. They find it overcomes their desire for tobacco.

Another habit, less objectionable to the spectator, is that of not drinking at meals, but of drinking at night instead, long after dinner, and just before sleep. The habit of not drinking at meals is very soon acquired, though the struggle may be a hard one. A well-known physician has cured numerous cases of indigestion simply by telling the patients not to drink during their meals. If you must drink, sip a little hot water. Begin to try the new habit during holiday-time.

But we are not in favour of too little drink for most people. Most people have impure blood; their system needs to be flushed. The time for flushing the system is the late night, so as to give the water plenty of chance to work; and there must be thousands in England to-day who owe their feeling of fitness to one simple drink—very hot water taken the last thing at night. Only let there be no mistake. The plan is not a good one to continue. It may seriously injure the coating of your stomach. It is not a natural plan; it is remedial; its main

object is to clean you. Meanwhile, you ought to avoid that which has clogged you. If you adopt this hot water plan (it does not suit everyone), then, side by side with it, pay attention to the rest of your food and drink and life, and get your system out of the state in which it needs to be flushed.

You may be one of those with whom cool water—sipped rather than swilled—agrees better than hot water. Or you may be one who needs very little water. You may find that you get enough moisture

from your foods; that when you are thirsty your best plan is to hold your hands and arms in cold water, or rinse out your mouth. We can lay down no universal laws about drink. Seeing that drinks which are excellent as remedies—to restore upset balances—may be bad as regular habits, we must leave it to the reader's intelligence to work out his own cure if he needs one, and to have patience during the first stages of his gentle experiments. A violent, sudden change is a great error for many.

CHAPTER L.

ANATOMY AND PHYSIOLOGY.

Ordinary Text-books do not Answer the Interesting and Useful Questions of Ordinary People—"Facts" not Necessarily Applicable—Samples of Barren Truths—A Start from a Natural Query—May Lead to Equally Accurate Information—Text-books Seem Afraid to Omit—An Exceptionally Practical Extract—Still Written from the Specialist's Point of View—The Tired Runner—An Opportunity for Introducing the Positions of the Body's Organs—An Exercise—"Man as an Eater" forms an Attractive Start for a Lecture on Food Values—Two Recipes Contrasted—Analyses Taught by Simple Drawings—Text-books Judged by their Fruits—Study-books, not Life-books—What the Public Does not Need—Right Positions—Clothing—Man Regarded as a Machine—Omission of Mind—Leisurely Eating Neglected as a Part of Physiology—Writers Have not Lived what they Preach, Parrot-like—Human Introductions—Digestion and its Processes—Pawlow and Cannon as Teachers—The Mind Must not be Left Out—It Can Produce the Most Powerful Physical Effects—Apparatus that Proves this—The Imagination—Exercise Treated in a Slip-shod way—Sir Lauder Brunton as a Contrast—He Distinguishes Different Kinds of Exercise—The Liver—the Work of Laymen—Another Exercise—Physiological Text-books do not Warn People Against Wrong Types of Exercise—Fatigue an Interesting Starting-point—Text-books Wanting in Perspective—An Exception from Dr. Hill's Text-book—Yawning—Sneezing—Another from Sir Lauder Brunton—General Fear to Trespass on Useful Sciences or Arts!

A STORY is told of a new process for "maturing" whisky rapidly by destroying what is known as "fusel oil." A certain bar-keeper in New Zealand, wishing to mature rapidly some whisky which he suspected of being slightly fiery, applied the apparatus to a full bottle of "guaranteed old Scotch." At once all the fusel oil in the bottle disappeared most satisfactorily. But the search for the remaining whisky was in vain. Apparently the "whisky" had been nothing but fusel oil!

If we could apply to most of the orthodox text-books of anatomy and physiology a similar process for destroying not what was poisonous so much as whatever was dull and apparently inapplicable in daily life; if we could remove from them what was useless to ordinary readers, whether it was a fact or not; we should find remarkably little left. The writer does not seem to have asked himself, "Will this piece of information really help the ordinary person

to live a saner and healthier and happier and more useful life?" No; that point of view seldom, if ever, occurred to him. He seems to have had in mind not clerks and factory girls, not fathers and mothers, not schoolboys and schoolgirls, but simply and solely students studying for certain examinations about skeletons and so on.

As one of the Editor's pupils at Cambridge said, with reference to a learned mathematical lecturer, a famous specialist in his own corner of the mathematical field, "What the old fossil says may be quite true and learned. But I don't understand much of it; I don't care about any of it; and none of it is of the least use to me anyhow, even when I do seem to understand it." He went on to say that he wished he could be paid as nicely as the mathematician was for boring people who wanted to be doing something else.

There are some who delude themselves with the idea that children and others who are taught many "facts" about

"the structure of the body," are so "educated" that they understand how to live. Here is a quotation and an illustration of the kind commonly found in learned works. What on earth is the value to the average child?

"The humerus, or long bone of the arm, is jointed above with the scapula, and below with the radius and ulna, the bones of the forearm. At its upper extremity is the head, set at an angle with the shaft of the bone, and two masses of bone for the attachment of muscles, called the greater



FIG. 1.

and lesser tuberosities. The lower extremity is expanded into a broad surface, also for the attachment of muscles, the inner and outer portions being called the external and internal condyles. The elbow is formed by the union of the humerus with the radius and ulna. The radius and ulna are the bones of the forearm, the radius lying upon the outer or thumb side of the arm, and the ulna upon the inner or little finger side when the arm is stretched out with the palm of the hand looking upwards. The ulna is so hinged upon the humerus by the olecranon that it is only capable of being bent and straightened, flexed and extended, at the elbow, whilst the radius, having a circular upper end, can rotate round the ulna, thus enabling the arm and hand to be turned, with the palm looking upwards or downwards, without moving the humerus. When the palm looks upwards, the arm lying flat upon a table, the radius and ulna are parallel to each other, and the two bones are as far apart from each other as is possible, an important point in the treatment of some forms of broken arm; the hand and arm are then said to be in a position of supination. When the arm is turned so that the palm of the hand looks downward—a position of pronation—the radius rotates over the ulna and lies obliquely across it."

Such is the usual strain of the anatomy text-book! Of what good is that sort

of stuff—true as it undoubtedly is—for the average reader who wants to learn something that he can easily apply to better his daily life? A study of the whole book from which this typical extract is taken shows about ten definite statements that give advice; and at least four of these statements are dogmatic without sufficient evidence—as that all children should have lump-sugar, meat gravy, etc., and be clothed always in flannel.

We turn with hope to a text-book of physiology that professes a different point of view. Here is an extract from its preface:—

"This book aims at giving an outline of the parts of the subject which may be supposed to be of most interest to a reader who is not contemplating the profession of medicine, and has not the appliances of a laboratory at his command."

This advertisement leads us to expect that at last we have something useful. What the public really needs is not a

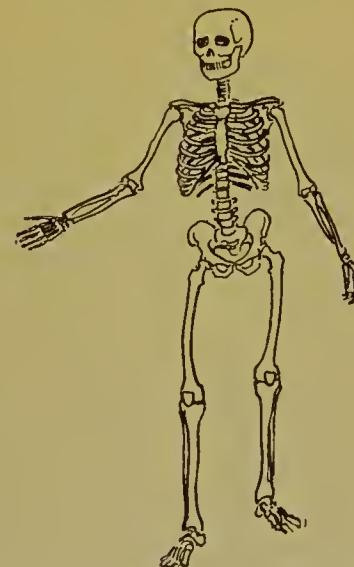
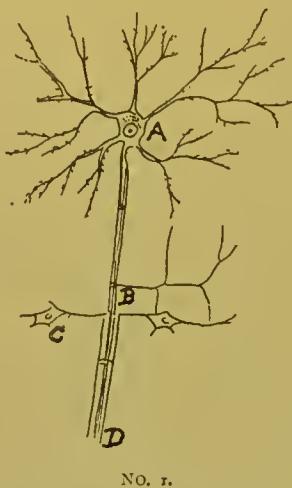


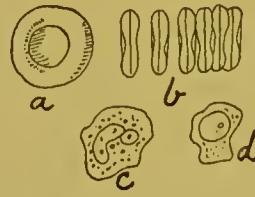
FIG. 2.—THE SKELETON IS NOT NECESSARILY THE BEST STARTING-POINT.

complete set of names and data with regard to muscles and bones and organs and juices and so on, but a careful selection of pregnant facts, with some obvious



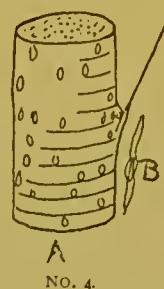
NO. 1.

A nerve-cell of the anterior horn of the spinal cord. A, the cell body, which contains a nucleus and a clump of pigment, and gives off five branched and thorny processes as well as a single nerve. The branched processes bear impulses to the cell, the nerve carries impulses away from it. The nerve is surrounded by a segmented sheath (medullary sheath). It gives off a branched "collateral," B. C is the connective tissue (pia mater) covering the spinal cord. With the pia mater is connected the outer sheath (neurilemma) of the nerve, D.



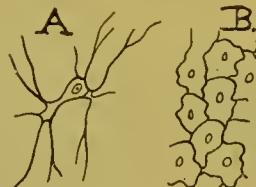
NO. 2.

A group of blood corpuscles. (a) a red corpuscle lying flat, and showing its concave surface; (b) red corpuscles seen edgeways; (c) a white corpuscle, with irregular nucleus and coarsely granular cell body; (d) a younger white corpuscle, with large spherical nucleus and finely granular cell body.



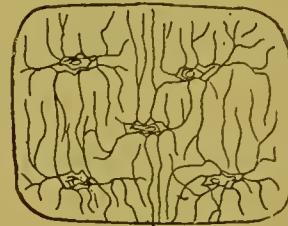
NO. 4.

A small portion of a striped muscle-fibre. It contains a large number of muscle-fibres, which show it to be a composite cell. It is invested by a homogeneous membrane (sarcolemma). Its contents are divided by bands or stripes. A nerve is seen to join it on the side. B, Plain muscle-fibre.



NO. 3.

Connective. A, a branched cell, the processes of which taper off into fibres. B, a group of cells flattened to form a tesselated epithelium. The muscles are seen in the centre of each epithelial cell. (Highly magnified.)



NO. 5.

A highly magnified section of bone, showing irregular spaces (lacunae) containing nucleated bone-cells. The lacunae are connected one with another by exceedingly minute channels (canaliculari). Nutrient lymph circulates through the canaliculari.

FIG. 3.—FIVE SPECIMEN ILLUSTRATIONS FROM A TEXT-BOOK.

inferences. The public also requires these inferences to be clear, and applicable to common daily life and actions. The commoner the actions, the more valuable the lessons. So we turn away from the many large volumes by Sir Michael Foster, Schaeffer, Gray, and others, to this little book.

But when we come to the inside of it, though we find it possible to extract valuable knowledge if we use great ingenuity, and though the language is comparatively clear, and though the illustrations also are clear, we can discover very little that fulfils the promise. What good is done by information of which the following is a very fair example?

"When the skin has been removed, the fore and hind-limbs are seen to be supported by two bony arches, called respectively the

pectoral and pelvic girdles. The fore-limbs and pectoral girdle, and the hind limbs, can be cut away, leaving the head and trunk. The pelvic girdle cannot be removed without opening the abdomen. The wall of the chest is composed of bones and muscles. The ribs form arches which, starting from the backbone, unite in front with the sternum or breastbone. The muscles, which lie along the middle of the back, are not supported by the ribs, but by a series of arches, which, starting from the spinal column, unite in the mid-line of the back. The arches last-named surround the spinal cord, and are therefore termed the 'neural arches.' The arches which enclose the heart and great blood-vessels may be distinguished as 'haemal.' * If the vertebral column is traced forwards to the head it is seen that the bones of the skull, although no longer divisible into separate vertebrae, but fused together, are nevertheless obviously formed on the same plan as vertebrae, the bones of the brain case being neural arches,

* Related to blood.

and the bones of the face—the lower jaw, for example—haemal arches. A transverse section carried through any part of the head or trunk shows two arches starting from the backbone—the dorsal arch containing the central nervous system, the ventral arch containing the organs of digestion and other viscera."

And the illustrations, simple as they are—of what use will they be in daily life? Scarcely of any use at all. Look at the three or four samples. What do you learn from them? And they are typical of about nine out of ten of the illustrations in most text-books of anatomy and physiology.

"When the weather is cold, why are one's hands white or blue? Why is one's nose red? Why are not one's hands and nose all three alike, either white or blue, or a pleasant pink? And how can one make them all three a pleasant pink?"

It is a matter of local blood-supply, especially in the small vessels near the surface of the skin. The colour depends largely on the power of the heart to pump fresh blood and remove waste, the elasticity of the walls to relieve the heart's work, and the state of the blood itself, whether rich in oxygen, etc., or clogged with carbonic acid, uric acid, etc. The surface-vessels of the nose are congested with clogged blood; the surface-vessels of the hands are lacking in blood; in both cases the stream is (*a*) flowing slowly, and (*b*) distributed unevenly through the body.

On this little beginning, familiar and interesting to all (since all know the red nose and cold-looking hands, and all wish to avoid these unpleasantnesses), might be based teaching about capillaries, the skin, the blood-stream, and the heart, the effects of full breathing of fresh air, the effects of pure and nourishing food, the effects of general and local exercises, and so on. It would serve, for example, to

show some of the effects of exercises in quickening the circulation and removing impurities, as in Fig. 4.

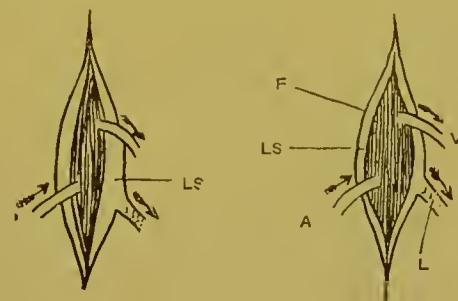


FIG. 4.

ANAT. 4 (From Sir Lauder Brunton on Exercise and Massage).

A diagram of longitudinal sections of muscles. I. in relaxation, and II. in contraction. F is the fibrous fascia or sheath of the muscle. LS a lymphatic vessel with numerous fibres, by which the lymph, containing waste products, is removed. A is an artery by which fresh blood is brought to the muscle; and V is a vein by which blood is removed from it. Each time the muscles contract, as in II., it lessens the size of the lymph space, and drives the lymph onward through the lymphatics. Each time it relaxes it tends to create a vacuum within the fascia, and thus lymph is sucked out of the muscle into the lymph space, while fresh arterial blood rushes into the muscle.

Now it is just as easy to start physiology in this sort of way as to start with the most complicated structures and processes. The advantage of this beginning is that there is interest, personal interest, because of the personal appearance, and, indeed, through mere curiosity. *The ordinary text-book answers few questions which the average learner is likely to ask. It gives him what is called "information." But it comes in answer to no spontaneous question.* It is really quite outside the person's interests. Our way starts with what the person knows, and goes on to deal with what the person wants to know—or will want to know when he sees its close connection with his daily life.

In this chapter we wish to take away from the reader any idea that scientific works need be unpractical and dull. That too many of them are so is proved by the unhealthy daily life of most of those who read them and learn them, and, indeed, of many of those who write them. If the anatomy and physiology is to be worth its price of money and time and labour of

learning, it should produce a wonderfully fitter person. It scarcely ever does so.

The text-books may be accurate, though in so far as they leave out the mind—for example, its emotions and their effects as a tonic or as a depressant chemical—they are grossly inaccurate. But the text-books are certainly ineffectual in producing all-round physical fitness; and we can think of no more serious condemnation. We doubt whether the average student of the average text-book applies 1 per cent. of the thousand and one "truths" in regulating his breathing, eating, drinking, lying, sitting, standing, moving, resting, thinking.

Doubtless nearly every piece of writing in most of the text-books is, within certain limits, a "truth"; but hardly any one—at least, in the form in which it is stated—is a useful truth. *The teacher's grand art—the art of omitting—has been neglected.* The pages, useful enough for a few intelligent specialists, are crammed with hundreds of statistics, apparently nearly all of the same size, nearly all unapplied to ordinary human life.

We do not say incapable of being applied, for here are two or three examples from the same text-book:—

"The total surface presented to the air in the lungs is very great—about a hundred times the area of the skin. Carbonic acid is partly dissolved in the plasma of the blood, partly combined with the sodic carbonate which it contains, forming bicarbonate of soda. If venous blood is placed under the air-pump it gives off about half its own volume of this gas (measured at the pressure of the atmosphere). A very little more than this amount when dissolved in the blood produces symptoms of narcotic poisoning. The skin grows livid; the pulse, at first more frequent, becomes subsequently slower and weaker; respiration is more rapid and forcible; the pupils are dilated. Unconsciousness passes on to death. It is in this way that all fatal lung diseases terminate."

Surely here the starting-point might have been the experience of the student who (see Fig. 5) has run himself "breathless," say, in a race.

"Oxygen, on the other hand, is not dissolved in the blood, but combined with the haemoglobin of the blood-corpuscles, which has the remarkable property of existing in two chemical conditions—the one, "oxyhaemoglobin," containing more oxygen; the other, "reduced haemoglobin," containing less. If venous blood, which is of a dark purple-red colour, be shaken up with air it loses its carbonic acid, absorbs oxygen, and assumes a scarlet hue."

Here the instance of the tired runner who keeps his arms firm (perhaps clutching



Fig. 5.—A BOY IN DISTRESS AFTER A RACE.

hard on some support), and inhales all the air he can in strong gasps, would naturally have introduced a word about the connection between the arms and the muscles of breathing, as well as the above paragraph.

"Fresh air contains, with great uniformity, even on mountain-tops and at sea, 0·04 per cent. of carbonic acid. If this gas were absent, plants could not live, since their chief food is carbon, which their green colouring-matter enables them to fix from the carbonic acid in the atmosphere or from its solution in water. At the same time that they fix the carbon, they restore the oxygen to the air. If the proportion of carbonic acid in air rises as high as 1 per cent., it is distinctly poisonous. Not that this amount of carbonic acid would prevent the interchange of gases with the blood, but because carbonic acid when exhaled from the lungs

is accompanied by various noxious organic substances. It is the presence of these volatile bodies which causes the head to ache in a crowded and ill-ventilated room. Under ordinary circumstances air which contains carbonic acid to the extent of one-tenth of the amount which we have described as poisonous is recognised as ill-smelling and unpleasant by anyone who enters it from the outer air. Taking, therefore, the amount of carbonic acid as the test of the impurity of air, and a proportion of 0·1 per cent. as the maximum of impurity compatible with health, we find that an adult (who, on the average, exhales about 0·6 cubic feet of this gas per hour) will in an hour charge 1,000 cubic feet of air to the extent of 0·1 per cent., since fresh air already contains 0·04 per cent. Sanitarians usually fix the limit of safety much lower even than this—at 0·06 per cent.—which would necessitate our supplying every adult with 3,000 cubic feet of air per hour. With good ventilation the air may be changed four times in an hour, and therefore a space of 800 cubic feet is generally regarded as sufficient for each occupant of a room. Of fresh air, however, as of some other good things, it is impossible to have too much."

Even this useful paragraph would have been improved on if the writer had pointed out the effect of developing the lungs so that the breathing-capacity were increased merely by a single cubic inch. Allow only four breaths to a minute, and the increase in the amount of oxygen inhaled in a single year would be enormous. And the analysis of some air in a railway carriage after a long journey would have brought the truth home. As it is, the "truth" tends to remain what we may call a "schoolroom truth," just as in too many cases a religious "truth" remains a "church truth."

Then, again, when the writer says that "breathing is the enlargement of the chest by raising the ribs and by depressing (*i.e.* flattening, the arched midriff or diaphragm)," he impresses us very little. He has here an excellent opportunity for a little teaching about the diaphragm, not

merely about its size and about its actual position, but about its effects upon the organs above and below when it is moved down and up; about the results when the diaphragm is habitually kept too low, as it generally is; and about the ways in which it may be moved up or held up—what muscles move it up and hold it up, or help the moving or the holding.

For instance, why not start with this figure lifting itself from the floor? Why not point out what muscles that figure would be likely to develop, what effect that exercise would be likely to have upon the diaphragm and the breathing? But in the text-book there is no such human life and action. Man is regarded as a sort of machine—a machine con-

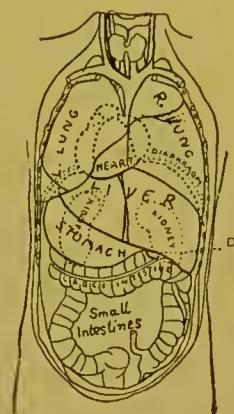
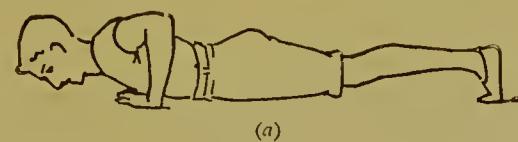
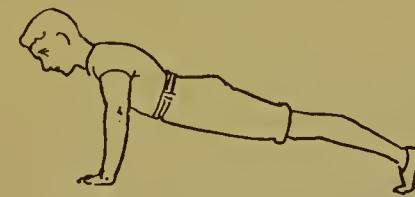


FIG. 6.—ORGANS
AFFECTION BY THE
DIAPHRAGM (D).

(Adapted from
Dr. Hill's Text-book
of Physiology.)



(a)



(b)

FIG. 7.—FLOOR EXERCISE.

sisting of parts which are little more than shapes and names; and hard names, too. Whereas the exercise, combined with breathing, would give the learner the *feeling* of this or that muscle as it was being contracted or extended. Such a diagram as Fig. 8 would now have reality for him.

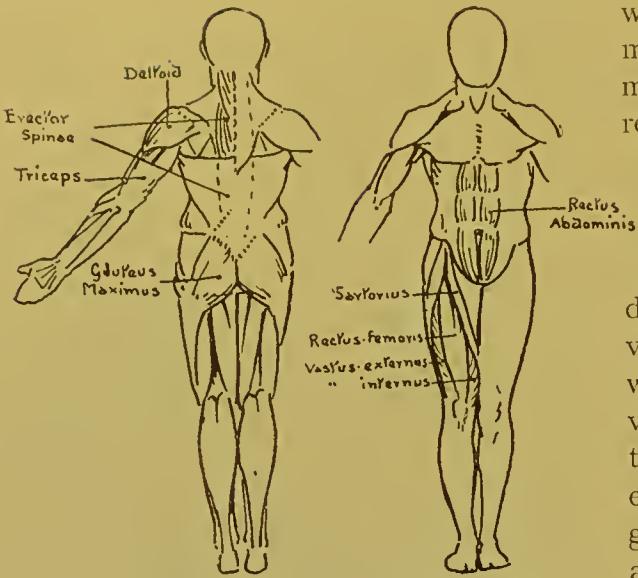


FIG. 8.—DIAGRAM OF SOME MUSCLES BROUGHT INTO PLAY BY FLOOR EXERCISE.

So it is when man is to be considered as an eater. Usually the text-book soon rushes to huge tables, hopelessly complicated, giving various food-values. But why not start with some interest? Take a recipe, and say why it is good for us, if it be digested. We might quote again a recipe offered in a previous chapter. Or we might take such a meal as toasted cheese on wholemeal bread, with fresh green vegetable conservatively cooked. We might then point out the value of this

what it does, instead of starting with mere statistics. The criticism of such a meal might emphasise, in a way easy to remember, some principles that few people have ever realised. Besides the proteid, there would be the oil (from the butter and cheese, and the oil in which the vegetable was cooked), the carbohydrates (from the wholemeal bread and vegetable), the "salts" (from the cheese, wholemeal bread, and properly cooked vegetable), and the taste (especially from the cheese). A word or two about the effects of this or that cooking—whether good or bad—would surely be in place in any practical and human text-book of physiology. How can one separate such subjects from the physiology of digestion—a subject fascinating to nearly every adult to-day?

Then, by contrast, there might be a meal very poor in proteid: for instance, a dish of cabbage and potatoes. It would be easy to point out why this is bad, especially if it is wrongly cooked so as to be tasteless and almost juiceless. Perhaps a meal having excess of proteid might also be quoted. Such a method leads to the analysis naturally, for it starts with something in the daily life of the reader.

And, when it comes to the analysis, there is no reason why it should consist entirely of tables. So much can be taught by means of illustrations, as this diagram shows. It shows at once that some cereals may have their 10 per cent. of body-building proteid, some beef may have its 20, some cheese

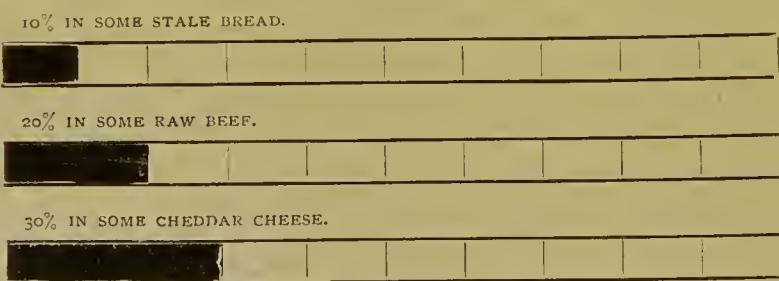


FIG. 9.—TABLE SHOWING PROPORTIONS OF (BODY-BUILDING) PROTEID IN VARIOUS SUBSTANCES.

meal if it be digested, and especially the value because of the proteid in the cheese and wholemeal bread. That would give the chance for saying what proteid is and

its 30, and so on. Of course there must follow details as well—e.g. that grain foods range from below 5 to above 15, flesh-foods from below 10 to above 30.

(roast beef), cheeses from below 10 to above 40 (parmesan).

But, obviously, in spite of the hundreds of text-books and hundreds of thousands of readers, there has been scarcely anything living in the information given. Look how hopelessly wrongly people eat and drink! Look how hopelessly ill they seem! The text-books have not really taught them *human* physiology; they have thrust upon them "truths" which do not undoubtedly concern them. We must judge these text-books by their fruits, which are practically *nil* in daily life. In spite of their statements as to how much of each food-element we are supposed to need, most people eat too much of one element, too little of another; and eat it all far too fast. But the average text-book is not a life-book. It is a study-book, concocted on the same old in-human study-lines by study-men.

What a vast amount of our happiness and fitness depends upon digestion. There is no need to quote from any text-book as to the process of digestion. It is sufficient to say that nine lines out of every ten are utterly worthless for the ordinary person. How does it help him to be told that the pancreatic juice has certain functions, to be told all sorts of details as to the various organs and their juices, if he is not told how to procure or elicit these juices? The emphasis in these books is not on what the person can regulate. Instead of that, there is no emphasis at all. The person is offered a hundred facts, once more all of the same size, at least ninety of them being inapplicable for daily use. Let us repeat, "what the public really needs is not a professedly complete set of names and data with regard to muscles and bones and organs and juices, and so on, but a careful selection of pregnant facts, with examples and obvious inferences. It also

requires these inferences to be clear, and applicable to common daily life and actions; the commoner the actions, the more valuable the lessons."

The right position of the organs, for instance, what a vital matter that is! And yet, though every book contains a skeleton and diagrams of the inside of the body, the obvious lesson is rarely given; that there is a certain way of keeping the body and its organs *in* the right position. It would be so interesting and valuable to know what was likely to happen when this or that organ was displaced—say, when the stomach, distended by fast eating of starchy and sugary foods, pressed up against the diaphragm, and hence on the heart and lungs, and down on the colon. This is a place for Fig. 6, which we have adapted from Dr. Hill's book. The wrong place for that figure is at the beginning or in the middle of a description in which the person is not in the least interested. The right place is e.g. in the middle of a lesson on the importance of correct position, etc.



FIG. 10.

It would be so useful also to point out how a bad corset would interfere with the positions of the organs, etc. Modern *human* physiology *must* mention clothes. Anyone would imagine, from the average text-books, that man was still a naked animal, or even a machine, without emotions and intelligence.

How many people who have read text-books are led to eat any more leisurely than before? Probably they will be eating three times a day, and, let us say, for an hour and a half. The ordinary text-book, of course, mentions in a dull, dry way some facts about slow eating; only

somehow we feel that the writer does not regularly practise the art himself. If he did practise it, his writing would not be so insuperably tedious and dry. If he did practise it, he would be bound to speak of its effects on the will and character, through the cultivation of self-control, patience, and thoroughness ; he would be bound to speak of the increased enjoyment which would soon come, of the greater economy of money if not of time, of the nervous and muscular economy through better digestion, especially of starch, through less waste, less need of excretion ; he would be bound to speak of the greater energy which would be helped by greater cleanliness and comfort. In fact, *if he had lived what he preached*, he could not possibly pass by the mention of leisurely eating without citing his experiences, without saying how such eating would tend to fitness, and would, for instance, counteract acid poisons by means of the protective and neutralising saliva ; how the habit would increase the flow of saliva ; how the habit could become sub-conscious.

Such information as Mr. Horace Fletcher has given in his book on nutrition comes from the heart ; the statements in text-books of anatomy and physiology do not ; they come from the surface of the intellect. They are dry and aggravating as dust. They are repeated by one learned person after another in a parrot

fashion, without any human understanding or sympathy.

The few items that we should choose would bear on daily action. They would connect mind and muscle. Mind would be mentioned first and last, including the emotional mind. The beginnings would be according to the interests of the readers.

After this introduction to mastication, this human introduction, there could follow certain experiments, with test-tubes in which was an imitation of human saliva. It might be shown how very small an effect this had upon starch either in its natural state or in its pappy state, when eaten very fast. There might be illustrations of the salivary glands, showing how their muscles were connected with nasal breathing, etc. There might be illustrations of fermentation due to fast eating, and consequent swelling of the stomach and pressure of the stomach upon the lungs and heart above them.

But first and last there must be an appeal to the mind and will, the human interest of the majority, instead of sheer fact mentioned as fact. There must be an insistence that, though movements may be muscular, they are in certain cases under the control of the will, and can be regulated, and *should* be regulated.

Read any account of digestion in an ordinary text-book, and at the end tell us candidly how much it has helped you.

Now read the works of Pawlow and Cannon. Not only are these works supremely interesting, but they are also pre-eminently practical. You cannot well read them without being led to a more useful life. And they tell you quite as much about physiology and digestion as the text-books will.

Why is it, for instance, that in his last days or years Mr. Herbert Spencer found it hard to



FIG. 11.
CONTRAST THE DULL, SOLITARY
FEEDER WITH—



FIG. 12.
THE CHEERFUL, GREGARIOUS
DINER.

digest a solitary meal? Why is it that bad news will often take away the appetite? The ordinary text-book does not tell one. Still less does it impress upon one that one should seek pleasurable emotions in every harmless way. Still less does it tell us what ways there are in which one may seek pleasurable emotions. Pavlow, however, has clearly proved how a certain pleasant taste will make the gastric juice of a dog flow vigorously in the stomach; how the pleasant taste will thus affect the digestion. Dr. Cannon has shown how anger, in the case of a cat, will stop the stomach's peristaltic movements which churn up the food and pass it on. These are works which we call Human Physiology. The other works—the orthodox kind—are unhuman. They are, once again, like most French and Latin grammars, dead study-books.

If the orthodox writer says that this is not a matter of anatomy and physiology, but a matter of hygiene and psychology, then at once he condemns his own subject as nearly useless, except perhaps for the surgeon. We do not demand that he shall enter into all kinds of complex theories about the relations of body, mind, and spirit; but at least he might point out that the ordinary mind, which is often called the conscious mind, is the mind which reasons and chooses, and to a great extent either manages the body directly or else manages the under-mind, which in turn manages the body. Of this power and responsibility of the conscious mind there is scarcely a word in the text-books. Yet from the point of view of religion, if the body is treated simply as an automatic machine, and not as the expression and instrument of the spirit, the text-book may be giving only half or less than half of the whole truth.

But, even though we leave out any such preaching, we cannot possibly divorce



FIG. 13.

physiology from psychology to-day. When such writers as we have quoted in previous chapters—Prof. James, Prof. Bain, and Dr. Maudsley—have written as emphatically as they have as to the influence of attitudes and gestures and general control of the muscles upon the control of the emotions and the mind, it is amazing to consider how uninteresting the text-books of anatomy and physiology can still remain. One of the most important truths in *physiology* is that we have the *will-power* to move muscles thus and to keep them thus; that this alters the blood and all the secretions and excretions of the body. Surely that is just as much physiology as is a description of the shape of the stomach or a mapping out of the different areas of the brain.

Surely anything which can produce a physical effect is an integral part of physiology. Take the imagination, which is so rigidly excluded from most books of physiology—its effects on the breathing, on the heart-beat and circulation, on the muscular power and endurance, on the worm-like action, etc., of the stomach and other organs. All these facts belong to physiology. They are just as much physiology as the fact that the stomach secretes gastric juice. All of them can be shown on paper. The sphygmograph will show the effect of imagination upon the heart and the pulse-beat. The pneumograph—see the chapter on “Why We Feel Tired”—will show its effects upon the lungs and the breathing. The myograph will show its effects upon the muscles’ pace and endurance. The balance-bed of Dr. Anderson will show its

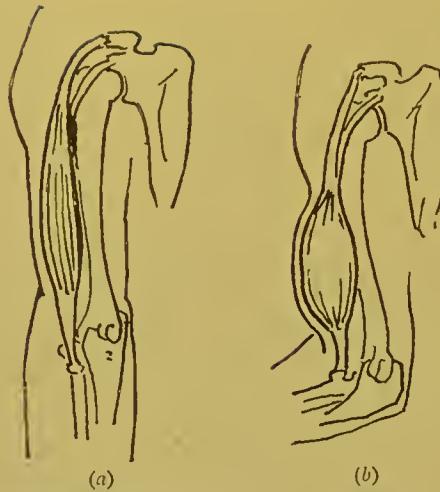


FIG. 14. A WORD OF INSULT MAY CONTRACT A MUSCLE—

THUS.

effects upon the distribution of the blood. The human sight will show its effects upon the circulation of the blood, upon the muscles of the face, upon the attitudes of the body, upon the positions of the organs. Anyone can cite from his own experience its effect upon muscular (physiological) power and vigour by contrasting his efforts to move when he is depressed and his enjoyment of easy movements when he is elated ; and he can learn to depress and elate himself by imagination as easily as by many other means.

It is almost incredible how lightly the text-books skim over exercise. Of course, Lagrange and others have written a good deal about the effects of exercise ; but the great majority of text-books pass it by with a few words, and those words grossly inaccurate. Sir Lauder Brunton forms an exception. He not only cites the general effects of general exercise, but also goes on to special effects of special exercises, as every text-book should do. He says that “ the very simplest movement affects the heart and lungs as well as the muscles. The heart and lungs participate even in such slight movements as the bending of the finger. With increased exercise to the muscles inevitably the heart and breathing

apparatus also get more exercise, and tend to become larger and stronger than before. Nor is this all. The increased waste and the increased circulation lead to greater excretion from the kidneys and skin, and at the same time they produce a greater appetite and a more active and healthy condition of the digestive canal. Every vital process is carried on more vigorously, and the individual feels brighter, happier, better able for work, and is not only capable of enduring greater exertion, but is better fitted to resist attacks of disease. But there are great differences in the effects of exercise, according as it is of a suitable character and taken at suitable times or not.

“ We have already seen,” he continues, “ that severe bodily exercise should not be taken immediately after meals, although a quiet stroll may not interfere with digestion. A quiet stroll has less power than actual exercise for harm, but it has also less power for good, and we shall perhaps be disappointed if we expect from it the increased appetite and the better digestion which would follow such exercise as a game of quiet Golf or Lawn-tennis. There are two reasons for this. One is that in the constitutional the movements of the limbs

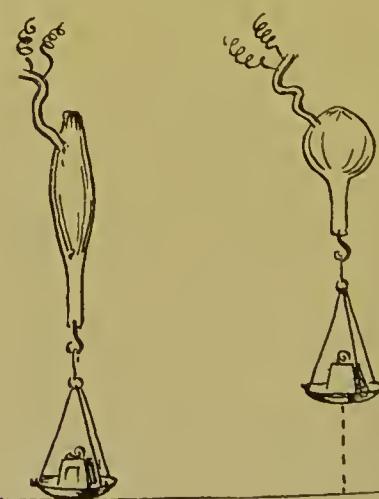


FIG. 15.—THE IMAGINATION MAY, BY A SORT OF ELECTRIC SHOCK, ALTER MUSCLES.

are less active ; another is that the constitutional does not help to increase the excretion of bile. Bile is formed in the liver at very low pressure, and will hardly run out unless the liver be to a certain extent squeezed between the diaphragm and abdominal muscles. Now this squeezing does not occur in a constitutional walk, but it does when the abdominal muscles are tightened at the same time that a deep breath is taken. By putting the hand on the abdomen you will find that in quiet walking the muscles tighten very slightly, but in running or walking up a hill they tighten very much more, and a quarter of an hour's walk up a steep hill will do a man more good than a couple of hours' walk on level ground. When people have not the time or opportunity of walking up hill they may help the liver by one of the movements which are generally taught at the commencement of drill—namely, trying to touch their toes with their fingers while they keep their knees straight. By doing this a few times morning and night they may keep their livers in order, and sometimes avoid the depression of spirits, melancholy, and discomfort which are associated with hepatic disorder. At the same time pressure upon the intestines, either by the exercise of cricket or tennis or such movements of drill as I have mentioned, tends to make them act and lessens the necessity for continuous dinner-pills."

It is such writers as Macdonald Smith—not certified physiologists, but laymen—who distinguish clearly between exercise in general and a certain type of exercise known as full contraction. The partial movement, he says, does not completely empty the small blood-vessels as if it were squeezing a sponge out ; the full movement does. The movement is slow and strained ; another movement is brisk and free from strain. The full contraction,

properly practised, will cleanse the muscle of its old matter, and enable fresh blood to flow in and nourish and build new muscles. And he teaches by example, not merely by statistics and precepts.

And, indeed, any class would learn ten times as much in an hour if the students were told to perform certain movements before they had the statistics crowded upon them. The usual order is first statistics ; then statistics. If you tried the position in the figure on p. 621, and were then asked what muscles you used, what these muscles did in the body, what good the exercise was likely to do you, you would have plenty of material for reflection and experimentation. As it is, the public is misled by ignorant advertisers who are talking of the "physiological" effects of *exercise*, and perhaps quoting some text-book, and utterly ignoring other physiological effects of their particular exercise. Some of the Sandow exercises apparently claim to be quite perfect. When used in due season and with discrimination, not relied on as complete exercise, they have a decided value. But their effects on the general tension of the body, general slowness, and so on, may be disastrous. It should be the purpose of a physiology text-book to warn its readers against the wrong kind of exercise ; not merely against excess, but against bad choice. But the study of various exercises is not yet an integral part of the study of orthodox physiology. How utterly silly that is !

Fatigue forms an interesting starting-point. Text-books do certainly deal with it more frequently than they used to, but the advice is singularly unpractical. All sorts of registers of pulse-beats and heart-beats and other curves are cited, but how to avoid the fatigue (see the special chapter on "Why We Feel Tired") —the text-books carefully omit that.

What the text-books need is skill in leaving out the unnecessary and the dull. That is what theology and history text-books need also. Therefore they need some sense of proportion. What shall they omit? What shall they just mention? What shall they emphasise? Surely they should emphasise that which is of most frequent use in ordinary life. Surely they should leave out that which is uninteresting, or else should connect it with some interest.

Out of a desert of dull writing what an oasis such a statement as the following is :—

"Yawning, sneezing, coughing, laughing, are modified respiratory acts which are carried out through reflex centres, subsidiary to the respiratory centre. Yawning seems to be primarily due to fatigue of the muscles which hold up the lower jaw. The jaw drops, and all its muscles are then thrown strongly into action, for the same reason which induces us to give, when we are weary, a "good stretch!" with all the muscles of the body. A good stretch dilates the blood-vessels, withdraws venous blood from the brain, and quickens the circulation through this organ.

"Sneezing is an effort to remove foreign bodies from the nose; but no satisfactory reason has ever been assigned for sneezing at sight of a bright light, which in many persons is an imperative reflex. Coughing serves to remove mucus from the larynx and windpipe. The reflex storm which occurs when a crumb finds its way into the larynx is probably the strongest discharge of nerve-force which the body ever exhibits. Laughing we must look upon as an acquired action, which in course of time has developed into an emotional reflex."

Sir Lauder Brunton is still better. He says, "For the development of the chest there is perhaps no better exercise than

that which Nature has pointed out as a relief to fatigue—namely, yawning. For in this action the chest is expanded to the utmost, both by the ordinary expiratory muscles and by the accessory muscles connected with the arms. In cases where chest-expansion is deficient, either from arrested growth in children or from disease of the respiratory muscles or pleura, the movements of yawning, repeated several times, tend to increase the chest-capacity. But this should be done where the air is clean and fresh and free from germs, because some air is drawn in, and it is drawn more deeply into the chest than in ordinary breathing, so there is a greater chance of microbes getting deeper into the lungs, if any should happen to be present in the air. Movements like this yawning, though perhaps less extensive, occur when a skipping-rope is used backwards."

Had text-books worked on these human lines, we should have had more of our natural restorers like yawning, more of Nature's little plans for restoring balances, turned into systematic practices, somewhat as the yawn may be, with its full extension of the muscles and opening of the chest; an equally important part is the relaxation which naturally follows.

With few exceptions, of whom Sir Lauder is one, *the writers seem to be afraid to say anything useful lest they should be trespassing on other sciences.* They seem afraid to connect anatomy and physiology with any idea of daily fitness; to connect anatomy with the reader's appearance, and physiology with the reader's health.



FIG. 16.—A GAPPING YAWN WITH THE MOUTH OPEN.



FIG. 17.—A MORE SCIENTIFIC YAWN FOLLOWED BY MUSCULAR RELAXATION.



FIG. I.—THE VAULTING-HORSE AT A ZÜRICH FESTIVAL.

(Photo: Ph. and E. Link, by permission of Mr. E. L. Levy.)

CHAPTER LI.

GYMNASIICS.—II.: VAULTING-HORSE AND HORIZONTAL BAR.

(EXERCISES BY LIEUT. FLYNN.)

The Arguments Against Gymnastics—Stress Work Begun far too Early—The Fallacy of “Development”—An Object Lesson in Wrong Development—Mr. Vardon’s Views on Gymnastics—Value of Fixed Apparatus—Discrimination Necessary—Mr. Burdett’s Ideas—The Impossibility of “Slacking”—General Effect of Apparatus—The Practical Utility of Rope Climbing—Lieut. Flynn’s Testimony—The Appeal to Anglo-Saxon Temperament—An Object Lesson from Alder-shot—Gymnastics with Games—A Suggestion to Public Schools—A Plea for Toleration—All Round Improvement the Goal—Vaulting-Horse Exercises and Horizontal Bar Exercises.

ENGLISH cities are far better provided with gymnasia than with playing-fields, and fixed apparatus has so strong an attraction for many Anglo-Saxons that we have devoted three whole chapters to the subject. In the first we tried to set forth some of the pros and cons, giving up much of the space to “cons” by well-known theorists. These object to indiscriminate use of gymnastics with fixed apparatus, particularly by those to whom the work is unattractive, if not actually unpleasant. Such exercise, it is maintained, may strain and distort and over-develop parts of the body, while

leaving other parts under-developed. Too many gymnasts are the victims of colds, pasty complexions, indigestion, and so on. This is to some extent because they begin the stress-work far too soon, before they have learnt quick work, independent control, repose, better breathing; because they rely on it as if it were self-sufficient training.

Let us now hear the other side of the matter, after anticipating a fallacy that because certain body-work is *harder*, therefore the development from it is *better*. Surely that word “development” is made an excuse for too much sheer size

and stiff strength to lift or pull or push or hold. It is a very serious mistake to cultivate that sort of strength till you have acquired repose and freedom, quickness and liteness, independent control and adaptability. The Editor recalls the case of a young man of about eighteen who had been doing very hard work with spring-grip dumb-bells, expanders, exercisers, and fixed apparatus, relying on some preposterous advertisements. He, like most young men, had not consulted an expert who was himself quick and athletic as well as "gymnastic." The result was that when he tried to bowl and throw and bat at cricket, he found he had lost his speed and his skill. Obviously, there should have been no reason why, with care and moderation, he should have acquired awkwardness and failure at cricket by the process of removing some of his awkwardness and failure at gymnastics! But the case is by no means an exception. Gymnastics are still too seldom set in their due place and perspective.

We are indebted to Mr. W. M. Vardon, Editor of the *Gymnasium*, for this clear account of the value of fixed apparatus. We follow it with an account by another expert, Mr. H. H. Burdett. Both of these two have already contributed valuable matter to the PHYSICAL EDUCATOR—matter which comes with all the more force because these two are so successful as teachers, and have had so vast a range of experience.

Mr. Vardon writes: "In my work, such fixed appliances as ropes, ladders, and bars are as necessary a part of Physical Education for adolescents and adults as free exercises or movements with drill-apparatus, such as clubs and wands. The use of both drill and fixed appliances develops strength of muscles, but work on the latter increases self-confidence and

nerve, and gives rapidity, promptitude, and skill. Gymnastics develop trained and skilled muscles, with the power of co-ordinating movements rapidly.

"It is possible in a gymnasium so to select exercises as to give each part of the body its proper amount of work. The results from this use of fixed appliances can be calculated with as much nicety as those from drill, but *I am prepared to admit that it is more difficult to make such selections*, and that the use of bars and ropes is more easily and more often a mistaken one than the use of light dumb-bells, etc.

"A proper system of Physical Training, for all but young children, ought to include gymnastics *and* drill, as the latter is important for novices and experts."

Mr. Burdett says: "The advantages of fixed as compared with movable apparatus scarcely need to be pointed out, except to the uninitiated.

"First there is the utter impossibility of 'slacking' on fixed apparatus. In using dumbbells, barbells, clubs, and elastic or weight-developers, it is always possible for a pupil to go through the various exercises in a listless manner; indeed, the beginner naturally is unenergetic unless a very keen instructor is watching over him. In using fixed apparatus the performer has the entire weight of the body to support and control, not merely a weight of three or four pounds, and so has less opportunity of shirking the work of contraction of the muscles.

"Secondly, the effect of fixed apparatus is more general and less local for the muscular and nervous system. In it the entire muscular system must be braced up and firm; hence development is likely to be more uniform. With regard to the nerve-effect, contrast jumping

over cord or lath and jumping over a fixed iron rail of the same height : the latter is the better training for the nerves.

" Besides, proficiency on fixed apparatus is a more useful and practical accomplishment. Many a man has saved his life by being able to climb a rope or to haul himself over an obstacle.

" It would be easy to enlarge on other merits of fixed apparatus. The work being harder, the consequent development is better. The more perfect poise and sense of balance must have its mental effect. But in conclusion, we only have space to note that a gymnast accustomed to exercise on a rope or ladder would be able to escape in safety, and to perform feats which the practiser of calisthenics and merely hygienic exercises might find insuperable difficulties."

Lieutenant Flynn adds his testimony : " Those who have abused fixed apparatus have forgotten the innate combativeness of English men and—happily nowadays—also of English women. It is to this faculty especially that fixed apparatus owes its present popularity. It gives an obstacle to be overcome, and the bigger the obstacle, the more it bristles with difficulties, the more will the average gymnast exert himself to conquer. This intense effort of will, this desire for supremacy, calling forth as it often does the highest union of skill and strength, must improve the man's nature as a whole, mentally and morally as well as physically. Hence the talk of the harmful effects of work with fixed apparatus, of the drudgery of it, is unfair. It is usually made by those who know little of the drudgery, and who, if they had their way, would reduce the bars to tinder-wood and the horse to pulp. These people have ignored fixed apparatus as an incentive to physical

training, which has its imperfections, as all men's devices have, but is doing an incalculable amount of good to many people. Many of these objectors, too, pose as inventors of systems which have come down to us through the ages. They are neither fair in their criticism nor fair in their claim to invention.

" Rather let such people study an object-lesson in results ; let them take the annual gymnastic display by the Aldershot men at the Military Tournament. We do not wish to emphasise the smart work done there, but rather the men themselves. Even a casual observer, as they swing into the arena, notices the look of absolute control. The men have the use of their limbs. Perhaps the strong man will turn aside with a sneer, because there was a dearth of sixteen-inch biceps or because the serratus muscles did not stand out like door-knockers. That, however, is just our point : nothing does stand out. It is not the object of the all-round training they have had, that one part should rise up above the others. All is even and harmonious, showing in the flesh just such care in the training as a sculptor might give to a finished masterpiece. Notice the leg-work—all of a springy, light, and free order ; for the men are trained in running and jumping. Again, notice the alert, quick look, the unmistakable " you don't trifle with me " kind of glance. How does this come about, except a man is trained in antagonistics of some kind ? And how useful this alertness, this ability to tell form at a glance, has often been proved by many, as in the case of a runaway horse ! Is it not here the soldier who is the first to pull himself together and do what has to be done ? The soldier has had what the remainder of the crowd, including the 'one-horse-cure' gentleman, has not

had—an all-round training, a great part of which has been done on apparatus.

"We would bring this matter before the attention of headmasters—a chance we do not often get. Most of them are all in all for school-games. The writer wishes to see these games in their present prominent place; he was and is as keen on them as anyone, and it is in the spirit of play, and especially of boxing, that I lead off at you, headmasters—Eton, Harrow, Rugby, I care not which—who

of terms he finds the life more than he can stand, and is removed from the school by his parents. For about the only physical training he got was sauntering after a football with other boys of similar calibre. Of course, his scholarship had to be given up, which was hard lines on the boy, who had spent years on working for it. This is not an entirely isolated case. Had he been given judicious physical exercises, suitable to his needs, almost certainly he would have come up

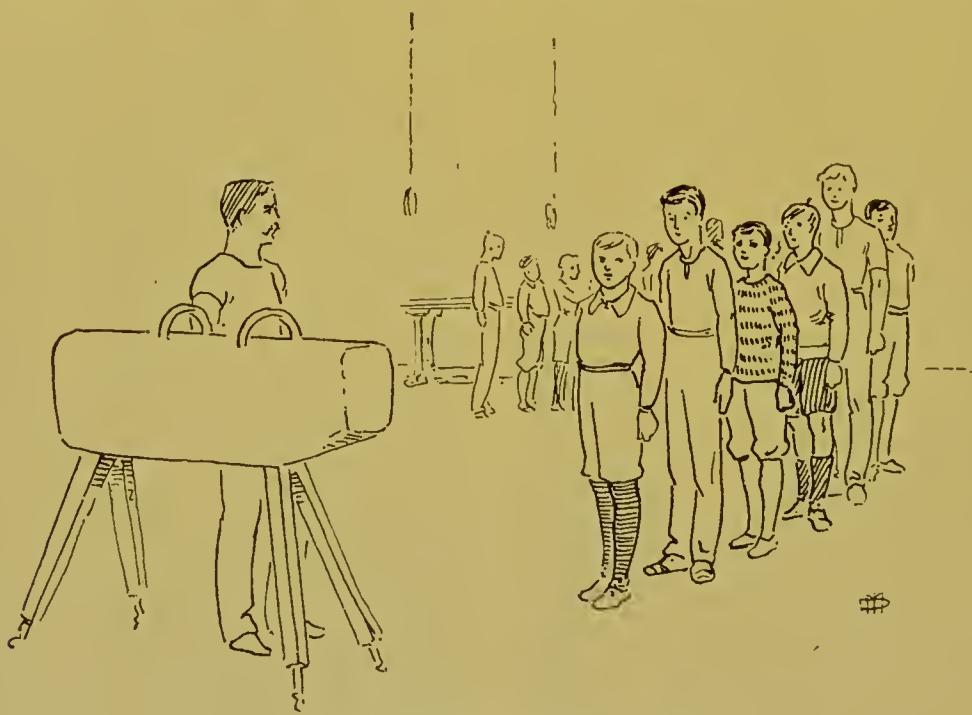


FIG. 2.—TEACHING BY THE YARD.

oppose or damn with faint praise this splendid means of Physical Training—fixed apparatus—which you have lying under your very noses. How is it that you fail to see the splendid educational effect of gymnastic training? Football, cricket, and rowing will not do everything for a boy. Some boys want building up to play these games. The strenuous life of the public schools is too much for them; yet why should they not be catered for? Here is a boy who won a valuable scholarship. After a couple

to the average, and been able to reap the full benefit of a public school life, to which later on he would have been a credit. Look at the wonderful way in which recruits of the most weedy description come on with a few months of steady physical training. Would they show the same wonderful improvement on cricket and football? By an appropriate all-round training of the body the games would be better than ever, and, what is of more importance, the weak boys would have a chance of soon getting level with

the others. The motto should be 'the greatest good to the greatest number.'

"But how is this to be done? In the first place, don't offer the cold shoulder to the gymnasium; make it more popular; you have the power to do so. Get a sufficient gymnastic staff (most schools are terribly lacking in this respect); the instructor wishing to do his work is forced to teach by the yard instead of by the individual.

"Have plenty of instructors and properly graded classes, according to the ability of the individuals.

It disgusts a boy who can work to be put with boys who are just beginning. On the other hand, it is disheartening to boys who are just beginning, to be set exercises which they are quite unable to perform.

"Have plenty of varied mass work, in which all the boys of a certain house are against all the boys of the opposing house.

"With regard to apparatus-work, especially of bars and rings, let it have less of the 'strength-and-strain' order, and more variety.

"Give prizes to those who have made the *best physical progress* in a given time.

"Last, but by no means least, pay the strictest attention to breathing, relaxing, and diet, for gymnasts and for others. As to relaxing, I feel confident that in the very near future it will take a leading place in all physical training. For my own part, I can only say that, ignorant of it till quite lately, I have found it the very thing I wanted most of all, and this may apply in other cases as well. Don't

pooh-pooh it; rather try it; be un-English just for once. And I cannot, as a practical man, speak too strongly in favour of a simpler diet for boys. The everlasting beef and beer is a heavy handicap with which to go through life; my only regret is that I did not find this out before.

"In a word, I plead for more common-sense, more attention to the all-round development of the average boy, while the stronger boy need not be forgotten; in fact, there never is any danger of his being forgotten.

"Let gymnasts, athletes, game-players and sportsmen be more tolerant of systems other than their own. These one-sided advocates do not 'play the game.' Ask a runner or a jumper if he plays golf, and he will tell you with a sneer that he may think of it in another twenty years' time, or else that he looks on it as a glorified croquet. By such a condemnation they put some of our grandest athletes in the same list as the slack players who

meander round for a liver-shake.

Again, a celebrated fencer, after a splendid exhibition of weight-lifting, remarked, 'Well, I guess that is excellent training for a coal-heaver.' This fine exponent of 'quarte' and 'tierce' had never been taught weight-lifting properly. If he had, he would have found, much to his surprise, that to do a good press from the shoulder or snatch from the ground requires just as much art—and delicate art, too—as to fence. The coal-heaver, with all his brute-strength, would very



FIG. 3.—OUR SCHOOLMASTERS DO NOT ALWAYS BY THEIR PHYSIQUE SET A GOOD EXAMPLE.

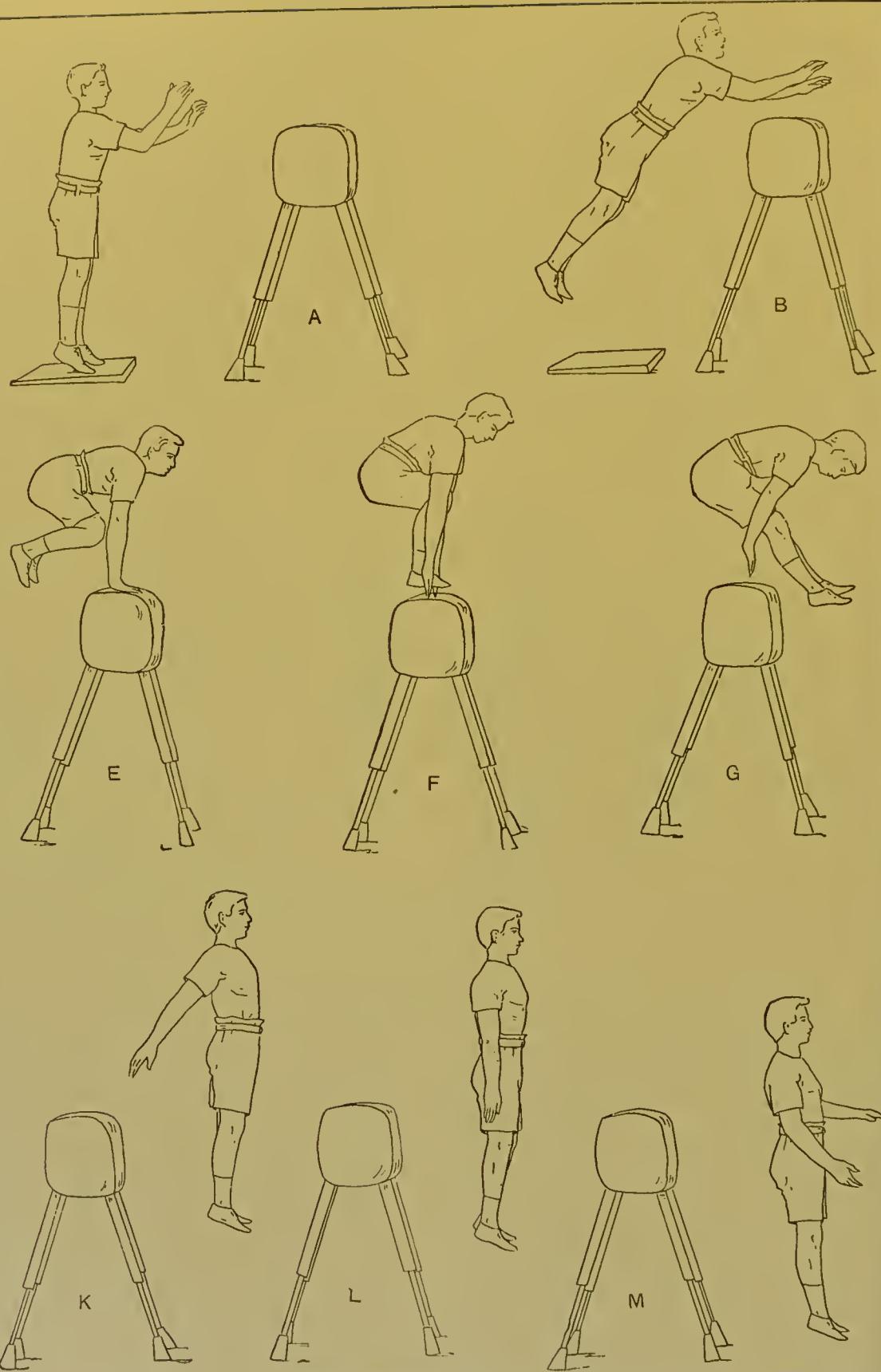
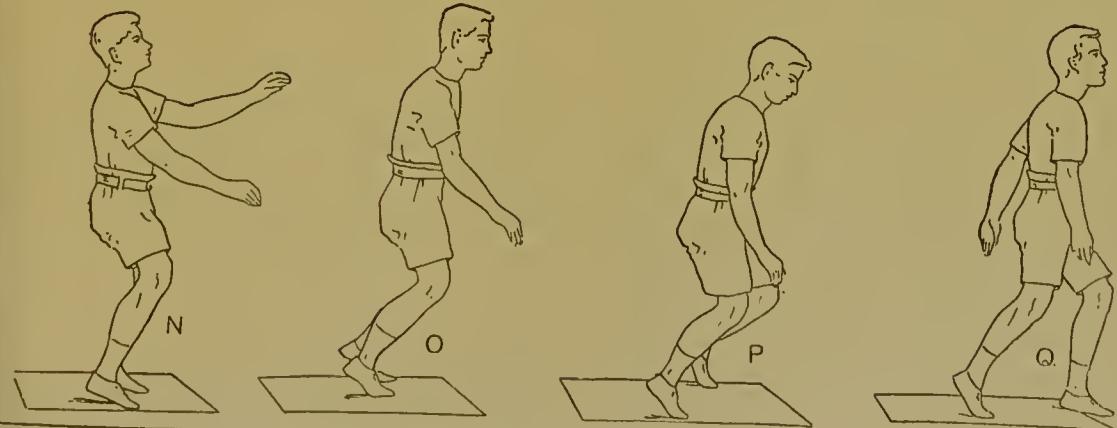
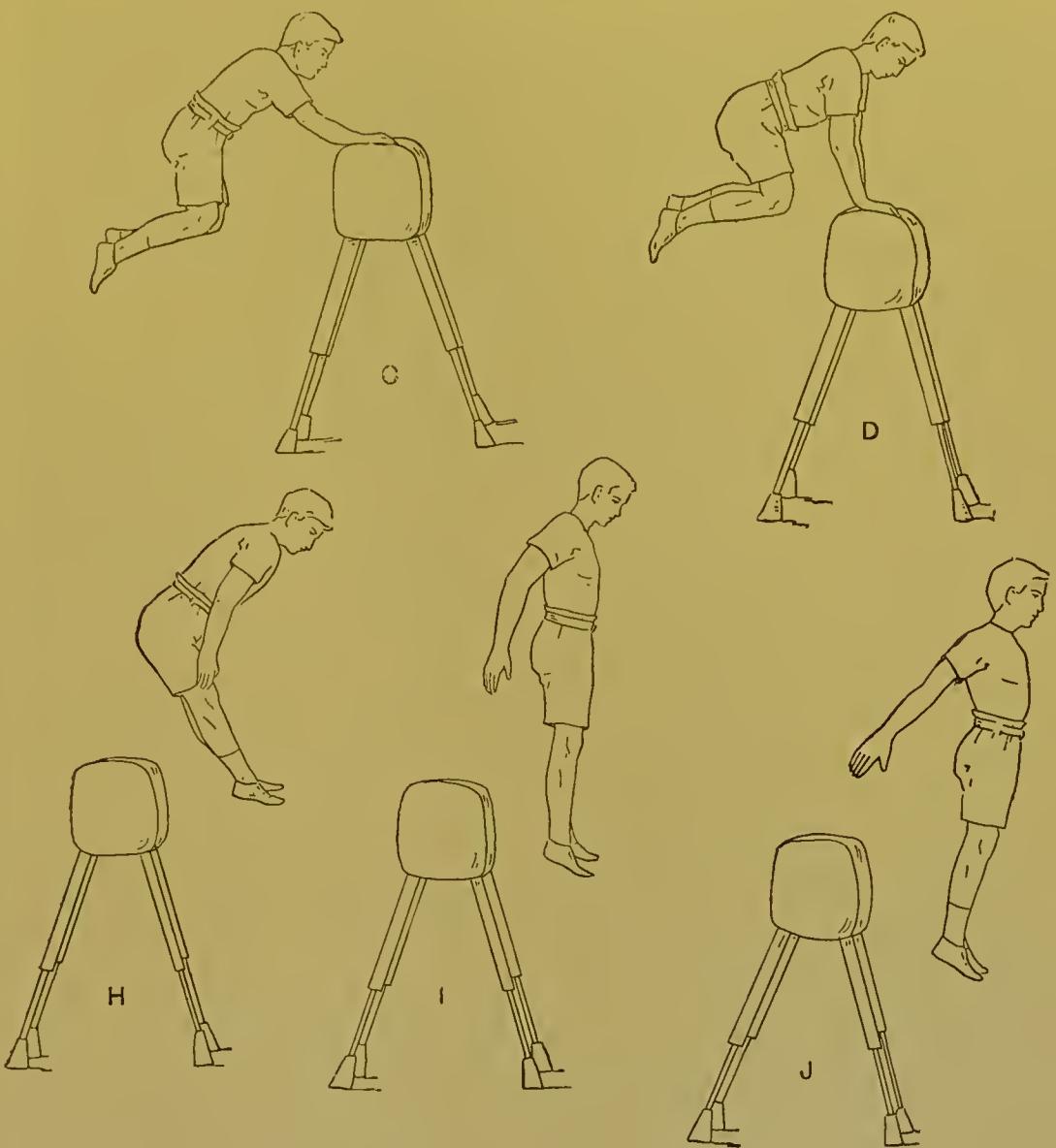


FIG. 4.—POSITIONS OF THE BODY IN A VAULTING-



HORSE EXERCISE. (*Adapted from "The Training of the Body."*)

soon find this out. But at least our fencer might have had the generosity to have credited the other man with his trouble and pluck, for weight-lifting does want pluck and grit. We could quote a weight-lifter who thought that club-swinging was only fit for a dancing-class. Club-swinging is an art which that weight-lifter had never studied. It seemed to the weight-lifter a mass of swings and twists done with absurdly light clubs. Yet it would have loosened his shoulders and chest-muscles to have done a few of these swings. That might have remedied the stiff ungainliness of his figure, especially in ordinary attire, when pedestals and lime-light are absent. But gymnasts have perhaps come in for most abuse, which they have not been slow to return in the face of game-players. Occasionally one comes across a large-minded man who sees good points in a system outside his own ; but this is too rare. As a rule, gymnastics are abused as monkey-tricks or donkey-tricks, the latter phrase alluding to their monotony. And, indeed, the different schools of gymnastics abuse one another.

" Rather let us give credit to each exponent for what is sound in his system, or whatever is manly, whether we ourselves are skilful in this system or not. For there is the crux of the whole thing ; we wonder how many opinions are biassed by that ; we wonder how many of those who run down a thing do so because they have not the knack or won't spend the time in learning the details. This applies to work with fixed apparatus. It may be called so easy or so dull by those who have not been through it. When men have been through it and afterwards condemn it, that is another matter ; their opinion is worth listening to. How many of these end in condemning it ?

" It would be far better to follow in the steps of a well-known headmaster, who, observing that another headmaster was raking in the scholarships, went and studied under that headmaster as if he had been himself an ignorant boy. That is the right spirit, rather than to abuse the successful man as teaching something which was absolutely useless."

Having now heard what has to be said in favour of the use of fixed apparatus, the Editor will try to sum up once again his own personal view. It may be of little value, but at least it is genuine.

The danger is to regard such work as the sole and the self-complete physical education of the nation ; to regard it thus and to use it indiscriminately. What we have always tried to make clear in this *PHYSICAL EDUCATOR* is that we condemn, not a system as a whole, but the indiscriminate use of it. Take the slow, stiff, cramped person, with puny legs ; give that person a spring-grip dumbbell-exerciser, and you make him worse than before. What he needs is limbering up. He needs freedom, extension, relaxation, shaking—whatever will tend to flexibility and rapid independent control. We do not condemn spring-grip dumbbells indiscriminately, but we condemn them when they are used indiscriminately—as we believe that they generally are.

Now our objection to fixed apparatus is that it is used indiscriminately among large masses of learners. The difficulty is not insuperable. Obviously what we need is a larger set of men and women trained to discriminate, trained to tell at a glance that this pupil needs the use of fixed apparatus, that that pupil assuredly does not ; then to divide pupils into groups, and to cater for each group. To demand individual attention for our masses would be ridiculous : we have,

neither the time nor the money. What we urge is that people should be distributed into groups, not merely according to their height or even according to their height and weight, but according to the strength of their heart, the power of their breathing, their general build, and their general mental as well as physical deficiencies. It would not be hard to group boys, men, girls, and women according to certain traits. Then we could proceed to deal with them far more safely in classes. As it is, our classes are generally organised on an entirely wrong principle.

As a final piece of practical advice we should say that the many who praise fixed apparatus unexceptionally may spoil their cause by alienating all-round athletes. They should have urged its use for certain classes and cases, and have strongly discouraged its use in other cases. It is not the fixed apparatus that we condemn. What we condemn is the too high praise of it by those who give us to understand that it is not only faultless, but also complete.

For the tactless use of it has remarkably little to do with the proper development of the breathing, the carriage of the body, the muscular economy, and the agility of the legs. In its place it is good, but, as an indiscriminate article of furniture, the fixed apparatus is not in its place.

We now leave the reader to Lieut. Flynn, who in a later chapter will treat of other gymnastic work—with ropes, rings, etc. Here he will confine himself to the Vaulting-Horse and Horizontal Bar.

VAULTING-HORSE.—BY LIEUT. FLYNN.

It is generally acknowledged that this piece of apparatus is one of the most popular among gymnasts. It has just

that *abandon*, just that “neck or nothingness” so dear (thank Heaven !) to the hearts of the English—I beg the Editor’s pardon—Anglo-Saxon race. It has this special advantage over parallels or horizontal or rings, that the lower limbs are brought prominently into play. Also it cultivates the power of judging distance accurately, in most exercises done with a run—*i.e.* exercises in which the board is gradually placed further from the Horse and exercises over the Horse lengthways. As an educator of nerve it probably has no equal, and this, too, in its most elementary stages. That, as teachers are well aware, is of paramount importance in physical training, and is one of the great advantages which fixed apparatus has over mass-work. We do not for a moment underrate the latter. In fact, they are interdependent; no physical training is worth much in which both are not cultivated. With a rational amount of care, the risk to life and limb is very slight. That the Horse is the most exhilarating form of gymnastics no one who has ever seen a class at work under a good and smart leader will fail to acknowledge, and no one who has taken part in a quick “follow on” is likely to forget his own general all-round sense of fitness, and the cheery good temper round him, thanks to our four-legged friend. Besides all this, the exercises when well done are most graceful. One has merely to glance at the illustrations to see that.

But we wish above all things to be fair, to be sportsmanlike. The Horse is not a panacea for all “the ills that flesh is heir to.” It gives you agility, nerve, judgment of distance, good temper (at the time, at least)—all most useful adjuncts towards the formation of a really *healthy man*; which, by the way, many gymnasts are not. But say your heart

is weak—is it a good thing then? If you are well in the running for "a place" as *the fat man* of your locality, is it a good thing to start on? If you are a sufferer from that anno domini which none of us can set at complete defiance, and if the "synovial fluid" does not run with quite the freedom of "the days of your youth," well, to all such I would say the Horse—our Horse—is not for you. Try his prototype of the stable. Join the "liver brigade," and see that you attend its meetings with the regularity of a devotee.

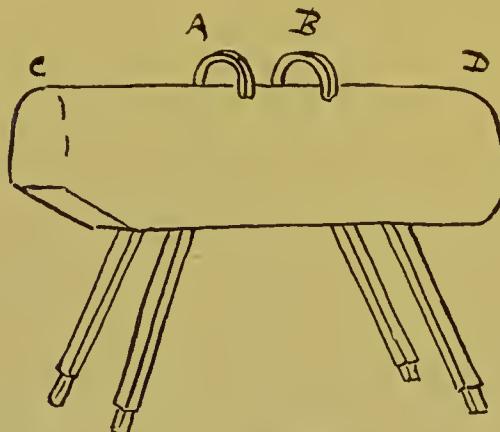


FIG. 1.—THE HORSE.

Weighing up, therefore, the pros and cons of this popular apparatus, we come to the conclusion that, excellent as it may be as an educator of nerve, decision, promptitude, agility, camaraderie, and good spirits, it is not for every man.

We propose to deal, in this and the other chapters, only with such exercises as can be readily grasped from the Figures. The explanations we shall try to make as simple and as much to the point as possible. The female Figure shows exercises suitable for girls and women especially.

First, as to names. The portion of the Horse at one end (C in Fig. 1) is called the neck. The portion between the pommels A, B, is called the saddle. The

portion outside the pommels at the other end (D in Fig. 1) is called the croup. The pommel next to the neck (A in Fig. 1) is called the neck pommel, the other (B in Fig. 1) the croup pommel. The side of the Horse on the left as you look from the croup towards the neck is called the "near side," the other side the "off side."

APPARATUS AND NOMENCLATURE.

The Horse apparatus should have the following measurements. The spring-board should be about 3 ft. long, raised 4 in. at its higher end. The best kind of Horse is made with legs adjustable to any height. Length of Horse, about 6 ft.; between pommels (measured from centre to centre), about $17\frac{1}{2}$ in.; height of pommels at centre, about $4\frac{3}{4}$ in. The pommels are hollow and leather-covered, and can be removed.

POSITION.—HOW TO RUN AND TAKE OFF.

Stand about ten yards from the Horse. *Walk* the first two steps (this gets you into your stride); then run, spring from one foot and land on both (as in a long jump, but coming over on the toes instead of on the heels); then spring from both feet, grasping the pommels at same moment.

Exercises on the Horse.

L = Left. R = Right.

For the exercises, start with a *run* of about ten yards, and spring from both feet.

Exercise 1.

"FRONT REST."

Jump to the position shown in Fig. 2. Your weight should be mostly on your arms, your thighs lightly touching the Horse. The grasp of your hands should be somewhat closer to the "off side" than to the "near side" of the Horse.

This preserves the balance better. In knees to the position shown in Fig. 3. coming to the upright position on the Repeat the movement.



FIG. 2.

ground, remember to land on your toes, turning your knees well out. This is most important in alighting from all the apparatus.

Exercise 2.

"KNEEL ON ONE KNEE."

Spring from the ground and kneel, alternately, on your L. and R. knee. Return to the spring-board or spring as before, and bring your leg up between your hands. Note that it is not the knee but the leg below the knee on which you should rest. Your instep also should touch the Horse.

Exercise 3.

"KNEEL ON BOTH KNEES."

Spring from both feet, and bring your

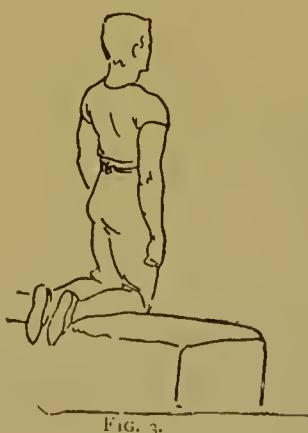


FIG. 3.

Exercise 4.

"KNEE JUMP TO THE GROUND."

Take your hands off the pommel when you are in the position of Fig. 3. Swing your arms sharply above your head, and spring from your lower limbs to the ground. Bend your knees well outwards in alighting.

Exercise 5.

"JUMP TO STAND ON THE SADDLE."

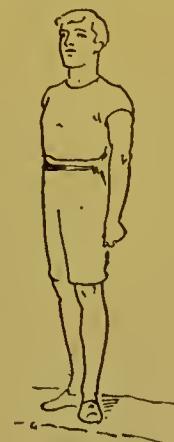


FIG. 4.

Spring from both feet, bringing your knees well up to your chest and on to



FIG. 5.

the saddle, straightening your legs as in Fig. 4. From that position throw

your hands above your head, hollow your back well, and jump to the front (Fig. 5). Keep your eyes off the ground.

Exercise 6.

"VAULT BETWEEN THE HANDS."—"SQUAT OVER THE SADDLE TO THE GROUND."

Run as in the previous exercises, but, instead of placing your feet on the saddle,



FIG. 6.



FIG. 7.

bring them through your hands as Fig. 6. It is much safer for the beginner to hold the pommels till his legs are through, when they should be extended before reaching the ground. He can then try the same movement, retaining the squatting position and lightly pushing off the pommel. Fig. 7 shows the squat on one knee.

Squatting-exercises can also be done from the back rest (Fig. 8).



FIG. 8.

(1) Squat backwards and stand on the Horse (Fig. 4).

(2) The same to the front rest (Fig. 2).

(3) Squat backwards with or without the turn.

Exercise 7.

"WOLF VAULTS."

A "wolf vault" is a vault in which one leg is in the squatting position and the other straddled sideways (Fig. 9).

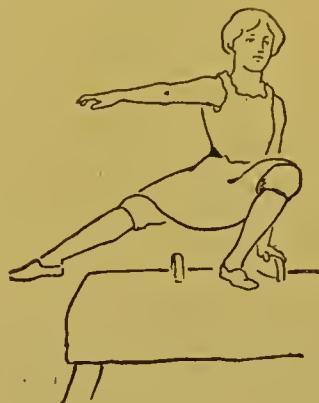


FIG. 9.

TO DO A WOLF VAULT OVER THE HORSE.

Spring into the position shown in Fig. 9, extending one leg straight out over the neck or croup, keeping the other in the squat position on the saddle. Have the feet closed *before* you land. As a preparatory movement, first spring to the position shown, resting on the horse.

Now do the exercise to the opposite side..

Exercise 8.

The same exercise, with a turn before you alight.

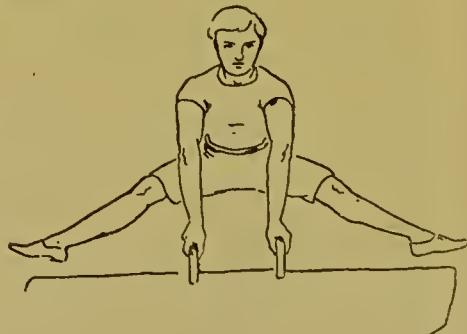


FIG. 10.

"STRADDLE EXERCISES."

A "straddle vault" is when both legs are extended wide apart either sideways (Fig. 10) or forwards.

Exercise 9.

WITH A RUN STRADDLE OVER THE SADDLE TO THE GROUND.

Run, grasp the pommels, and spring, straddling your legs as in Fig. 10. Release your grasp of the pommels, and pass over the Horse with your legs straddled, sharply hollowing your back and closing your legs before alighting.

Exercise 10.

Straddle with a turn before you alight.

FLANK VAULT EXERCISES.

A flank vault is a swing over the Horse; during it the right or left side of the body is turned towards the *upper* side of the Horse.

Exercise 11.

" WITH A RUN FLANK VAULT RIGHT."

Run, grasp the pommels, and instantly let go with your right hand and carry your body over the Horse as in Fig. 11.

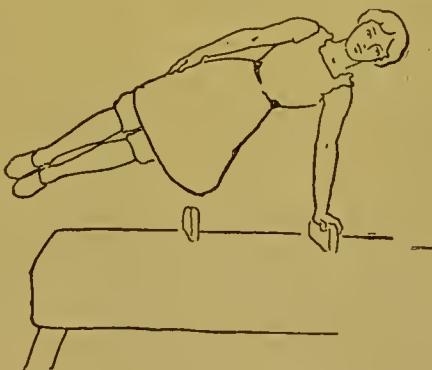


FIG. 11.

Be careful to keep your legs high and your weight on your left arm, which should be straight, and to avoid looking on the ground as you alight. Alight opposite the centre of the saddle, with your back to the Horse.

Exercise 12.

The same exercise to the right.

Exercise 13.

The same exercise, with a quarter to half turn before you alight.

Exercise 14.

" WITH A RUN FRONT VAULT RIGHT."

Run and grasp the pommels as in the last exercise. Release the grasp of your right hand, throwing your weight well

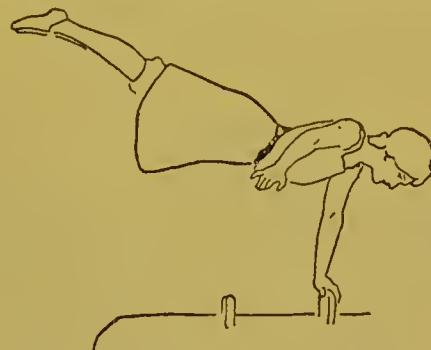


FIG. 12.

on to the left pommel. As you let go with the right, make a quarter turn to the left. Your left arm should be kept as stiff as possible, and your body and legs almost horizontal, as in Fig. 12. Alight opposite the croup pommel with your shoulders at right angles to the Horse.

Fig. 12 shows the vault as the turn is being completed.

Exercise 15.

Do this to the left.

Exercise 16.

Exercises 15-16, but with a quarter and half turn.

Exercise 17.

" WITH A RUN REAR VAULT LEFT."

Run and spring as before. Let go with your left hand. When you jump, make a quarter left turn and bring your body over the Horse, as in Fig. 13. Alight opposite the croup, with your shoulders at right angles to the Horse. Lean well



FIG. 13.

back on your right hand, keeping your head up.

Exercise 18.

The same exercise to the right.

Exercise 19.

The same, but with a half left or "inside" turn before you alight.

Exercise 20.

FEINTS.

A feint means a swing in which your right leg is brought round your right arm to the side of the Horse (Fig. 14) and immediately swung back again. When done with both legs, it is called a double feint.



FIG. 14.

The following exercise shows this. "From Front Rest Feint Right and Front Vault Left."

In doing this exercise get your weight well on your right arm, and remember to get your legs as horizontal as possible during the vault.

Exercise 21.

DOUBLE FEINTS.

Swing both legs over and round your right arm (Fig. 15). Your legs must not touch the Horse. Swing your legs back and vault left. The double feint requires considerable strength in the



FIG. 15.

arms. Keep your legs together. Do not let them touch the Horse, and in the vault keep them high.

MEANING OF "CIRCLES" AND "HALF CIRCLES."

A circle is where the leg or legs pass first over one pommel and then over the other, the hand being raised to admit the leg. A half circle is where the circling legs are carried over one pommel only.

CIRCLES.

"WITH HALF CIRCLE OF LEG FROM THE OUTSIDE."

Exercise 22.

Half circle forward with your right leg to a seat on your right thigh upon the saddle.

Exercise 23.

The same, with a quarter left turn to a riding seat.

In Exercise 22 throw your weight upon your left hand as leg is brought over the pommel and right hand is raised (Fig. 16a). Return to front rest with your right leg, and repeat with left.

The shifting of the weight from one hand to the other, while you keep your body well over the centre of the saddle, is a most important part of circling movements.

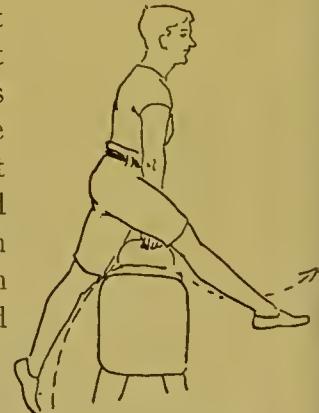


FIG. 16a.

"FROM FRONT REST, RIGHT CIRCLE WITH RIGHT LEG."

Push back from front rest so that your legs are momentarily raised from the Horse. Pass your right leg under your left leg and over the neck pommel,

raising your left hand; replacing your left hand, pass your right leg back over the croup pommel, raising your hand to let your leg through; then come to front rest. Do not let your right leg touch the Horse, and keep it as straight as possible. Also attend to the previous instructions when you are raising your hands and keeping your weight over the centre of the Horse.

Exercise 24.
“THIEF JUMP EXERCISE.”
For the jump, draw back the board just far enough to touch the Horse when you stand on the board with your leg extended to the front.

You make the jump from one foot, and, while you are jumping, your hands support your body momentarily by grasping the pommels.

“THIEF JUMP OVER THE HORSE.”



FIG. 16b.

Run, spring from one foot as before directed, then shoot both feet over the saddle (Fig. 17) as though you were

doing a clean jump; grasp the pommels, press from your hands, and alight neatly.

Exercise 25.

HANDSPRING.—“RUN AND HANDSPRING OVER THE HORSE.”

Swing your legs up to the position shown in Fig. 18. As the weight of your body goes to the front, bend your head well on to your chest, push well off from your arms, and alight with your back to the Horse.

Handsprings may be done with the arms (1) bent; (2) at first straight, then bent; (3) at first bent, then straightened; (4) straight throughout.



FIG. 18.

Exercise 26.

“PIKE JUMP OVER SADDLE.”

Fig. 19 shows this jump just as the



FIG. 19.

pupil is coming on to the shoulders of the person who is catching.

Run, spring from the ground, placing

your hands on the shoulders, as in Fig. 19, and keeping your back and legs as straight as possible during the vault.

Let beginners or nervous pupils first jump on to the shoulders and back on to the spring-board; then do the exercise right over.

Exercise 27.

"STRADDLE LENGTHWAYS OVER NECK."

The spring-board for this class of exercise is put just behind the Horse.

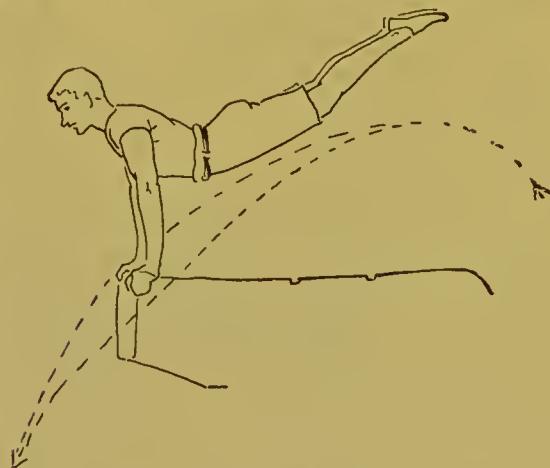


FIG. 20.

The pommels are removed. In this exercise keep the legs closed till they are in "free front lever," as shown in Fig. 20. Press your hands well off as you straddle, at the same time keeping your head and shoulders well up, and your back hollow.

Exercise 28.

"RUN WITH HANDS ON
NECK, AND SQUAT
OVER."

The same directions

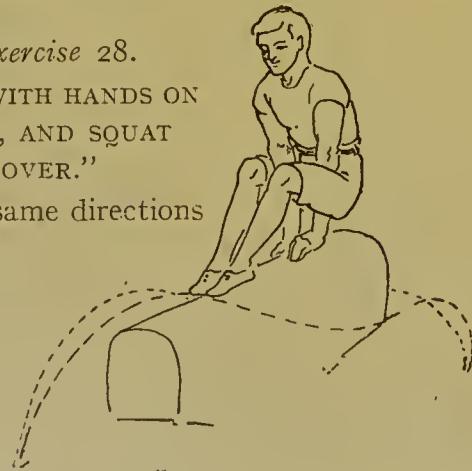


FIG. 21.

apply here; but squat instead of straddling over the neck.

Fig. 21 shows a clean Cat Jump over Horse. Place your hands on the croup, straddling your legs. Shoot over the neck, pressing well off your hands.

HORSE LENGTHWAYS.

CIRCLE OF RIGHT LEG OVER CROUP

Fig. 22 shows the circle of the right leg over the croup.



FIG. 22.

Run, place your hands on the croup, and spring, carrying your right leg over, raising your hands to let it pass, and

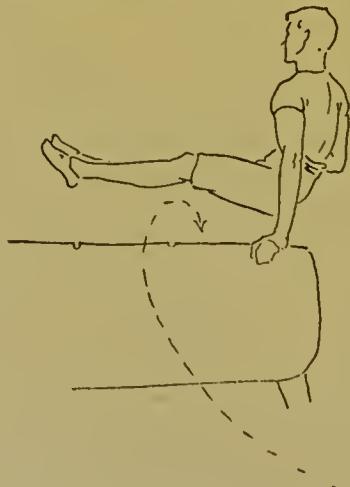


FIG. 23.

replacing your right hand when your leg is through, as shown by the dotted lines.

Fig. 23 gives a Rear Vault Right over the croup to the ground.

Run, place your hands on the croup, and spring, carrying both your legs over and replacing your left hand.

Fig. 24, "Roll forwards from end of Horse, down to stand beyond it."

This movement can be done from "handstand on saddle." Let your head come forward in front of your hands. Bend well at the waist, as in Fig. 24,

and let your shoulders rest against the Horse. Let go with your hands and come to the ground.



FIG. 24.

HORIZONTAL BAR.—BY LIEUT. FLYNN.

ELEMENTARY EXERCISES.

SIDE HANG AND CROSS HANG.

HAVE the bar so high that you can reach it by a slight jump. In the "Side Hang" the grasp is either ordinary, reverse, or

to "Side Hang" on the bar, with straight arms (Fig. 1).

Exercise 2.—The same to "Cross Hang" (Fig. 2).



FIG. 1.



FIG. 2.



FIG. 3.



FIG. 4.

combined. In the "Cross Hang" it is either with the thumbs towards the face (ordinary grasp), or with the thumbs away from the face (reverse grasp).

Exercise 1.—Four to six repeated jumps

combined. In the "Cross Hang" it is either with the thumbs towards the face (ordinary grasp), or with the thumbs away from the face (reverse grasp).

Exercise 2.—The same to "Side Hang" with bent arms (Fig. 3).

Exercise 3.—The same to "Cross Hang" with bent arms.

Exercise 4.—Nos. 1 to 4 with simulta-

neous leg-movements—viz. (a) Bend and straighten one or both feet; (b) raise and sink one or both heels; (c) raise and sink one or both knees; (d) extend one leg; (e) raise both legs forwards until their insteps touch the bar—the legs may be bent or quite straight.

Exercise 6.—Rise slowly or quickly from straight-arm to bent-arm hang.

Exercise 7.—Travel along the bar in “side-hang” with the ordinary, reverse, or combined grasp—one hand after the other, either in the ordinary way or one crossing the other.

Exercise 8.—Travel from the ordinary grasp to the wide grasp, with movement either (Fig. 4) of one hand only or of the two hands alternately.

EXERCISES WITH A SWING.

Exercise 1.—Swing forwards and backwards in side-hang.

Exercise 2.—Swing and relax momentarily one or both hands at the end of each back-swing.

Exercise 3.—Swing and travel sideways with the right and left hand alternately.

TURNS WHILST HANGING ON THE HANDS.

Exercise 1.—Twist your body, maintaining firm grasp with your hands.

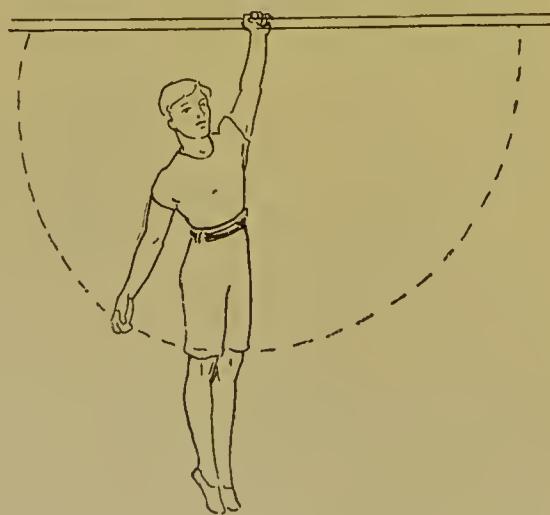


FIG. 5.

Exercise 2.—With quarter left turn, change from Side-Hang to Cross-Hang.

Exercise 3.—Make a half left turn round either your right or your left hand, which maintains its grasp.

Exercise 4.—Continue Exercise 3, travelling along the bar (Fig. 5).

UNDER-SWINGS.

Exercise 1.—Let the bar be chest high or higher. Do Under-Swings over a rope placed parallel with the bar, gradually increasing the height of the rope (Fig. 6).

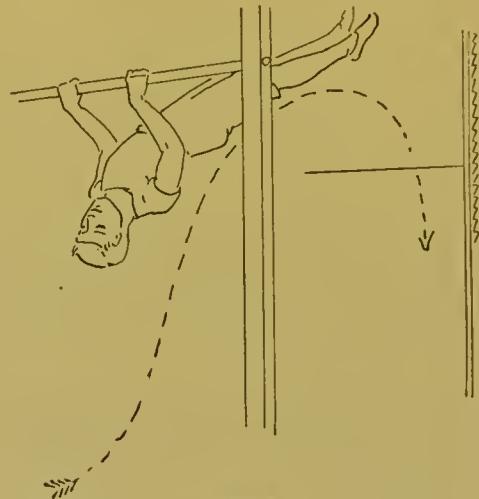


FIG. 6.

Exercise 2.—Jump to the “rest” position, let your body drop back to full arms’ length, bring your insteps to the bar, and instantly shoot to the front.

Exercise 3.—The same, over a rope placed at right angles to the bar.

TURNS-OVER BETWEEN ARMS UNDER BAR.

Let the bar be at the height of your head.

Side-hang with ordinary, reverse, or combined grasp. Pass your legs between your arms under the bar and down (Fig. 7), making a complete turn-over of your body backwards. Then come back again to the starting position.

Exercise 1.—From the standing position on the ground, to the same.

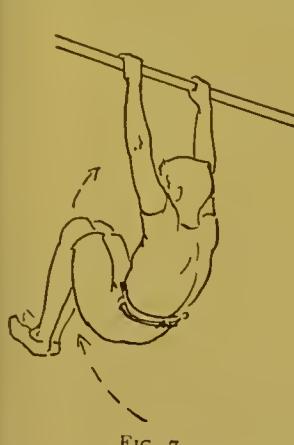


FIG. 7.

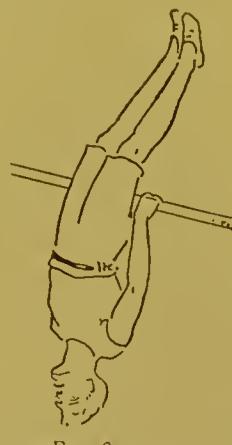


FIG. 8.

Exercise 2.—To the hang, head downwards.

Exercise 3.—To the back-hang, (a) with bent legs, (b) with straight legs (Fig. 8).

Exercise 4.—Turn over to the back-hang, and release one hand, when a complete turn follows of itself to the side-hang.

SLOW EXERCISES.

Exercise 1.—“Hang slow circle to rest.”

Hang and raise your feet to the bar; bend your arms and pull yourself over the bar to the rest. You can do this exercise in all the various grasps. It is difficult, especially to men who have heavy lower limbs, as the strain on the abdominal muscles is great.

As a “leading up” exercise to this we recommend you to lie on your back and bring your legs slowly up to the horizontal position, and then as slowly as

possible lower them to the ground. Pupils should also first practise the ordinary circle, jumping from the ground on to the bar with bent arms, and circling quickly over to the rest.

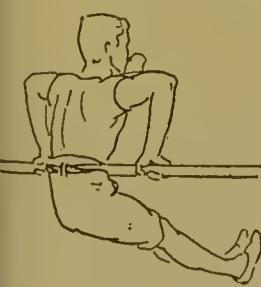


FIG. 9a.

Exercise 2.—“From back-hang, with hollow back and thighs to the bar. Slow circle to back rest.”

Hang in the back-hang with your thighs to the bar. Bend your arms, still keeping your back hollow and your feet pointing upwards. Let your legs pass over the bar, and let your back come in contact with it, at the same time letting your weight pass over the bar, raising your head, and dropping your feet until you come to the back rest.

Exercise 3.—“Hang and Slow Rise to Rest.”

You should pay particular attention to the position of your wrists on the bar. They should be well over and along the bar, and should not slip from this position as you start the exercise, as it is from the right way of placing the wrist that you get all the power.

From the hang position rise slowly to the “bent arm hang,” letting your feet come forward under the bar as you do the movement; your head also you may bend slightly forward, as in Fig. 9a. From there press up to the rest. This exercise is particularly trying to the wrists and forearm, and as a means of working up these parts of our anatomy rapidly and giving the necessary strength, the writer finds nothing so good as the Sandow grip-dumbbells.

In order to do away with any tendency to cramp, after using the grip-dumb-

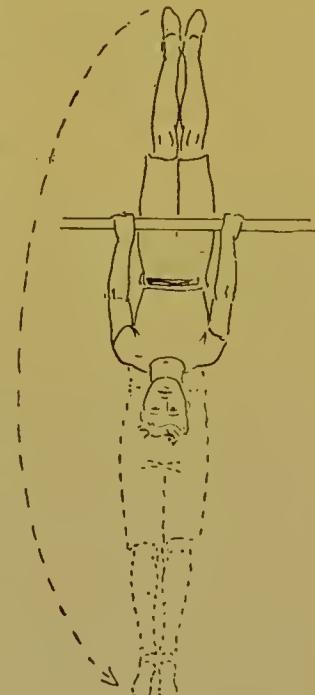


FIG. 9b.

bells, rapidly open and close the hand, extending the fingers to the utmost. It should be noted that in all slow exercises the main thing is to keep perfectly even time all through the movement. That is to say, the feet should always move to an equal distance in a given time.

Exercise 4.—“From Back Hang with hollow back, and Thighs to Back, Sink to Back Lever” (Fig. 10).

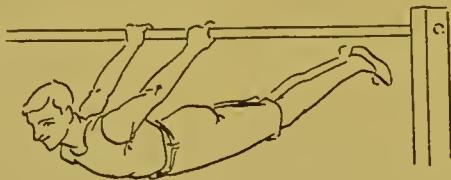


FIG. 10.

From this position sink behind the bar, keeping your back hollow until your body and legs are horizontal.

All lever positions are difficult, especially to men who are heavily built about the lower limbs, the strain on the back and shoulders being very severe. A somewhat easier way than to come down to it slowly is to bring the legs through the hands and instantly shoot out into the lever, bracing up the muscles of the back and shoulders. As a preparatory movement, practise with bent knees. Yet another plan is to get a friend to take the weight off by holding your legs, till your back gets accustomed to the strain. The following is also an excellent exercise for strengthening the back.

Stand in the straddle position and take as heavy a dumbbell as you can comfortably manage in both hands. Swing down between your legs, and up above your head. The dumbbell must be of sufficient weight to make you feel that you are actually working the spine. The ordinary light “mass” dumbbell for this class of exercise is absolutely useless. A

word here in favour of the right use of expanders, grip-dumbbells, and such-like appliances. If you wish to do an exercise which throws considerable strain on any particular muscle, that muscle must have special attention. This, in the writer's opinion, is where these valuable adjuncts to muscle-building come in.

I am aware that many will not agree with the writer in this, but that will not deter him from giving his own practical experience. A man of ordinary build, who has never done gymnastics, and has, say, rather weak abdominal muscles, and whose dorsals are none too powerful, by paying special attention to these weak parts by means of stretchers, etc., will come on far quicker than the man who night after night “slogs” away at exercises which are quite beyond his strength, and goes through drudgery which, with a little thought, he might easily avoid. This is not intended to underestimate the splendid value of “mass work”; it simply means that, if you wish to do advanced work, the shortest cut to the goal of your ambition will be to strengthen your weak points in the way suggested. Once you have the power, you are well on the road to success.

Fig. 11 shows a “front lever.” You

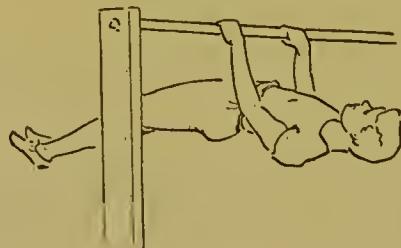


FIG. 11.

can do this by dropping your legs slowly from the “hang head downwards” or from the ordinary hang with the shoulders and legs. You should first attempt it with one leg only, the other being bent

at the knee. And in all similar movements we recommend the above "leading up" exercises.

SWINGING EXERCISES.

Exercise 1.—"The Upstart."

The upstart should first be practised with the low bar. This is a class of movement in which the exact timing of your effort is the main thing. A parallel case in fencing is what is known as a "time of attack."

Hang, swing forward, then raise your feet to the bar, keeping your legs and arms straight.

From this position, press strongly on your arms, still keeping them straight;

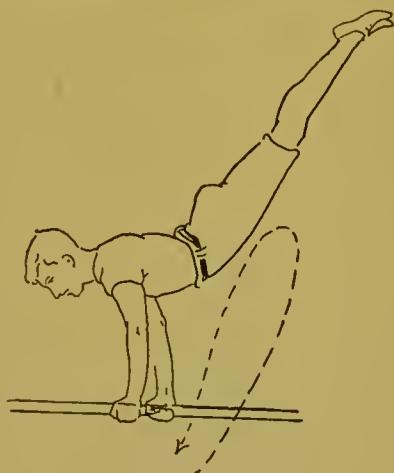


FIG. 12.

at the same time throw your feet slightly upwards and then downwards, keeping your legs straight; pulling on your hands, raise your body to the rest position.

The "Upstart" is practically the opening movement for advanced exercises on the bar, and no pains should be spared to get it perfect. In its perfect form it should be done without jerk of any kind, the whole movement giving the idea of perfect rhythm and time. The following are some of the most frequent exercises in connection with the upstart:—Upstart and vault right and left, either

flank front (Fig. 12) or rear. Upstart, and squat through the hands.

Upstart and straddle, or somersault (Fig. 13).

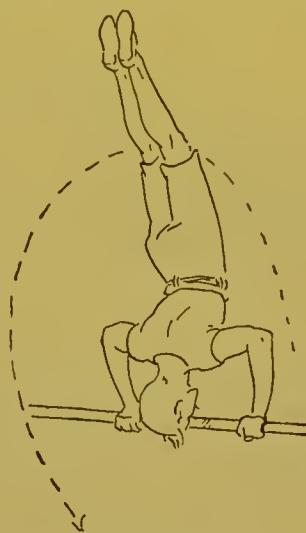


FIG. 13.

Fig. 14 shows a "hock swing off" from above bar. From the position above



FIG. 14.

the bar, throw your arms above your head, straightening out your body (see the dotted line), and keeping your grip with your legs. From that position drop to the mat.

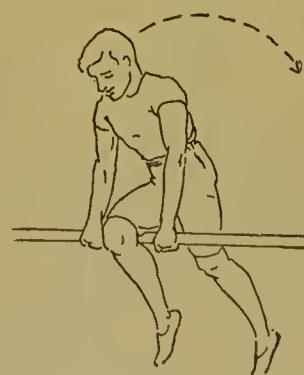


FIG. 15.

Fig. 15 shows a knee circle backwards. Circle backwards with plenty of swing from your left leg. The back of your knee must touch the bar before the circle is begun.

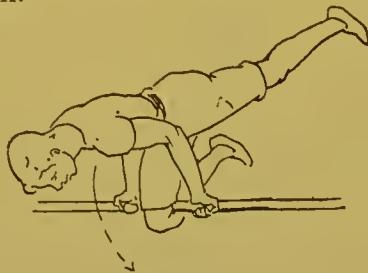


FIG. 16.

Fig. 16 shows a "forward knee circle" with reversed grasp.

Fig. 17 shows a "mill circle" sideways —i.e. with the legs straddling and the

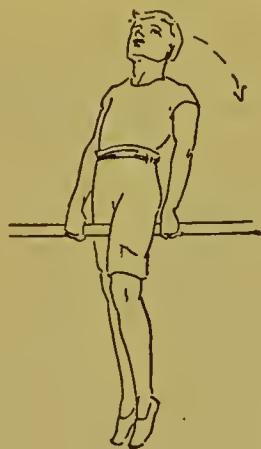


FIG. 17.

body across the bar. The main thing here is to keep the body rigid and straight through the circle.

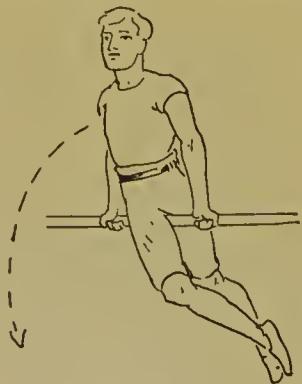


FIG. 18.

Fig. 18 gives a "mill circle" forward, a similar kind of exercise.

Fig. 19 shows a shoot over the bar with the legs in half lever. This is best learnt on the low bar first.

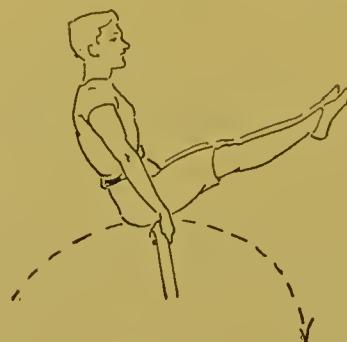


FIG. 19.

From the seat on the bar, swing back to "back hang" with your feet against the bar; on the return forward swing, sharply hollow your back, pushing off the bar, and alight on the ground.

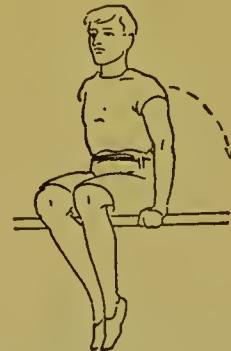


FIG. 20.

"Free Seat Circle Backwards" is shown in Fig. 20.

Keep your knees straight, and circle round the bar without touching it with your legs. Throw the weight of your body well back, and, as soon as your weight rises in front of the bar, hollow your back and shift the grasp of your hands, bringing your wrists above the bar.

CHAPTER LII.

WHEN YOU ARE "TOO BUSY."

(REMEDIAL HINTS FOR MOST PEOPLE.)

Dr. George Wilson on Rest—The Folly of “Pressing” Continually—Use of a Sunset—The Eye, the Mouth, and the Hand—Add the Attitude and the Breathing—It is the most Frequent Acts that we do Badly and that we Suffer most by doing Badly—Self-compulsory Repose—When you are too Busy, then is the Time for Leisureliness—Care for the Outside—Care for the Inside—Talking, Writing, Eating, Washing—Brisk Exercises—Breadthings—Don’t—Extensions—Crouching—Self-suggestion—Concentration without Tension—Perspective—Four Hobbies, Two Physical, Two Mental—Cooking and Food—Values should be One—Air and Light Baths—Don’t Send out Thoughts Against Anyone—The Imagination—See Things now as you will see them soon—Be Loyal to the Parts of the Law that you do Understand—A Point about Reading—Hold your Outposts—Doing’s Believing—Try the Plan.

THERE have recently been published the new Model Syllabus of Physical Exercises and two penny pamphlets on “Rest.” From the latter I quote a paragraph which the compilers of the former would have done well to study before they laid down their very incomplete—and unattractive—code.

“ . . . I mean, to relax the lips, to loosen the brow, to release the eyes, to look far away, and to think of the horizon. You may think this whole subject stupid, or perhaps as interesting and as important as an exhibition of dog-tricks; but if you do, you are mistaken. For nothing is more evident in this bustling age than that most men and women do not have the most remote notion of the art of keeping their minds at rest. *In play, and in work alike, we are ‘pressing’ nearly all the time, anxious-minded and strained.* In our schools the children are growing up by the thousand into the same vice; and there is no one to teach them how to rest, for the pupil teachers themselves—poor souls!—are as anxious as their neighbours. What they want is a few lessons in some such movements as I have been describing, and, unfortu-

nately, no educational department has, as yet, seen fit to include ‘expansion of the attention’ in the code of subjects to be taught in the board schools.”

Writing on the same subject a year later, Dr. George Wilson, Medical Superintendent of the Mavisbank Asylum, Polton, continues his exquisite teaching about the need of seeing or imagining a distant horizon, as follows :

“ The more impressive your picture of the horizon can be, the more easily will you call it up; and the wider the suggestions which it offers, the more expansive will its effect be on your mind. Last month, a little west of Edinburgh, at evening, I saw a very remarkable sunset. The sky was dark down to nearly the bottom of the vault. There only remained a belt of light, green-white and very bright. Below that a long, long bank of heavy black cloud spread along the horizon, mounting gradually higher in the north. It was of a very irregular, yet not at all disordered outline, like the silhouette of a city beyond our land. It had fortresses and battlements, walls, domes, trees, roofs, and spires, and, away towards the south, it seemed to look out

upon a vast, gently-falling plain. Any-one who saw it could not fail, I think, to be impressed by it and to retain the image of it. And so we have with us, stored in our memory, a picture rich in form and wide in suggestion—a picture of a dark city on the horizon. Now, what is wanted is this, that we should turn often from small subjects of attention and rest our minds in the expanse of something equivalent to this picture. Some people, but only a few, have always practised this act. . . . Most people, however, find it difficult to divert their mind's eye from what is near at hand and pressing, and you must give some explicit direction to their attention, some simple guidance, if they are to relax and expand their minds.

"I am sure that anyone, even grown-up people, can learn mental relaxation very easily and very quickly, if he first learns the appropriate muscular act. That act is one of release—the release of straining muscles. The mind is closely bound, in all its activities, to its three chief organs of expression—the eye, the mouth, and the hand.

(In last year's lecture I omitted special reference to the hand, which was a mistake.) What I wish you to do, and what you should insist on being taught if you have not already learned it, is *to relax your eyes, to relax your mouth, and to relax your fingers*. When the mind is intent, the muscles of all these organs are more or less rigid. If you relax them you will find it more easy to open your mind."

In a future pamphlet we expect that Dr. Wilson is sure to allude to two other matters of importance which we can regulate. We have dealt with them in articles on Delsartean Systems, etc. They are the attitude, including the pose of the head; and the breathing, especially the outward breath, as the opportunity for relaxing more and more. But enough has been quoted to show that

there is, in the opinion of a high authority, experienced in dealing with the mentally diseased, a simple physical cure for that mental and physical disease and dis-ease, excessive hurry.

It seems, however, that if any art or act is of sufficient importance, sufficiently frequent and *vital* in daily existence, you must learn it for yourself. It appears to be considered out of the scope of any "model course" or orthodox "education." You are left to learn it by yourself, or to suffer—perhaps die.

For hurry does kill. Busy-ness and anxiety poison the blood. The victim commits slow suicide by auto-intoxication, unless Nature kindly knocks him up!

Nature's best means of teaching is pain or discomfort. Man's should be comfort and pleasure. One of the best resources of Nature is compulsory rest; one of the best resources of man is compulsory exercise.

In this chapter we shall try not to omit that as an important cure for the "too busy." Only we shall emphasise the generally-neglected opposite, self-compulsory repose.

Most people imagine that when they are busy (they call it "too busy"), they have every excuse for not paying attention to their outside and inside. Now the time of excessive busy-ness, the time when one writes a hasty illegible scrawl, when one skims over that which should be read carefully, when one frowns and fidgets and grips, when one worries others besides one's self, when one swills the porridge and other foods which one should eat—that is *the* very time for extra leisureliness.

Be more careful at that time with your outside—its clothing, its cleanliness, its attitude and expression of eye and mouth and hand. If you are at home you might

change your clothes, especially your under-clothes, and have a good wash. If you are walking, walk leisurely.

Talk softly; perhaps hum to yourself.

Speak leisurely. Don't shout. Don't talk harshly or hurriedly.

Write leisurely. Don't write obscurely. Don't write hastily, or, if you think you must, then don't post or publish hastily. You will find it better to post some writings in the fire or publish them in torn pieces in the rubbish basket.

Eat leisurely, if at all: thirty-two bites to each mouthful is not an absurd excess of carefulness. Mr. Horace Fletcher's plan sometimes demands, in the Editor's case, three hundred bites.

Don't hurry and scurry and worry yourself.

When you wash or brush your hair, wash and brush deliberately, and enjoy the washing and brushing.

It might be a good thing to sip a little cool or cold water.

Or do a few brisk exercises. But directly you begin to get out of breath or to "palpitate," rest and practise deep, yet rhythmical, breathing-exercises. Breathe deeply and fully through the nostrils, first sending the abdomen out and the diaphragm down, then sending the chest walls out (keep your palms on them to feel them moving out), then sending the breath up, when you have drawn the diaphragm up and have brought the chest-walls in.

Don't frown; rather, as Dr. George Wilson says, think of the horizon. Don't cramp your body. Don't grip with your mouth or hands or feet or, if the expression may be used, with your spine. Don't cramp your body in any way.

Extend your extremities—your head, your feet, your hands—as you breathe in fully through the nostrils. When you have extended your extremities, move

them about at their full extent; then let them go as you let the breath ooze out. Let go altogether.

With your hands on your hips, thumbs behind, and fingers in front, rise on your toes; then crouch down. Do any other exercise, *e.g.* in the Course for Men, that you find interesting and useful.

Go leisurely, either deliberately or humorously, but anyhow leisurely.

Be as careful with your inside as you are with your outside. The kingdom of heaven is within, and it needs as much care as the kingdom of earth without. Especially does your inside need care with regard to its cleanliness and its attitude.

Suggest to yourself whatever interesting and harmless ideas will make you feel comfortably energetic. These may be of use, though you must put them in your own words:

"I'm going to play the game and be sportsmanlike."

"I'm going to work well."

"The state of health and happiness is already within me, in my inmost self."

Whatever you do, say to yourself or think to yourself, or have the attitude of it, with concentration, without tension: "This one thing I do now."

But while you focus your attention on the task in hand, be sure that you do not see it out of proportion, as if Jessop were to keep his eye on the ball and hit a magnificent drive into the hands of deep long on, forgetting that there was a fielder just there. Keep the whole field in the background of your mind's eye.

Set your all-round fitness first and foremost, until it has become a habit, a part of yourself. Don't be ashamed of setting that first. Don't be ashamed of making all-round fitness your chief hobby.

Make for yourself at least four hobbies,

two physical and two mental, though the physical must be mental also, and the mental physical also.

Let one of the mental-physical hobbies be food-values and cookery. It tends to economy as well as health.

Experiment sensibly with regard to feasible and unfaddish means of all-round fitness, such as the lighter-breakfast plan, the no-breakfast plan, which may take three days to a week before it suits. Then there is the less-flesh-food or the fleshless food plan, in which you have to find body-building or Proteid substitutes for meat.

Let one of the physical hobbies be muscular relaxings after deep breathings and extensions of the extremities.

At least once a day breathe deeply and extend, as in yawning (but yawn with closed mouth!); then relax, and think of nothing except that you want yourself and others to be healthy and happy and helpful.

At least once a day strip to the light and air, and breathe them in through your whole body.

Never send out any thought against the all-round fitness of any person or thing.

Never curse or blame other persons or things or events.

Never curse or blame yourself, but improve yourself.

Do not express in movement or word or look or attitude or imagination any single thing that you wish not to be true or not to have been true, unless you really express it in order to warn others.

Control your imagination. Fill it, if you like, with a cinematograph series of healthy and fit pictures, such as those of games and hobbies. Fill it with a picture-gallery of your best friends. Fill it with living scenery, especially grand and distant scenery, such as Dr. George Wilson

describes. Fill it with a storehouse of good music.

Be patient. Do not expect complete success at the start. Give each reasonable plan a fair trial.

Do not be gloomy. See the humour of others and of yourself. See yourself as you will see yourself when you look back ten years hence, or a year, or a week, or—after a night's rest!

Be loyal to the parts of the law which you can understand. Probably you can understand about the importance of less tension (frowning, etc.), better breathing, slower eating, greater pleasure during the bath.

The passage which you do know to be in the right direction must lead to the door of knowledge of much better health. Do not expect to know and practise all truth in a moment.

Mass your forces so as to overcome the easiest point of attack first. That will give you confidence. It may be easiest for you to overcome your shallow and spasmodic breathing through the mouth and to substitute for it fuller breathing through the nostrils; or it may be easiest to get rid of your ugly frowning

Turn good thought into action by the help of pre-suggestion at the moment. That is to say, when you have a good resolution, repeat to yourself leisurely that you are going to carry it out at such and such a time and stick to it at such and such times; then use the first chance of carrying it out and every chance of sticking to it. Strike while the iron is hot.

But do not strike hurriedly. If you are "too busy," take especial pains to do the *little* things of life leisurely, even if it be only to get up and walk leisurely across the room. Then leisurely and really affectionately take up some book of poetry or prose that helps you (say

quotations from Emerson's Essay on Self-reliance), then leisurely read it, then leisurely write it out, then leisurely wait and let it soak in. Then—not till then—go back to your business without busyness, to your "forethought without fear-thought," to your work without laboriousness, successful now because you have focussed your eye to life's horizon and have seen things and people and yourself in true proportion and in sweet rhythm.

If hurry, the "too busy, no time" nonsense, seems still to hold your mental citadel, yet at least hold your own city and walls and outposts, and starve the invader out. While he or she is trying

to vex your whole city and to get the control of your whole expression—spine, attitude, breathing, hands, forehead, eyes, and mouth—hold these leisurely, and, if you like, humorously, as if you were playing a game with a dog.

Seeing's believing, they say. Rather, *doing's* believing. Try the plan, master your expression as a matter of course, and you can scarcely believe how much more work and better work and easier work you can get through, and how much more time you will have to spare, and how much less likely you will be to spend that spare time in what is worse than foolishness.



FIG. I.—CRICKET FOR GIRLS AT DARTFORD PHYSICAL TRAINING COLLEGE.

CHAPTER LIII. GAMES FOR GIRLS.

(Photographs of Dartford by permission of Miss Hankinson.)

Games for Boys and Girls and Families—Advantages—Modified Games—Cricket as an Instance—Advanced Swedish System now Insists on Play—Unadapted Manly Games still are too Common—The Ball—Games without Apparatus—Sister Grace's Praise of Play—For Self-control, Courtesy, Outlet of Energies, etc.—Appeal to the "Too Busy to Attend to Anything Vital"—Another Authority Suggests Acting of Fairy-stories—Imitating Animals—Seeing Distance—Swedish System includes Cricket, Lawn-tennis, Basket-ball, etc.—List of Training Colleges—Dartford—Other Games—Contrast between Drill and Games—Need to Relax the Other Side Oftener—Gymnastics are Real Play to Some—Sensible Dress—Left-handed Lawn-tennis Occasionally—Cricket Drill—Indoor Hockey—Football with a Small Ball—Effects of Play on Character and Health of American Girls—Proverbial Meanness of Women Mainly Due to Bad Training—Evidence of Gymnastic Instructors—Fatal Pedantry—John Locke—A Useful Book—Outdoor Play—Prohibited Games—Marbles, Hopscotch, Hoops, Skipping—Catch and Touch—Snobbery and Vulgarity—Fives Fortunately not Condemned—Squash—Fencing—Endless Variety—Left-sided Play—Vigoro.

THERE are certain games which boys and girls can and should play together. The almost monastic isolation of the sexes at schools has done much to bring about wrong relations and mistakes in sexual matters. There are some games also in which the whole family can join with advantage. A modified form of cricket is a good example. The game can be played with a soft ball in a limited space. The better players should be handicapped by some such restrictions as "tip-and-run," or a broomstick instead of a bat. The feeblest players can be given two or three innings instead of one. This play is likely to bring a general candour and

confidence between parents and children—a candour and confidence comparatively rare in our experience.

There are many schools and there are many teachers of physical culture, including the advanced Swedish teachers, who insist on certain games as part of the physical and mental training; but there are too many institutions which still rely entirely on a comparatively dull drill at a word of command, a form of physical culture which, when depended on exclusively, tends to destroy the freedom and *abandon* of play, even if it is some preparation for play itself, as a training for trunk-muscles, etc.

Where the play exists, it has not always been adapted to the needs of girls. The original games are suitable enough for men and not bad for boys, but when played by girls they are apt to produce strain, unless there has been proper preparation. Unadapted cricket is a good example. The pitch is too long, the bat too heavy, the ball too hard and large. Modified cricket is excellent. However, we must not expect too much at present. The fact that girls are allowed to play games at all, is some advance ; later we shall see better methods tried. The present state of affairs in many cases may be compared with the teaching of the classics. Women at women's colleges are taught the classics, or are supposed to be taught them, on exactly the same lines as men, lines that are—from every point of view except two or three—unscientific, as well as uninteresting.

As instances of games that might very easily be added to the gymnastic Course, we should set, first and foremost, games with a ball—a soft ball of some kind, whether Lawn-tennis or uncovered or Ping-pong. Even a handkerchief tied round with an elastic band is better than nothing. This, as we have said elsewhere, one can throw at a mark on the wall and catch afterwards. But the soft ball one can bowl or throw at a mark, and can catch, and so on—in fact, whereas it is usually absent from the gymnasium, it is really as good a piece of apparatus as any, and a far cheaper one than most.



FIG. 2.—GAMES OF CATCHING AND THROWING ARE EXCELLENT.

A great many games can be played without any apparatus at all. We have already spoken of Sister Grace's Guild of Play at the University Settlement in Bermondsey. The effect of the games, when properly organised, is wonderful. Sister Grace says :—

" Many children are growing up with all their powers of self-control and dreaming lying dormant ; many are trending surely towards workhouses, prisons, reformatories, and lunatic asylums that are already full to overflowing. How to bring about this prevention, and how to give these little unwelcomed street-children the chance of a cleaner life, are two of the questions to which the Guild of Play is trying to give a practical answer. If we examine the history of any noble nation, we shall find that at the time of its greatest nobleness education was regarded as a preparation for life in all its width and depth, never as merely a useful preparation for some special feature. And we shall also find

that, among the important factors in that education, were always, in some form or other, games and fairy-tales. There are certain parts of the 'mankin,' as Carlyle calls him, that can be best or only developed by means of games. Chief among these are his powers of self-control and comradeship. Through games a child first learns that he can do very little without a strong, healthy body ; and through games he best learns that muscle alone never wins ; that his body is a grand tool, but only a tool. Consciously or unconsciously, he sees that, if he means to win, whether at cricket or in life, he must be master of himself. We English folk gain a great start in the race of nations from the infusion in our nature of the two great principles that have swayed Europe for more than two thousand years : first to possess ourselves ; then is it good to gain

the capacity for flinging ourselves away, not wantonly, not uselessly . . . With games and fairy-tales, training body, imagination, and heart, we would supplement the brain-training of the day-school. If we are to do our work at all thoroughly, we must think on the things that lie behind the shadows, which alone 'the best of this kind are.' At the Bermondsey Settlement we are keenly alive to our responsibilities for redeeming their childhood for the children of our courts and alleys. We know what we have to meet with in them—the utter lack of self-control, ignorance of all things beautiful, and the terribly complete knowledge that these mites possess dwarfed bodies and stunted intelligences ; and, hidden somewhere deep in childish hearts, seeds of love and truth and moral beauty. Our work is to trim the overgrown branches, making room for the stunted ones, and to find the right ways for these. We all are glad to see the children happy ; *we all recognise play as their right* ; we believe that happiness and healthy bodies are quite as important factors in moral lives as is direct instruction in morals. . . . But, at the Guild of Play, our aim is not merely to provide amusement. The child is by and by to come in contact with a world where cause and effect follow one another inexorably. Hence at the Guild of Play we have no punishments, save those which follow as the natural penalties of broken laws. Similarly, we have no rewards, save that greatest of all pleasures, the working for others ; and the highest prize we offer is to be allowed to go and play before old people in the workhouse or infirmary, or before the children's own parents. Unless the old English games that we play together and the stories that we tell are to the children an end in themselves, without the hope of prize or the excitement of display, then indeed are the Guilds of Play of little avail. . . . After everyone has made a curtsey and said 'Good evening,' the games begin—quaint, old English song-games, with pretty words, rhythmic tunes, and dainty gestures ; and then come fairy-tales and songs, the three together providing motion for restless limbs, voices, and brains. At a Guild of Play there are no buns or oranges, no costly toys, no magic-lantern shows, no direct religious teaching ; there is not even the giving away of useful information. *We merely take up a bit of the children's lives, and live it with them.* Play and the love of stories are among the strongest

natural instincts of children. We take just what we find, and try to adduce thence all that is good and beautiful, leaving bad elements to die of starvation. In the sense of completing and finishing we can do nothing ; but we do believe in the preventive and stimulative force of one weekly hour spent as well as it is possible for a child to spend it. Such work as that of the Guild of Play must clearly be recognised as a supplement of the day-school scheme of education. We want the time of the idle, the voice of speakers, the thought of thinkers, the money of the rich, the sympathy of all."



FIG. 3.—STEP-DANCING IS A GAME TO MOST GIRLS.

Still more important, we are sure, is not the time of the idle, but the time and the sensible attention of the "busy," who usually say, by way of excuse, that, though they are supposed to regulate the life of the nation, they have no time for anything (except money-making or "politics").

Another high authority, who has been equally successful with children, writes as follows :—

" In playing with children from three and a half to seven and a half years old, one of the most successful games is the acted fairy-story. For instance, there is the story of the witch who turns people into birds which fly and sing, or dogs which bark and scramble, or butterflies which fly or float in the air, or goats which climb (they can climb chairs in a room). This idea is easy to extend. It seems to me that such exercises are nice for all muscles, and the children are using their voices too, perhaps without realising it. Probably everyone has done this. It is a matter of how many children do it, and how often ; perhaps it is a matter

of how often their elders allow them to do it, or suggest that they should do it. A fish gives good exercise ; it could struggle about on the floor. Another way is to pretend that one is riding or driving, and to move about all the time. For town children naturally it is good to try if they can see and judge distance ; for the town-children seldom have a distance to see. The distance-sight can and should be trained." [This is closely akin to Dr. Wilson's suggestion as to seeing a horizon.]

The Editor not long ago was lecturing to some Ling students. While he admitted the excellence of much of their drill, while he admitted its many physical advantages, he could not regard it as complete physical education ; but, on the other hand, he found that the Association welcomed any new suggestions, and had already incorporated games in the system. These games are illustrated in the photographs, which are reproduced here by kind permission of the Secretary, Miss Hankinson.

It was at this lecture that the Editor realised more fully than before that gymnastics may be play to a great many people. They had never been play to him —they had always been sheer drudgery ; at school he had hated them, because they had been so badly taught ; but, beyond any doubt, they are as truly play to many as Cricket or Hockey would be. The illustrations given here show certain exercises that many students would regard as play ; that is to say, they would just as soon do these movements (perhaps the support-movements in particular, as in Fig. 5) as play Lawn-tennis.

Miss Hankinson kindly sent us a list of places where there was special training for what is more generally known as play. To it may be added the National Society of Physical Education, which gives certifi-

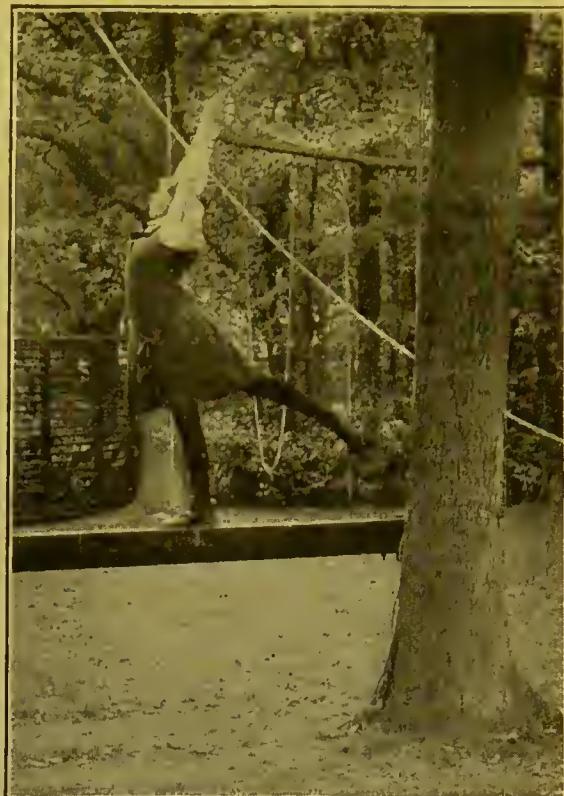


FIG. 4.—SOME GIRLS ENJOY SWEDISH BALANCE EXERCISES AS PLAY.

cates for efficiency in the theory and practice of play.

1. Madame Osterberg's Training College, Dartford Heath, Kent.
2. Miss Stansfeld's Physical Training College, at 37, Lansdowne Road, Bedford.
3. The Anstey Physical Training College, The Leasowes, Halesowen, Worcestershire.
4. Miss Thomas's Physical Training College, 5, Norman Road, Rusholme, Manchester.

At Dartford, for instance, the would-be physical instructors are taught, and *taught to teach*, Hockey, Cricket, Lawn-tennis, Basket-ball, as well as many of the short games, such as Rounders, Fox-and-geese, Chimney-pots, Prisoners' Base (see a previous chapter), and many Swedish games.

The mention of the Ling System reminds us of a difficulty which occurred when we were preparing the chapter on it.

What is the Ling System? First there is what Ling himself taught. Where, if they exist, are his actual instructions, unaltered? So far as we can judge, he taught a series of gymnastic movements as complete physical education. Secondly, there is what is called the Ling or Swedish System, as practised by those who have not been properly trained; that is to say, what one would get "at the nearest shop" if one asked for Ling or Swedish drill; it is often careless, often dull. Then, above all, there is the best up-to-date Ling or Swedish System, which includes work with good apparatus, insists on play and preparation for play, and to-day includes relaxing, as well as the

We are not saying anything against drill. The photographs show good drill with or without support. Especially are we in favour of drill into which the play-spirit is introduced, and drill which is preparatory to play. Dr. W. G. Anderson in America says that he finds this drill far more attractive and therefore effective than the orthodox kind.

We suggest, however, that there should be more practice with each side in turn, while the other side rests relaxed. While the Ling System has intervals for relaxing, it certainly does not yet insist on the non-use of parts which a given movement does *not* require. But the best teachers are open-minded.



FIG. 5.—CO-OPERATIVE MOVEMENTS PLEASE SOME GIRLS.

intervals for deep breathing. Now this is called Ling or Swedish, but we believe that these features have nothing to do with what Ling taught. What we are quite sure is that these features are no less essential than what are known as the Ling-movements themselves—such movements as are shown in Fig. 6.

The gymnastic exercises, as we have said, will be real play to some. So will be outdoor gymnastics, which are shown in the illustration (Fig. 7). This being clearly understood, we can pass to what can be called games in a more special sense.

Among the best of the games will be

Basket-ball—a most popular form of ladies' play in America at schools and ladies' colleges. The rules will be found in Alexander's book. It may be compared with Football to some extent. Girls play it and practise it sensibly in America, and Fig. 8 shows the Ling students playing it in England. Notice their very sensible dress.

would go far to prevent Cricket from being a strain to anyone.

Then there is Hockey, which, like Cricket, can be played indoors, use being made of the walls, as in Canadian hockey on the ice.

Even Football with a small ball, if it is preferred, and of course with short skirts, may be good in moderation. See



FIG. 6.—SWEDISH DRILL PROPER AT DARTFORD.

Then, of course, there is Lawn-tennis—a magnificent exercise for the female sex. Only one would like to see it played far oftener left-handed. We do not know whether the Ling students play it thus, as well as right-handed; we expect that at the best schools they do. Left-handed Lawn-tennis becomes almost a new game for right-handed experts. The Editor finds it training not only for the other side, but for the other eye in particular. It tends to equalise the seeing-powers.

Then there is Cricket. Men's Cricket is absurd as a game for most girls. We have known girls who could throw a ball well and could bat well; but they are the exception. It would be far better to have an adaptation, as we advised just now, and also to have the girls trained a little in the movements, as Mr. C. B. Fry suggested in his magazine. He gave there some capital instructions, which

the illustration of Mr. Corsie's boys, at playground Football, in a previous chapter. Mr. C. B. Fry has explained the value of the small ball in encouraging accuracy, etc., in his excellent little penny pamphlet on Training for Football.

Then there are the athletic sports, which require considerably more leading-up work than Lawn-tennis would. In America (*vide* the article on America) many of the students train carefully for the high and long jumps, various races, especially team-races, and so forth. The statistics seem to show that physically they are benefited, not injured. There can be no doubt whatsoever that mentally and morally they are benefited, for they learn the spirit of fair play. A friend of ours tells us that, at a certain school in Scotland where games are well taught, the meanness so common among school-girls, the low standard of honour, is

almost utterly unknown ; the spirit is as manly as that of the best public schools for boys. This shows that the notorious pettiness and spitefulness of the female sex, against which so many writers have declaimed lately, is not inherent in the women, but inherent in their orthodox training. With play to encourage the play-spirit, they become quite as sportsmanlike as men.

And gymnastic instructors tell us that even gymnastics and free exercises, though they allow fewer opportunities for cheating, still have a remarkable effect on this same spirit. Together with games, they should build an entirely different class of girl and woman, and therefore, in the end, a superior nation. Those inhuman pedants who condemn play as being "sheer frivolity" ought to be shut up in a special building as criminal lunatics.

They pose as educational authorities. Now probably they would recognise John Locke as a standard writer on the subject. This is what he said in his "Thoughts Concerning Education":—

"Recreation is not being idle, but easing the wearied parts by change of business. . . . Nothing that may form children's minds [or their bodies either] is to be overlooked or neglected, and whatsoever induces habits and settles customs in them deserves the care and attention of their governors. All the plays and diversions of children should be directed towards good and useful habits." "Happily the most useful games, those which induce most useful habits," continues the writer from whose little book I re-quote this extract, "are generally those which afford most pleasure to the children themselves." The book is called "Girls' Games." It is edited by Bourne, and published by Griffith, Farren & Co.

We must give the preference to outdoor games, and particularly to those out-

door games which can be adapted as indoor games.

Among them we must include some which the ignorant might reckon as vulgar. The Editor remembers how at his first school Marbles was a prohibited game ; it was said to be vulgar. Hopscotch came under the same condemnation ; yet Hopscotch is a magnificent game for balance, and restraint and control of power, and accuracy ; there is plenty of fun in it ; it can be played in a playground or court, and also in a bedroom or room with a linoleum floor.

The various kinds of skippings may be turned into games ; in which, however, children are liable to exhaust themselves if the competition is simply one of keeping up, rather than one of skill as well.

Then there are the numerous games of "catch" and "touch," with or without a ball. In these games children should be encouraged to risk something. The meanness of the badly-trained child comes out in a game like "touch-wood," where it does not venture away from the tree or door. There are games of "he," "touch last," "hide-and-seek," "I spy," and "prisoners' base."

Hoop-bowling may be turned into a game of very great skill. The Editor was forbidden to bowl a hoop at his public school. Had he practised bowling it back-handed and left-handed, it would have been far better training for him than those dull runs which the boys used to go, runs utterly inappropriate for boys after a heavy meal, as any scientist would tell a schoolmaster who troubled to consult him on the subject. A run with a hoop is far more fun—it is therefore more healthy, far less exhausting—than a sheer grind : it trains the eye, the poise, the promptitude, and so on ; it is excellent practice for several ball-games, including football. But King Custom forbids it.



FIG. 7.—THE OUTDOOR GYMNASIUM AT DARTFORD.



FIG. 8.—THE GAME OF BASKET-BALL.



FIG. 9.—THE DARTFORD LAWN-TENNIS COURTS.

What on earth there is vulgar about it we cannot conceive ; what on earth there is undignified about it we cannot conceive, unless one does it very awkwardly. But, under the same condition, walking itself, or sitting, is undignified. The fat alderman who walks in a procession, and then eats ten times what his body needs, is supposed to be dignified ; the boy who bowls a hoop is degrading himself.

Perhaps the same silly notion, that the pursuit is unworthy of a child, would apply to Tip-cat or Trap-ball. We have hazy notions that these games are tabooed at more than one private school. The same prohibition would apply to cooking, gardening, household work, and many other useful arts. Truly, we do train our little boys to be skilful in one thing, and that thing is snobbery. As a matter of fact, nothing can be more vulgar, more disastrous to a boy's ideas of his fellow-men and fellow-women, than to give him to understand that healthy and necessary work which is education for eye and nerve and many parts

of the body and mind, is unworthy of a gentleman or lady.

Fortunately, one of the three very best games is not tabooed. We allude to Fives. It is a game which can be played in almost any room, up against a wall, the side-walls being used or not, as one prefers ; it gives fine training for activity of both sides, each in turn, and for "eye" and endurance ; there is lots of stooping and stretching. With careful leading-up work, it should be splendid training for girls. "Squash" is another valuable form of play.

Fencing can hardly be called a game, but there is no doubt that it is magnificent for girls. The reasons we have given in a previous chapter.

Then there are numberless small games, such as knuckle-bones and bubble-blowing.

There are the many musical games — "musical chairs," "mulberry bush," "oranges and lemons," and "nuts in May." Most children enjoy these.

Though we have omitted



FIG. 10.—SKIPPING IS A CAPITAL EXERCISE FOR CHILDREN AND GROWN-UPS.

many more games than we have mentioned, we have probably cited enough to go on with. For further information we must send our readers to special books. But we cannot close this chapter without insisting once more on the importance of left-sided play, as well as of the more serious left-sided manual training which is now being advocated so ably by the Ambidextral Society. Take a game like Badminton. It is a good game when played right-handed ; it is a better game when also played occasionally left-handed. We do not mean the rapid change of the bat from one hand to the other during

the same game, for the backhand stroke is important as a physical exercise ; we mean that occasionally two players should agree to play left-handed all through the games ; and that players otherwise unequal should equalise themselves by that simple plan of the stronger using the left hand rather than the right.

Vigoro is another game that girls should play. It is a blend of Cricket and Lawn-tennis, and should be played with both sides fielding. Information can be had from the Sports Manufacturing Co., 30, Cheapside, E.C. It should sometimes be played left-handed for a change.



FIG. II.—FIVES AT BEDALES SCHOOL.

CHAPTER LIV.

CARE FOR THE EXTREMITIES

Growing Tendency to Self-remedial Work—Influence of the Cycle—“Naked Truth”—People Already Take Care of the Parts that Show—We Plead for an Extension of this Care to the Parts that do not Show—Need of Foot-culture—The Tide must be taken Advantage of—Dumbbell Work Estimated—Need of Independent Work—It must not be Dull—What the Extremities Want in the Way of Training—Extensions Held—Rotations—Shaking—Relaxing—Mistake of Beginning with Both Sides Always at Work Together—Right Side First—Strain-work a Bad Start—Study Animals—Rhythm for the Organs—Different Rule for the Extremities—Ignorance of the Public, Fraud of Advertisers—Prolonged Work Bad—The Delusive Word “Development”—Monotony Disastrous—Cleanness—Exercise to Help Cleanness—Fallacy about Concentration—We want Fair Estimates—Free Work in Classes—In Praise of the Ball—Children and Large Muscles First—Sloyd—Left Side—Ambidextral Society—Writing, etc.—Music—Household Work—Gardening—More Self-respect—A Test—Faults in the Orthodox Foot—Diet among the Causes—How to Warm the Hands and Feet—Clothing—Sedentariness—Tension Is Exercise—Clogging—Effects of Leisurely Eating—Results of the Mischiefs—Practise the Opposite Exaggeration—Foot-gear—Skipping—Plank—Leg Massaging—Hypocrisy—The Feet and the Spine—Standing—Christianity—Poise—Games—Orthodox Courses—Self-cure—A Final Exercise.



FIG. 1.—LOOK
TO YOUR
EXTREMITIES.

THE letters which the Editor receives from all parts of England have opened his eyes not only to the amount of deformity and atrophy which people are beginning to realise, but also to their keenness to *remedy themselves*. Sometimes the keenness becomes crankiness and fussiness. But on the whole the movement is a sane one.

He suspects that not a little of the revolution, the tendency to self-treatment, has been due to the cycle. There is a clever advertisement which asks people whether they have a good pair of legs. The cyclist is almost bound to show his legs, and, pleased as he might be if he had the legs of Fig. 1, he does not care to show things that look like matches, as in Fig. 2. Trouser hide the thinness; stockings, even with

many folds, do not. The man is forced to develop himself, even if he does it in quite the wrong way (so that eventually he has a leg fairly big, but very slow). Still, the great thing is that the cycling custom has brought a truth home to some people—namely, that they are misshapen.

So, if sandals become quite fashionable, and perhaps if two-sex bathing becomes quite fashionable as well, there will have to be more sensible training of the feet and ankles, and, indeed, of the whole figure. For “naked truth” is a very remarkable phrase; it is in nakedness that physical truth is revealed. One reason for prudery we believe to be that certain people dare not show themselves naked; they are so deformed. It is to their interest

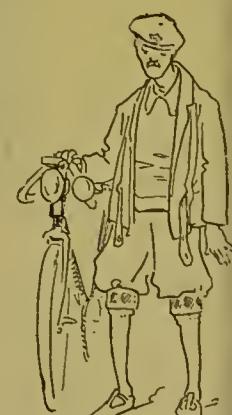


FIG. 2.

to pretend that nakedness is improper and indecent. As a matter of fact, the improper and indecent thing is deformity ; that should not be exposed. It should be cured.

Now already the extremities, and especially those parts which show, do receive a considerable amount of training. Think how much money and time and trouble ladies spend in manicure. Why ? Because the nails show. They spend no such money and time and trouble over their toe-nails or over their feet, which need every whit as much care as their hands do. About the cleanliness of their hands most people are decidedly particular ; about the cleanliness of their feet they are careless. They should be all the more careful, because the feet are so badly treated : first cramped out of shape, then almost unventilated. As we shall ask, later on, what would happen to your hands if you covered them with a sort of sock and a sort of leather boot, tied fairly tight or buttoned round the

wrist ? (see Fig. 3). Imagine their state at the end of a day. And yet the majority of people, after that day, get straight into bed, and never dream of washing, or at least never let it get further than the dream-stage.

Let us therefore call attention to the need of foot-culture, as well as of hand- and face-culture, which is not by any means to be taken as perfect yet. But it is best to be fair and begin by admitting that there is a considerable amount of culture already. It is no use to pretend that the whole work has to be started. What is needed is more

sensible work, extended logically from the face and hands to the feet.

Both the feet and the hands should be taught as early as possible to move correctly. The feet, Sir James Crichton Browne says, should be trained before the hands, and the arms before the hands, too. Feet and arms and hands should be trained before the niceties of speech are mastered. There is a regular logical order. Each part of us seems to awake in turn and call for its special training. Neglect its own period, and you can never again get the best results. "There is a tide in the affairs of men." There is also a tide in the parts of men. Taken at the flood, it leads not only to fortune, but also to fitness ; omitted, the mischief can never be thoroughly repaired.

Both hands and both feet should not be trained so often together. Go through your commonest actions in daily life, and you will find that you comparatively rarely use the two hands for similar purposes. Yet look at what is called physical culture. Almost invariably the two hands are used together. Even if they are not to do the same thing, even if they are not both to grip a dumbbell as tight as they can and move it monotonously up and down in parallel lines, yet each is to work. The idea of stillness and repose for the one hand, together with activity or strength or skill for the other, is an almost entirely unknown factor in stereotyped physical culture up to date. Yet to learn to rest is to-day even more important than to learn to work. We must train one hand to rest, and not fidget nor be tense, however vigorous the work of the other hand may be.

Having trained each of our four extremities, each hand and each foot, to independent work, as correct as we can make it and as all-round as we can make



FIG. 3.

IF WE TREATED OUR HANDS
AS WE TREAT OUR FEET !

it, let us then proceed to more complex tasks—for instance, as in the full movement system, using one hand in one way, one foot in another way, and perhaps the other hand in yet another way. Towards this independent control there is no doubt that "full contractions" are of the very greatest value.

The work must not be dull; dulness would condemn it at once. Take piano-playing. How hideously oppressive is the work of "playing" scales and five-finger exercises! The hours and hours spent in this slavery set the Editor against piano-playing altogether; he hated the sight of a piano. It would have been quite possible to give him ever so much greater skill by means of full movements, side by side with a moderate use of scales, etc. This, meanwhile, would have been valuable for other purposes as well.

But it is not anything like a complete training for the extremities. Our extremities need other exercises as well. Let us summarise them here for the sake of convenience.

1. Extensions which should be not only made, but also held. Not only should the hand, for example, be sent straight up above the head, but it should be kept there and moved (*e.g.* rotated) while it is there, instead of being rushed back immediately with a jerk to the first position. Both the extensions and the flexions should, as a rule, be full, and should be kept for a moment or two after they are made.

2. There should be rotation of the extremities.

3. Shakings are also valuable. We cannot include the head here, until the neck and the spinal muscles have become freer than they generally are; to shake the head when the neck is stiff may be positively dangerous.

4. Then there should be relaxing of

the extremities. This is a vital need to-day. In various articles we have already described practices in relaxation of the extremities.

5. Next there may be what Delsarte calls "involving" and "evolving." Take the hand, as in Fig. 4, and turn the fingers in upon the palm, moving the ends of the joints first till the hand is clenched; then turn the hand in upon the arm until you have rolled it up. You can roll up a great deal of your body in this way, and then unroll it, and extend it again afterwards, and then, once more, relax, all the time breathing fully, yet rhythmically and leisurely.

It may be a help to begin with both sides together, or—better—with the right alone. The right, usually being more skilful than the left, will serve as a model to the left, as if it were an expert teacher doing the exercise at first with the unexpert pupil. But, as early as possible, each hand should be trained in turn. Indeed, in the great majority of exercises, we think each hand should be trained independently nearly from the start. Train the right hand first, and you will find that you have gone far towards training the left hand too, as the Americans have proved. Afterwards you can try various combinations or co-ordinations of one or both hands and of one or both feet.

If you want to know how *not* to develop the extremities, as distinct from the organs, look at the typical grip-dumbbell exercise. Both sides are "developed," it is true, but they are not developed for



FIG. 4.—INVOLVING AND EVOLVING.

independent control; they are not trained to rest; both are working in precisely the same way much of the time, as in Fig. 5; anyhow, both are using up energy

—neither is resting in real repose; both are gripping tensely, and, although the gripping is good for some movements, it is needless, if not bad, for others; it gives absolutely no practice whatsoever either in certain extensions or in shaking or in relaxing. If you want to see a really splendid animal and get a lesson from that animal, observe a dog. True, it sometimes performs a

movement which has analogies with the grip; but it also practises full extension and stretching; it shakes itself; it relaxes itself; it does not always move the two sides of the body at once; it does complicated movements, and many movements that involve great control of the weight and poise. Above all, it does not always move rhythmically; certainly it does not move monotonously.

Let us get this point perfectly clear before we come to positive teaching. Rhythm has its value. Who does not know the relief which music gives—how it takes off the tedium of drill? But rhythm is especially wanted for our internal organs, our heart and lungs, and, as Dr. Cannon has shown, our digestive and even our excretive organs. They have their rhythm, and rhythm in exercises may certainly help these organs of the trunk. But the extremities demand a different law. Some rhythmical movement they may do with advantage; but anyone who has ever watched any animal



FIG. 5.—NO REST, NO EXTENSION FOR EITHER HAND—A BAD SYSTEM, IF COMMANDED AS THE ONLY ONE.

or athlete or human being, knows that the extremities are, as a rule, unrhythmic; they must be prepared for prompt work, and for varied pace, and for different combinations; they are utterly unlike the organs of the body in some of their functions.

Another abominable fault of many too-much-advertised systems is that they begin with strain. A certain amount of strain is good for the trunk-organs and some of their muscles. The muscles about the abdomen and the spine are pullers and lifters and holders; they really demand some strain. But to begin such practice with the extremities shows the very grossest ignorance. The first thing that the extremities have to learn is freedom. The second that they have to learn is *pace gradually increased*. They learn freedom, strange as it may sound, partly by extension as well as contraction, and partly by repose; to a great extent also by shaking. Think how free are the extremities of a violinist. Ask a violinist to shake his hand; he or she will do it admirably. The extremity is strong enough, but it is also free and lithe. The spring-grip-dumbbell system, if you start your training with it, and do nothing else, and if you have not an exceptionally clever body by nature, will gradually deprive you of your rapidity, freedom, and liteness. We would venture to assert that, if Paderewski practised with spring-grip dumbbells for two hours a day, and gave up his other exercises, he would ruin his piano-playing, perhaps irremediably. We venture to assert the same even for C. B. Fry's batting, or for J. Braid's golf.

Prolonged work of any sort is not good for the extremities in their early years of training. And please do not be impressed by those who talk about *development* of the extremities; it is a

most misleading word. To the public and asinine mind it means size, and perhaps a certain type of strength. But it is not the acme of perfection. You may have development without freedom, litheness, repose, promptitude, rapidity. Prolonged stress-work is bad enough anyhow; prolonged stress-work with perpetual strain and stress is simply detestable.

And another common error is monotony. There is a tendency to do all exercises at about the same pace. Watch the extremities in their daily work. Their pace varies almost from minute to minute: they are now fast, now slow, now still altogether. It seems a weakness in most systems that they do not command the learner to vary the pace frequently when he is using his extremities. With the organs it is different; what they need there is rather a certain strength and a certain rhythm. In daily life we gain comparatively little by having a *very* quick rectus abdominis muscle.

The difficulty is to make the training of the extremities anything but dull. So dull is it usually that people will not go through it and keep it up without either a personal teacher or some form of apparatus which is essential in comparatively few movenients, and hurtful in very many. Or there must be music. Now we ought to be able to devise a training for the hands and feet which shall be less unscientific than the orthodox kind, and yet not irretrievably dull. For a quite unpardonable feature in written instructions is such dullness that the reader will not try the exercises more than once or twice.

A part of the training common to the hands and feet is cleanliness. Needless to say, this comes partly from water and washing; first the warm water with pure soap and rubbing to cleanse, then the cold water, also with rubbing, to harden

and invigorate. The rubbing is as important as the water. Afterwards there should be rubbing and drying again. Elsewhere we have spoken of the alternate hot and cold baths, which can be applied to the hands as well as to the feet as a



FIG. 6.—AIR AND LIGHT BATH FOR THE FEET.

remedy not only for cold hands and feet, but also for sleeplessness and headache. We can hardly call the choice of clothing a part of our training, yet it is essential that the feet should have more porous clothing than they have. Otherwise our best plan is to expose them as often as possible, not only to washing with water, but also (as in Fig. 6) to cleansing with air and light.

Cleansing is much helped by exercise, which opens the pores of the skin. Such exercise should be followed by washing and rubbing. There is no reason why we should not take great pride in the appearance of our hands and feet. He who knows that his feet, which people seldom see, are as well worth looking at as his hands, which people cannot fail to see, surely is a step further towards self-respect; he has one less thing about him which he would hide from the sight of men. Perhaps some day he will actually attend to his stomach and intestines, and will not think their proper condition a fad or a waste of time merely because the public does not see them.

With regard to the training of the hands, especially, we have warned our

readers against the early use of the dumbbell, unless that use be occasional and in moderation. Such a use will help certain muscles considerably, but, for most people, it will tend to increase the grip and strain from which they already suffer ; it will tend to slowness and stiffness, which are two common faults of Anglo-Saxons ; it is against the order of nature, which is first for extension and repose, then for cleanliness, and last for strain—in strict moderation. And only a genius can ignore this order with impunity.

Last, but not least, the perpetual grip of a dumbbell is against that very virtue which Sandow claims for it—namely, concentration. Evidently he has not thought out the phrase ; he has used a word without picturing and “sensing” the meaning. It sounds so plausible. “Grip as tightly as you can, so that you may concentrate your attention.” But *where* are you to concentrate your attention ? Is it always to be on your hand and arm ? Surely this is the greatest absurdity. Suppose you are developing your trunk-muscles, which are quite as important as your hand- and arm-muscles, then *where* should you concentrate your attention ? Surely, if anywhere, on your trunk-muscles. If to think of a muscle will send more blood there, as every scientist agrees, and as Mosso and Anderson and others actually prove, then why grip the hand and fix your attention there, when the muscle which you wish to develop is, let us say, the straight, or the oblique, muscle of the abdomen ? No, when you want to develop these muscles, keep your extremities as limp as you can ; then more blood will be able to come to the special parts which you wish to train.

We are not condemning dumbbells indiscriminately. We condemn their indiscriminate use ; we condemn dishonest

advertisements of them which mislead an ignorant public. It is time that the public was informed of the truth of this matter—namely, that the dumbbell is a pernicious thing when it is used without care. We do not wish to abolish any implement which is a motive and incentive to greater fitness ; and the dumbbell certainly is one. So is fixed gymnastic apparatus ; so is the weight for weight-lifting. Such things have done great good to the nation ; they have appealed to more people in recent years than the cricket-bat has. But what we do demand is a fair estimate.

There should be more free work in classes. If people will not exercise in private without dumbbells, etc., then let those dumbbells be used in private, but let them be dispensed with far more often than they usually are in classes.

Even in private, *why on earth do not people use a ball far more often than a dumbbell?* We suppose the reason is that there is no “Somebody’s” ball. The good ball for bowling and hitting, throwing and catching, is a plain, soft ball, or a ping-pong ball, which anyone can buy anywhere. Such play-work up against a wall, if practised rightly, in the right positions and so on, could easily be made very interesting, if not fascinating. Of course a man would not get so huge and deformed a biceps to show ; he would not have a lump that stuck out always, whether it was needed or not ; he would not feel the same grinding stress. On the other hand, as a general rule, he would start fitter for his morning’s work. Give him five or ten minutes with a ball, he would get a healthy sweat, splendid training in accuracy, and an improved eye, improved timing and co-ordination. He would have prepared himself better for many indoor games and outdoor games as well. Let him practise a few indoor

games, instead of that perpetual grip-dumbbellism, and he would be the better man all-round. Let him believe us when we tell him that the tense grip is extraordinarily bad for nearly everyone when it is the *sole* training that his extremities get.

For children, it is iniquitous to develop the hands thus before you develop the larger muscles. When they write, you should teach them to write at first with their arms on a blackboard. One would not guess it, perhaps, but the child who has learnt to write thus, is able to write afterwards with the fingers and a thin little pen or pencil. It seems that the memories of the shoulder- and arm-movements have mysteriously furnished memories of finger-movements as well.

Finer work for the fingers, as well as for the arms, is to be had from Sloyd. In the Sloyd system a person is given a



FIG. 7.—THE SLOYD TRAINING IN THOROUGHNESS AND ACCURACY.

piece of wood which he or she is to turn into a roller, perhaps three inches long and perfectly round, with the help only of a pocket-knife. The work must be perfect, even if it takes three days to do it. One after another the efforts may be spoilt, perhaps by a little careless notch at the last moment. The superintendent comes round, points out the fault, and relentlessly breaks the attempt. The learner by degrees improves, and has

an almost unequalled training in patient thoroughness and scrupulous accuracy.

If the learner has kept the right position of body and has not worried or hurried during the lessons, then the training has been still more valuable.

There is no doubt that the left side should be trained at first almost (if not quite) as thoroughly as the right. We say "almost," for, if you train the right side, then afterwards, according to American experiments, you can learn with the left side in about a sixth of the time. We have devoted a special chapter to the left side, to which the reader may be referred, and to the excellent work now being done by the Ambidextral Society.

Sloyd-work would be too fine for little children, who can train their extremities by bricks, by work in the sand, or with clay or plasticine. Some needlework may not be bad for them, especially if they feel they are making something for someone whom they like. Both drawing and painting they enjoy; only the work should be large at first. Some writing also they should be taught. The Editor has never regretted the hours he spent in being taught to write correctly and legibly. In recent years he has tended to go back to the more careful writing. He finds that the effect upon his mind in these days of careless hurry is important.

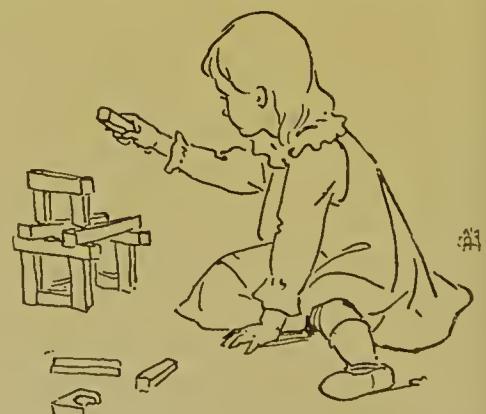


FIG. 8.—TRAINING OF A CHILD IN CONSTRUCTIVENESS, ACCURACY, AND BALANCE.

Then there should be some teaching of a musical instrument; not teaching of the dull orthodox kind, but in the interesting ways which now are becoming popular. There is no doubt that piano-playing and violin-playing are excellent training for the extremities, so long as they are rightly taught.

And some household-work is capital. It should include cookery, which will give delicacy of touch as well as muscular sense. We have dealt with this in previous chapters.

Outside, there should certainly be gardening and farm-work, which will have similar effects. Such a work as bee-tending may have special advantages; an illustration in another chapter shows how it is used at one school.

As distinct from apes, men work finely with their fingers, use their hands very differently from their feet, and very largely for self-expression. So, let us repeat, there is no reason why they should not take great pride in the appearance of their hands, if only for the sake of self-respect. The more parts of themselves they take pride in—as long as it is reasonable pride, rather than conceit—the higher their standards and aims will be. Can our standards and aims ever be too high? Not if we can reckon on some progress to keep despair away. We can easily mark the improvement of our hands.

Before we pass on to the feet, let us set the matter in a common-sense light. Just for one day, when you are free, treat your hand as a fashionable woman treats her foot, and observe the effects; then judge the kinds of effects upon the feet, even if the only obvious effect is general fatigue. If you cramped up your hand by tying it with a board, then, as we suggested just now, put upon it a cotton glove, and then a thick leather

glove, not letting the thumb remain outside, then tried to use your hand for some of its simpler work, you would get an idea of the crimes which you daily commit against your feet. Probably you decide to go on committing most of them during most of the day; you refuse to wear sandals; you certainly refuse to go about bare-footed; and, indeed, in London it would have obvious disadvantages. But, for pity's sake, when you have the chance, let your feet be free, and give them a sensible training.

The faults in the orthodox foot are very numerous. First, it is cramped, and the toes get little independent movement. Then the big toe is out of its line, turning out and away, the big toe of the right foot towards the right, of the left foot towards the left. Not only is this ugly, it is also fatal to proper movement. As we have already explained, the big toe is an important lever when we move; it must be in a line with the direction of the movement. Now, if the big toe is bent out, we must alter the whole foot and leg in order to make it a powerful lever, or else we must sacrifice much of its leverage. By way of exaggeration, turn your feet out when you walk, and see what a lot of power you lose. The other toes are cramped as well; in some cases we have seen them cramped into a very small space, and hideously deformed. Then the sole is very likely too flat, wanting in that arch which is one of the chief beauties of the human body. And it may be lopsided, too. Look at the heels of people's boots and see how they wear. Some muscles are over-strained; some are tense and stiff; some are atrophied. These and other faults in the feet are partly responsible for various faults in the leg and spine, which, in their turn, affect the foot. The movement when one walks, for instance, is not under proper

control ; the leg moves in a crooked line, instead of directly.

The dirtiness of the feet seems more or less inevitable in cities. It is not entirely due to the want of water ; it is also due to the want of air and light, the want of proper exercise, and the want of proper rubbing. Not a little of its dirtiness is due to the wrong kind of food.

Then, again, the foot is generally either too cold or too hot. Diet will be an important factor here. So will breathing. If you want to warm your feet, breathe deeply, stretch your leg out as far as it will go, then your toes. Repeat this. Let your toes wriggle about. You will find your feet becoming warmer and warmer. The same applies to the hands ; breathe deeply ; stretch your hand out ; clench it ; wriggle the fingers about, and shake your hand ; then, if you are still cold-footed or cold-handed, try the alternate hot and cold water treatment, finishing up with the cold and rubbing.

The causes of these faults are obvious. The foot is too much clothed, and it is wrongly clothed. Patent leather is a bad ventilator. Many kinds of socks are bad ventilators. Some people imagine that it is a mistake that their feet should perspire ; they check the perspiration, perhaps by some powder. Little do they know the mischief they are working. Rather they should get at the root-cause, and find out what mistakes they are making, probably in their food and drink. A better plan will be for them to release the foot of its foot-gear as often as possible, and keep it scrupulously clean while they have the chance, before the



FIG. 9.—FOR COLD FEET.

business-day cometh in which no cleaning-work may be done. Their foot-gear is largely to blame. The toes are cramped and distorted ; the heels are cramped and distorted in a different way. The injury done to the arch of the foot by high heels might be most serious. Anyone who contrasts for a moment the natural foot with a low heel, and the foot with a narrow high heel, must see what harm may be done, not only by deforming the foot, but also by jarring the spine when one treads on the ground.

Then the feet get too little training in promptitude and accuracy ; they get too much standing, too little rising on their toes. If we are generally living a sedentary life, then there is all the more need to restore the balance consciously by exercise.

It is not that the foot gets no exercise ; the tension, which may be a sign of anxiety, is exercise, but of a bad sort ; it cramps and clogs the circulation ; though the foot is here not so great a sinner and sufferer as the hand.

Or it may be that the foot gets too much of a few kinds of exercise, too little of others. The gymnast's foot, unless he does a good deal of horse-work and un-gymnastic work as well (skipping, running, etc.), is likely to be a poor thing when we consider the amount of time he has given to his training.

Then, again, there has been too little washing of the right sort, especially with warm water, to cleanse thoroughly. There has been too little exposure to the air and light, too little rubbing.

Among the bad effects, pre-eminent is the clogging. We do not know exactly what all the various parts of the body excrete, but, from the analogy of the bowels and kidneys, the mouth and nose, and the arms, we should imagine that each part has particular duties which no

other part can perform so well. We know that the kidneys excrete urea and uric acid ; the lungs carbonic acid ; and so on. We know that each organ, including the skin in general, may relieve the other organs. Exactly what the feet excrete we do not know. We feel sure, however, that they must have some special function. We have heard of cases like the above, where people stopped the perspiration of their feet by some astringent powder, and afterwards, apparently as a result, suffered from consumption, which disappeared when they allowed the skin of their feet to act freely.

But, anyhow, to have to excrete much through the feet is unpleasant in every way ; it would be far better to discover some wrong conditions ; it should not be hard to arrive at something more satisfactory. Mr. Horace Fletcher maintains that simply and solely by thorough mastication he has made all his excreta unobjectionable. If that is so, he has inaugurated a great advance towards self-respect. Certainly, one of the worst things to do is to check these excreta merely because they are unpleasant ; the thing to do is to get at the basic causes.

Another bad result is the wrong way of walking. It looks clumsy, and it is fatiguing.

Then, again, the wrong foot-clothing, especially of the so-called fashionable type, has a morbid effect not only on those who wear it, but also on those who see it. We need not enlarge on this here ; suffice it to say that, if chorus girls, etc., were compelled to wear white stockings and elastic-sided, natural-shaped boots, very few objectionable young men would care to go and see them !

The result of these mischiefs is that people do not take enough exercise and play ; they do not feel well, and so many of their healthiest movements depend

upon their feet that, unless their feet are fit, much of their exercise is cut off.

How unpleasant it is, too, for them to have cold feet at night ! How can they sleep well when their feet are cold ? And then there is the ugliness of it. Hide it how you will, as a woman may paint or powder her face, yet there it is all the time as a reminder, fighting against self-respect. This ugliness of the foot underneath the fashionable boot or shoe must tend to hypocrisy.

Now for a few of the simplest remedies. The open secret is to practise the opposite exaggeration. Suppose you find that you are treading on the insides of your heels, then, on purpose, tread on the outsides.

A safe exaggeration will be a free use of the air-and-light bath. A good form of it is bare-foot walking ; if you can, walk on grass in the early morning ; or, if you will not walk barefoot, have only sandals on your feet.

As to the foot-gear, you can have it nearer to nature ; and at other times you can exaggerate, so as to restore nature, at any rate in privacy. Some people put a reel of cotton, first a small one, then larger ones by degrees, between their big toe and the next, so as to bring the big toe nearer to the straight line. They would rather not wear "natural-shaped" boots or shoes, or even socks or stockings ; they prefer to do what they can between whiles. The Editor confesses that he does not wear "natural-shaped" boots ; he wears boots somewhat on the American pattern, with the big toe only slightly out of its straight line ; but he finds that, thanks to exercise, etc., the moment he takes off his boots and socks the big toe almost flies back into the straight line again.



FIG. 10.

Some people wear springs in their in-steps, so as to improve the arch of their foot ; but in all such cases the aim should be independence of these mechanisms some day.

A good plan is to stoop and rise on the feet (the exercise is given in the Courses for Men and Women).

Skipping with bare feet is another fine movement—skipping, jumping, hopping, and so on.

The start and the run, which we have explained in the "Course for the Very Busy," is another admirable training for the feet, giving a certain amount of promptitude and poise, as well as a chance for restoring the shape of the bare foot and the leg.

The alternate walk and run is a valuable means as well.

Still better, perhaps, is the inclined plank. The Editor now has his covered with cork linoleum ; it is then comfortable for the feet. To walk up and down the plank bare-footed, first in the ordinary way, then on what is called tiptoe, would be magnificent training for the feet and legs, as well as for other parts of the body. Next, stand on the plank, near its lowest part, and stretch down the heel of each leg in turn as low as it will go. Then stand on the plank with your left foot, and swing your right leg, first straight, then with a kind of kick such as you would give at football. Do this with the other leg afterwards.

The Delsarte exercise is somewhat similar ; it is for freeing the leg. You can stand on the plank or on a footstool. Balancing yourself on one leg, shake the other, extend it, then relax it, and let the foot swing about like a weight on the end of a piece of string.

There is no doubt that some step-dancing should be taught to children, and dancing in general, so long as the air is pure.

Then there are games, and what we may call the half-games—boxing, fencing, wrestling, etc.

Afterwards there is the washing, in which we should keep to the above general rules—namely (for we can hardly repeat them too often), to cleanse with warm water, soap, and rubbing, and to harden and invigorate with cold water and rubbing. The alternate hot and cold bath is another treatment, for which a substitute is to apply heat—for instance, to put your feet before the fire—and then to wash afterwards.

Merely to change the foot-clothing is important. Anyhow, it should be well aired at night, and clean clothing should be worn as often as you can afford it. To change the foot-clothing after washing the feet is a most refreshing interval, and it should be practised several times a day if you can manage it quite easily.

When we come to study the feet, not only do they offer an exercise in concentration and a means of more pride in the self as a *normal* human being ; the study will also lead one to many important facts which one has hitherto overlooked. This is not the place for a philosophical treatise ; but a whole book might be written, and perhaps many books have been written, on the study of the feet alone. The pity of it is that such books, in so far as they contain practical advice, are not well known ; we should be glad to hear of useful works on the subject.

For most people are hypocrites. Men and women present an appearance due not to themselves, but to their tailors and bootmakers ; they rely on the tradesman for their charms. It would be much better if they made themselves not independent of these tradesmen, but far less dependent on them.

The Editor, for his own part, does not much mind if his clothing deforms him

for a certain period of the day ; at any rate, he does not alienate himself from the people he likes most, as he might by cranky dress. So long as nature reasserts itself when he has removed his clothing, he is comparatively contented. What he would hate would be for any of his clothing to hide deformities of his body ; that is to say, he would hate to think that his clothing was of a far better shape than nature intended his body itself to be. He does not so much mind it if the clothing for the time does alter his natural appearance a little ! It is one of the things he prefers to tolerate.

The more he studies the feet, the more he realises their importance. Take, for instance, spinal curvature of the lateral kind, or even of the other kind to a less extent—how much of it is due to the habit of standing on one foot rather than the other, and to the extra length of one

leg owing to various reasons ? Attend to your feet, and you go far towards preventing or remedying spinal curvatures. It is with the feet that we stand and move ; it is from them and with them that we start and adapt ourselves.

Much can be done by diet. In the Editor's case the change of diet which he made has entirely done away with tenderness and corns ; we believe that it might do away with a good deal of deformity by gout, etc.

Something can be done by means of oil and rubbing before exercise. That is a hint worth trying.

But all sensible care of the feet should be practised by all people, especially by people who profess the Christian religion. The Biblical allusions to the feet are numerous. " How lovely are the feet of them that bring the tidings of peace."



FIG. 11.

This is not always true of the clergymen of to-day ; neither is it true of the " women workers " in the parish. But it should be true of all Christians. As it is, the feet are usually so unlovely that few Christians dare expose them to public view. For our own part, we should rather see all-round training carried to an extreme, pedicure as well as manicure, washing of the toes (as the " five little pigs " of the nursery rhyme), and exercising of them in the same way ; we should rather see this than see the feet treated as inferior members and covered with shame. And steps certainly ought to be taken—not rushes into what is called nature, but steps—towards nature. For instance, once again, there can be no doubt that the bad feelings engendered by sights at theatres and music-halls and elsewhere would be lessened if the feet were exposed and were not altered entirely in shape by high-heeled shoes, etc. It is the suggestiveness that counts so much—not nature itself, but the distortion of nature ; not the things that we see, but the things that we do not see, and imagine. With the naked foot or with the sensible foot there is no such morbid suggestiveness.

Everyone feels the need of poise, moral and mental, as well as physical. Physical poise comes largely through the poise of the feet. They should not be evenly balanced so often as orthodox teachers command. We believe that the balance should be transferable quickly from one foot to the other ; that a true form of rest for many people is an alternate balancing on the two feet and legs. For the sake of balance alone, we should practise the inclined plank exercises and a number of other exercises with fixed apparatus if they interest us, and of course games, athletics, swimming, skating, and so forth. Such exercises seem to

show the absurdity of the orthodox drill-position, when the weight is evenly balanced between the feet which have their heels together and their toes out. No Greek statues, no English athletes, pose thus ; we believe no healthy men and women naturally pose thus. Such a pose suggests straightness, but not poise. Poise and power to restore straightness are more important than straightness itself.

It is partly this type of command, to stand straight in this unnatural attitude, and to do exercises of the same class, that makes physical drill so dull to many, whereas games, and dancing, and even skipping, are attractive to most people ; even the plank and some gymnastic apparatus-work are not so dull.

We are not against the orthodox Courses altogether ; only they should not be quite so self-satisfied. There is a great deal in the Swedish and British systems which serves its purpose admirably. Let these exercises be used ; let firm centres be given by them and by such Courses as we offer in the PHYSICAL EDUCATOR ; but let us not regard such training as sufficient for the extremities.

The extremities, let us repeat, we should be able to extend or flex or relax at will ; they should be free, yet under control ; they should be clean ; they should be beautiful in themselves without clothing. Let us realise the many uses of the extremities—including their power to influence the mind through their expressions—and take advantage of these. Let us respect the extremities, and especially the feet, and keep them in good condition, as we should keep any useful servants.

As it is, when a person feels tired, he rings a bell or blows down a tube, and there is someone to bring

tea or a pick-me-up. He has another plan before him which would be training for his extremities. He might, *if he were alone*, stretch out his hands and arms above his head, yawn with mouth closed ; then relax ; then shake out his hands, and relax again. He might kick and go through our leg-series (in the Course for Busy People). He could rise on his toes, go for a short walk ; then wash his hands and face, and his feet. All this, if he can get privacy ; and part of it if he is tied down to publicity. But surely this training would be a better plan than the lazy way of asking an expensive stimulant to help you to do what you ought to do for yourself.

The face as an extremity we shall not treat here, as our chapter is already very long ; we leave that to a special chapter on expression, contenting ourselves here with one final exercise for the extremities, and for the highest extremity of the body—the head.

Do not frown. Relax your face and your eyes. Keep your chin in and the small of your back reasonably hollow. Now raise one of your hands, while the other hangs limp by your side. With the finger-tips of your raised hand, the shoulder being kept well back, gently rub the top of your head, especially near the back, where it may have a tendency to baldness. While you are doing this, walk backwards and forwards, rather on the insides of the balls of your feet ; and occasionally stop, crouch, and rise on your toes. Of course this is an exercise for strict privacy only ! Don't hurry, but rub gently and leisurely. Perhaps a little pure oil will be a good thing for the hair ; it may be petroleum or paraffin. Or possibly some acid or salt-water or potato-water may suit your case better. After doing this (five minutes is not too long if you rest one hand while you use

the other), comb your hair; then wash your hands, and brush your hair.

Notice the effects of a few weeks of practice on the thickness and cleanness of your hair. It will also make your finger-tips stronger, without destroying their sensitiveness. It will give you more independent control of your two sides. It will give you a better carriage, and will bring your organs into a healthier

position. For at present some of your vital organs, especially your stomach, will probably be too low by an inch or more. It may relieve indigestion and constipation in certain cases. It will undoubtedly develop the upper breathing. The foot-exercise will train you in poise and control. And the use of oil will force you to wash your hands afterwards.



FIG. 12.

AN EXERCISE IN POSE
AND BALANCE



FIG. 13.

TO REMEDY THIS SORT
OF THING.



FIG. I.—THE GUILD OF CHILD-PLAY AT THE UNIVERSITY SETTLEMENT, BERMONDSEY.
(By permission of the Secretary.)

CHAPTER LV.

A COURSE FOR LITTLE CHILDREN: WITH LIEUTENANT FLYNN'S GYMNASTIC EXERCISES.

(Most of the illustrations, as in the Remedial Course, are from photographs by Mr. C. I. MANN, Ealing.)

Mistakes in the Training of Children are now clearly Recognised—Reports of Committees—A Sensible Course is Still Needed—Managers of Children are Responsible for Other Lives Besides their Own—Importance of Personal Example—Character Infectious—Children have Brains—A Comparison—Need to Associate Duty and Pleasure—Some Duty is Discipline Also—Heart and Arteries—Short Sharp Spells—Undesirable Strain—Fatigue most Fatal to the Young—Correct Instincts must be Built Now—The Left Side—Reasons must be Explained—Comparisons—Gardening—Games—The Work of Elders—“Elephants”—Imitations Generally—Swimming Exercises—Instructions for the Apparatus-Course—Intervals for Better Breathing—Repose of the Parts not to be Used—Intervals for Explanations—Dr. W. G. Anderson—Commonest Acts most Important—Good External Conditions—Self-massage—“Hundred-up”—Startings—Balancings—Ball-play—Games—Concentration, but not too Prolonged—Not by Means of Hand-grips—Regularity of Occasions—Quotations from Sir James Crichton Browne—Calisthenic Exercises with Rings and Other Gymnastic Drill for Classes.

AT the time of writing, a discussion is being carried on in a morning paper, on the subject of spoilt children. The report of the Physical Deterioration Committee has just been published also. There seems a general agreement that gigantic mistakes are being made in the food that is given to children, and in the way in which it is prepared. About the same time there is issued the new Syllabus of

Physical Exercises, which we have already criticised. That draws attention to another aspect, the fault of sedentariness and wrong positions and so on, though the already-working “Model” Course is already dealing with these mischiefs. The crying need, however, still is for a sensible Course for most children, a Course including advice on things that they can manage for themselves. The

Editor has tried to deal with the subject in a special book, from which he selects a few items, adding here other items which he thought it better to omit from that book.

The first fact which we have to realise is that children are not their own masters. All managers are living the lives of at least two people—their own and those of the children under their care. All managers teach by what they are, as well as by what they say or do. All managers are things to be imitated, and—children being what they are—things always imitated more or less. As a yawn is infectious among elders, so everything, every habit and trick, is infectious among youngers. Character is the most infectious of all blessings or diseases. Therefore elders must take care of their own lives, as well as of what they arrange for children. Since—or some would rather say if—there is justice in the world, then whether the sins of the fathers be visited upon the children or not, at least, as the original words may imply, the sins which the managers have committed against children (by mismanagement) will be paid for by the managers some time or other. The managers are responsible not for themselves alone, but for the mistakes which the children under their care make in early life. Jerry-building is such a mistake or sin, the jerry-building of children.

The second fact is that children have brains, not like the brains of elders, but

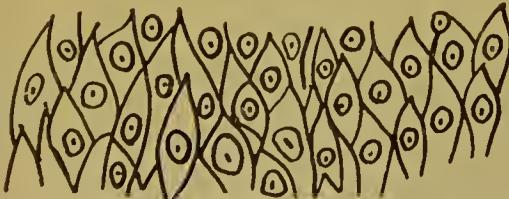


FIG. 2.—CHILDREN'S BRAIN CELLS IN THEIR EARLIEST AND SIMPLEST STAGES BEFORE BIRTH. THEY HAVE NOT DEVELOPED OR CONNECTED THEMSELVES BY "PROCESSES" NOR FORMED THEMSELVES INTO GROUPS.

44

nevertheless, brains. These brains have been compared to oranges. Cut through an orange, and you find the arrangement uniform, as in the little diagram: the cells are not connected (see Fig. 2). Later on we find the brain a very complex thing, as in Fig. 3. As Dr. Clouston (from whose excellent essay in the Penny Health Series we have copied these drawings)

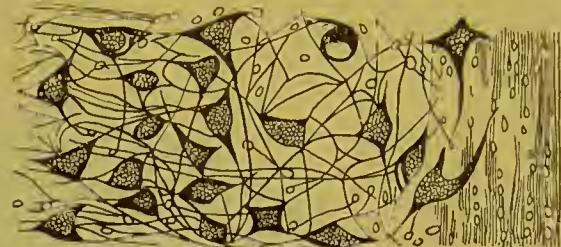


FIG. 3.—BRAIN CELLS WITH THE CONVOLUTIONS AT FULL MATURITY, SHOWING THEIR FORMS, PROCESSES, CONNECTIONS, AND THEIR NETWORK OF FIBRES.

aptly says, "It is more complex than the mind of man can well conceive." It is like London with all its streets, houses, telephone and telegraph wires, and so on, but far more elaborate. The cells are now grouped together and connected together with fibres.

Individual cells and groups of cells are connected (Fig. 4), and, for all we know, there may be connections not merely by

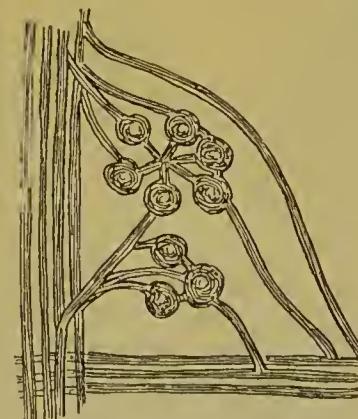


FIG. 4.—COPIED FROM DR. CLOUSTON'S DIAGRAMMATIC REPRESENTATION OF HOW BRAIN CELLS IN EACH GROUP ARE SPECIALLY CONNECTED WITH EVERY OTHER CELL IN IT, AND THEN THE WHOLE GROUP WITH THE GENERAL NERVOUS SYSTEM THROUGH THE FIBRES THAT PASS IN DIFFERENT DIRECTIONS.

fibres, etc., visible under the microscope, but by wireless telegraphy. While the child is young, these cells are being built, grouped, and connected.

It is vital that the child should be taught certain duties; it is equally vital that these duties should be made pleasures as well. *We must associate together the duty and the idea of enjoyment;* we must make the duty attractive, and so an actual instinct and bias. A sin as bad as the jerry-building of children and closely akin to it is the sin of connecting duty and dulness, if not pain, in the

minds of children. For what happens afterwards? A duty has to be done. It is associated with dulness or pain. The tendency is for the free person, no longer a bullied child, to shun the duty. Why does the child shun the fire for its fingers? Because the fire for its fingers is associated with pain.

There must be some discipline of a not too pleasant kind in view of later life; but let it be reduced to the smallest possible amount at the beginning, while the will is weak. Train the will first by healthy and interesting things.

A third fact is about the heart and arteries. We elders can stand more strain, because of the relative size of our heart and arteries. The relative size of the heart and arteries of children, as we have already said, points to the right kind of training for them, whether physical, mental, or moral: it points to short and brisk as well as pleasant spells, not long straining stretches of effort, leading to fatigue. It is partly for this reason that, at least for indiscriminate use with tiny children we should not advocate the common use of straining exercises like those of Fig. 5, which are copied from an article in a leading magazine.

The fourth fact is about fatigue. Pro-

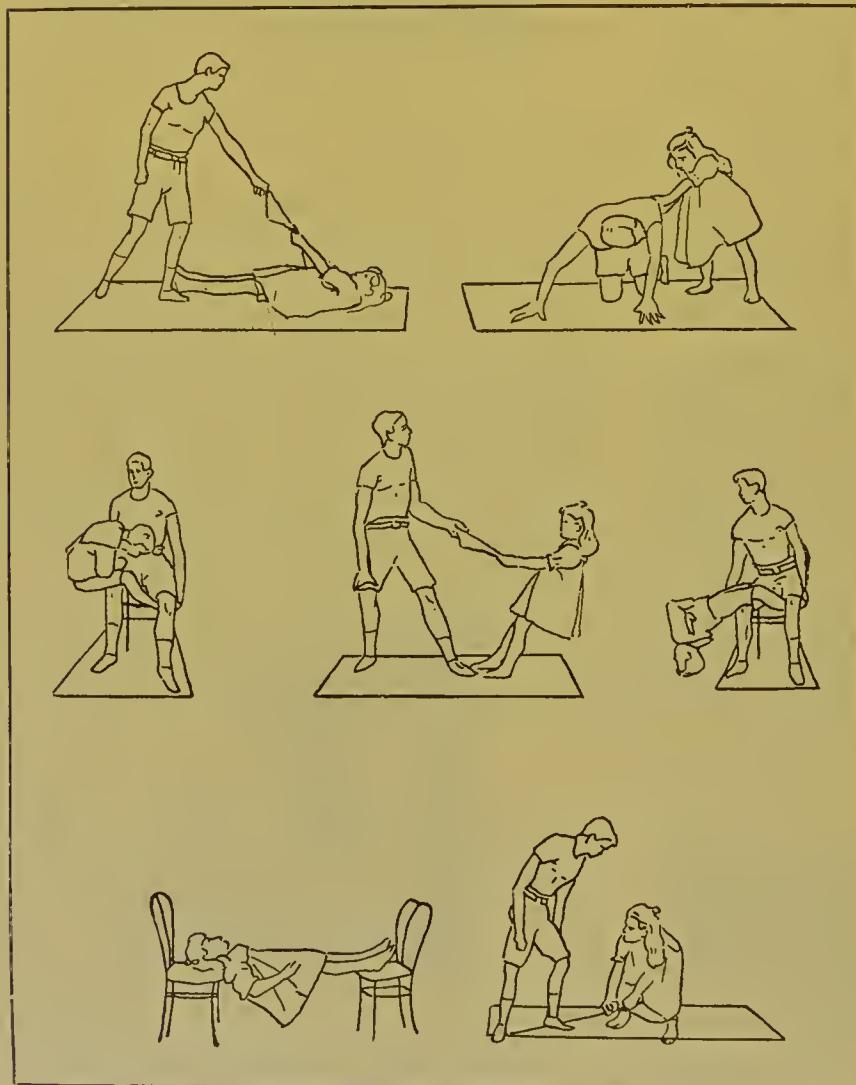


FIG. 5.—EXERCISES NOT TO BE RECOMMENDED FOR INDISCRIMINATE USE WITH TINY CHILDREN.

fessor Mosso proves conclusively that dreary exercise by a tired muscle is far more exhausting than exercise done by a fresh muscle or by a muscle freshened by an interval of rest. We refer back to the special chapter on the subject. In the case of children, work by a fatigued body or mind is more fatal, because in children far more energy is needed for the growth as well as the repair of the body. The same chapter hints at several

pure milk, and, though not at the very beginning, good grain-foods, fresh fruits, and so on, together with leisurely eating. Then there should be good air and good light, and, once again, plenty of interest.

A fifth fact is about the left side. A child's left side should be well trained, to give the child more self-respect, self-respect for more parts of itself, as well as to relieve the right side, to prevent or cure deformities of lungs, spine, and so



FIG. 6.—THE MORE OUTDOOR WORK WITH NATURE THE BETTER.

(Bee-tending at Clapham High-School for Girls. *Photograph by permission of the Head-Mistress.*)

preventives, one of them being rhythm, which we all know as a help to prolonged work of muscle or mind; another help is the use of the large muscles rather than the tiny ones.

But an even more important help is attention to the conditions of body-building now, and the establishment of correct instincts. There must be attention to excretion and cleanliness (within as well as without), to food, nourishing, yet as free as may be from stimulants and irritants. There should be plenty of

on, and to encourage the speech-faculty, and to help with a view to future occupations. But we must refer back once again to a previous chapter, where we gave some of the reasons.

Our sixth fact is that the child is not too young to understand some reasons. The child can understand why the left side—and especially the left hand—should be trained; why the eating should be leisurely (because of the teeth, etc.); why the breathing should be full and leisurely (see the special chapters); why

there should be repose and muscular economy ; why these and other practices—such as blowing the nose and brushing the teeth in the early morning—should become habits as soon as possible. The child is not too young to learn and realise some of its responsibilities.

The teaching need not be so direct as this : it should be largely by comparisons. In the child's mind should be planted a wealth of materials for comparisons : through country life, and especially gardening, which give lessons not only of responsibility, but also of natural processes for gradual growth from seed to fruit. Among other materials for comparisons should be games (see Fig. 1), from which a child can be taught skill, pluck, fair-play, co-operation, etc.

A seventh fact is that children are animals, and have an instinct for play. Play to-day in cities must be organised, for the most part. Elders should sometimes join in, not always as drill sergeants, but sometimes as players, playing, for instance, ball-games left-handed. Grand work is being done already by such patriots as Mr. J. G. Legge, of Scotland Yard, and thousands of other workers in societies or as individuals. Once more

we must refer to what we say about games for boys and for girls.

Here is an illustration of a game which a child instinctively played by itself. It might be called the game of Elephant.



FIG. 8.—A GAME OF "ELEPHANT."

Look at the physique which this sort of movement helped to develop—look at the fine muscles of the trunk and feet and legs of the child (who, by the way, is a living testimonial to a sensible diet without flesh-foods). There is a tendency in the best Systems to-day, including the Ling, to allow and encourage this game-spirit with children. Miss Miles almost invariably finds it effective to turn any dull duty into an interesting duty and pleasure ; the little child is to be Mr. or Mrs. So-and-so (whatever elder will serve as a model), or to be a soldier or a sailor, or an animal or a windmill, or what not.

As an example, think of the ordinary drill ; then think of an exercise in swimming (see the Course for the very busy), which should be practised

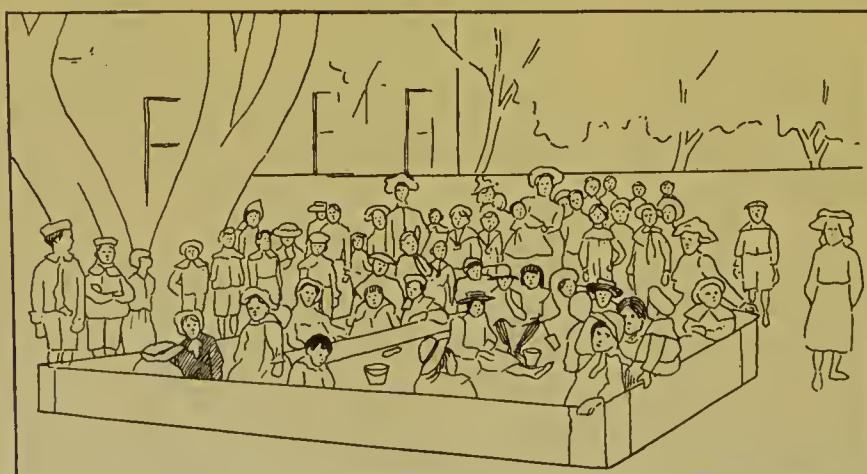


FIG. 7.—A SAND PLAYGROUND FOR CHILDREN IN A BOSTON PARK.

(Copied from "*The Home Journal*.")



FIG. 9.—WHAT THE PLAY-SPIRIT, WELL DIRECTED, CAN DO FOR A CHILD.

arranged for children, by Lieutenant Flynn. The teacher should first do them with the children ; afterwards the children could do them by themselves. First there are ring-exercises which one child can do alone, or which two or more children can do together ; then several exercises with the floor and rope, and jumping, which could be done by one, two, or a class. Correctness first and gradual increase in severity afterwards—that is the rule, as illustrated by the floor-exercise, in which the knees at first touch the ground.

The Editor would add the importance of *intervals* for better breathing, and for repose or relaxing, which he himself first brought to the notice of Lieutenant Flynn ; but he would like to see repose or relaxing or physical economy—whichever one likes to call it—insisted on during the exercises, for the unused parts ; he would urge the occasional relaxing of the eye, and the regular relaxing of

very gently and with gradual increase of severity, but none the less correctly. The child can imagine itself to be a frog, or, better still, one of the would-be Channel-crossers. Some advantages of such an exercise, apart from the help it would be in the learning of swimming, have been suggested in a previous chapter.

We shall come soon to the gymnastics specially

muscles not required in any given movements.

There should be intervals, also, for the explanation of reasons, and children should be told how to listen without tension, yet without inattention. If the teacher knows enough, the children should be encouraged to ask questions, and, during these intervals, should often be advised about the commonest matters —such as leisurely eating. Dr. W. G. Anderson, of the Yale Gymnasium, devotes part of his drill-times to such verbal explanations and demonstrations. He finds that this results in better work and better health than when he devotes the whole time to drill. He has also experienced the advantage of turning certain exercises into a game or an imitation of a game.

The Editor now comes back to his series of selected facts ; he left off at the seventh. This is the eighth. The commoner the act (or abstinence from act), the easier it is to control, the greater will be its importance, and the more clearly and repeatedly must its importance be impressed on the young. With all sorts of information about hygiene, about good food, good air and light, good clothing, good water, good seats and desks for sitting, good subjects for work and proper length of hours for work, a child should also be convinced of the importance of things it can manage for itself : how to eat food—namely, leisurely ; how to treat clothing ; how to breathe (with closed mouth, etc.) ; and how to produce the voice (by singing, etc.) ; how to use what water there is ; how to sit, stand, and walk ; how to rest at intervals.

Also, how to massage itself : for instance, up from the forehead and over the head, and down to the neck, in case of restlessness or fatigue ; round the

navel, up the right side and down the left, in case of constipation ; and so on.

In addition to the gymnastic exercises and these instructions, which can easily be given at intervals during the gymnastics, besides the swimming exercises, and so forth, there should certainly be other exercises for all children who are not forbidden them by medical men.

George's "Hundred-Up" will teach children to walk and run better than they do, and to it we may add one of the movements in the Course for busy people—for example, the movement in which

each knee is brought up towards the chest in turn, and then each foot is sent out and down straight in front ; the straight leg then may be swung backwards.

Certainly, also, there should be some exercises in startings, as suggested by the Editor in that same Course (see Fig. 10).

Certainly, also, there should be some exercises in balancing, perhaps in walking correctly along various lines marked on the floor. There should be no dangerous exercises in balancing.

Certainly, also, there should be abundant play with a soft ball. Most children could be taught to bowl gently, as at cricket ; later on, to throw, aiming at some mark. Then they should be taught to hit the ball, then to catch the ball. A game like rounders would be good for them. And, of course, they should be taught to run in brief spells.

But we have already alluded to these and many of the other movements and "plays" which are possible and desirable for children ; and, in conclusion, need only urge those who have in their hands the

management of children to search diligently in order to find the very best, remembering that children are not grown-up people, for whom long and dull, though doubtless hygienic, drills might be less inappropriate.

For exercise without concentration is of little value, and a child's concentration was not meant to be kept too long on one thing regarded from one point of view. The child's effort to command or suggest to itself "Do it now" is good occasionally ; habitually it is bad. Concentration does not mean gripping with the hand. That does not concentrate the attention when you are using a trunk-muscle : it dissipates the attention, and may strain the child as well. No, the concentration is best helped by (well-chosen) short and bright movements, with convincing reasons given for them, and with strict moderation kept in view. It needs tact and tactics on the part of the teacher ; but there are plenty who are well able to devise the right helps to concentration, to give the children attention without tension, training without straining, variety without slipshod restlessness.

For our tenth fact is the importance of regularity ; not only of hours according to the clock, but also of occasions. Let certain occasions be incentives, warnings, reminders of certain invaluable practices. The opening of the door to go out into the street, for example, may be made the suggester of deep breathing through the nostrils ; then the entry into the bedroom at night may be made the suggester of a good wash.

It would be easy, and it certainly is tempting, to add dozens more facts about children. So few people consider their special constitutions and conditions that such extra instructions may be needed. But there is no space, and, besides, a



FIG. 10.
A GOOD STARTING EXERCISE.

superabundance of facts, however useful, would confuse the main issue. So, before leaving the reader to the expert instructor's care, we content ourselves with a quotation from Sir James Crichton Browne, whose whole article in the "Book of Health" should be very carefully studied. He says :—

" Every observant man and woman knows that the mind is clearer and stronger in the morning than it is later in the day, and that the nerves are steadier before the meridian than after it. . . School hours fall mostly in the early part of the day, but a little inquiry will reveal that the heaviest part of school-work is not generally performed at that time. If any boy or girl be asked, ' What is the most trying part of your school-work ? ' the invariable answer is, ' Preparation in the evening.' This is a state of matters to be condemned from a medical and from an economical point of view. . . . The most arduous mental work required of a child ought to be imposed on it when its mind and body are in their prime vigour, between 9 a.m. and noon, and certainly nothing but the lightest work should devolve upon it after 5 p.m.

" The senses, the motor powers, the emotions, the intellectual faculties, do not come all at once, nor drop in fortuitously now and again ; they present themselves in a definite succession, and with a strict regard to evolutional precedence, in the infant, the child, and the youth, from the most simple reflex acts to the supreme efforts of will. Each centre emerges from its 'ante-natal gloom' at an appointed time, and each has a certain season prescribed to it in which to perfect its functions. . . The foot- and leg-centres are in advance of those of the hand and arm in their development, and the latter again are in advance of those for the tongue and lips.

Equilibrium is speedily acquired, but years are spent in mastering the niceties of speech.

" These facts strongly inculcate the importance of educating every centre at its nascent period, and the danger of postponing education until the nascent period is over."

CALISTHENIC RING EXERCISES.

BY LIEUT. FLYNN.

THE object of Ring-exercises is to give suppleness and grace without making too heavy demands on the physical endurance of children.

The following exercises will be found specially useful for developing just that poise and balance which are necessary, while at the same time affording sufficient exertion for quite young children of either sex :—

Fig. I. shows the position from which all exercises start. It is usually known as "the position of attention," or simply "position."

Notice the erect yet not stiff carriage of this little girl, the straight back, the well-poised head—the whole figure denoting a refinement and control rarely met with at that age.

Exercise I.

Raise the ring to the front, grasping it with both hands level with the shoulders, the arms being perfectly straight. At the same time step lightly to the front with the right foot, as in Fig. II.

Raise the ring above the head with the right hand, as in Fig. III., and at the same time step behind with the right foot ; keep the left hand on the hip, the back well-arched, the head slightly thrown back, the eyes directed upwards.

Return to the position shown in Fig. II.

Return to the position of attention (Fig. I.).



FIG. II.—RING EXERCISES.

Do this to the opposite side.

Exercise 2.

Step sideways to the right with the right foot, grasping the ring with both hands, and with the body well turned on the hips to the right, somewhat more to the right than is shown in Fig. IV.

From this position swing the rings downwards and upwards to the position shown in Fig. V., at the same time stepping to the front with the right foot. Have the back arched, the head thrown back, and the eyes directed to the ring, which is held horizontally. The hands should be somewhat further back above the head than in the illustration.

Swing down to the position shown in Fig. IV.

Return to the position of attention (Fig. I.).

Do this to the opposite side.

Grasping the ring with both hands, bring it above the head, as in Fig. VI., with the ring vertical; at the same time step backward with the right foot. The arms must be rigidly straight, the back hollow, and the head thrown back.

Exercise 3.

Bring the ring down to the position shown in Fig. VII., at the same time stepping to the front with the right foot. Note the position of the elbows, which are in line with the shoulders, the backs of the hands being turned upwards.

Come back to the position shown in Fig. VI.

Then to the position of attention.

Do this to the opposite side.

Take the position of Fig. IV. Step behind with the right foot, placing the ring vertically on the ground (Fig. VIII.), behind the left heel, with the left arm straight by the left side, and the head and eyes directed to the left.

Return to the position shown in Fig. IV.

Return to the position of attention.

Do this to the opposite side.

The above exercises should be performed at least four times for each side.

APPARATUS WORK.

BY LIEUT. FLYNN.

FIG. 12 shows safe and suitable work for most young children ranging in age from

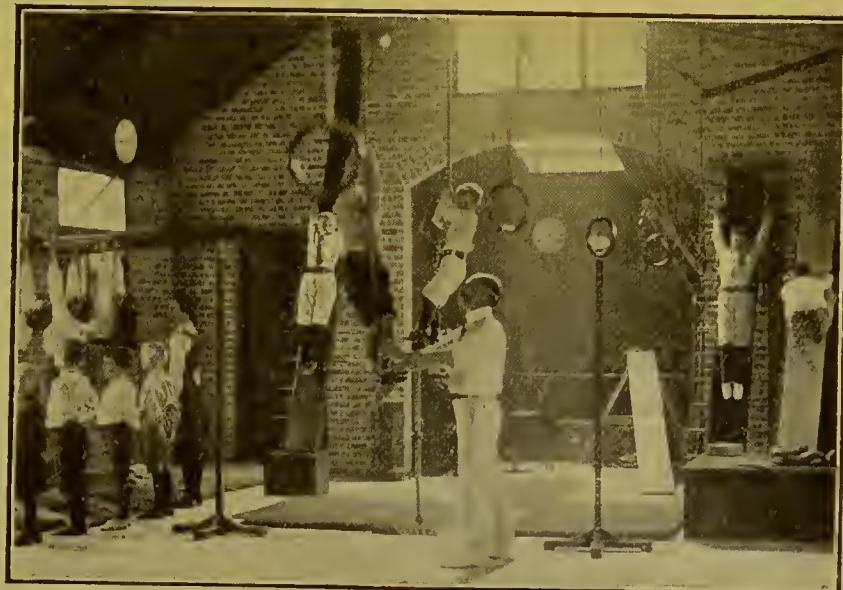


FIG. 12.—A CORNER OF LIRUT. FLYNN'S GYMNASIUM.

six to ten. As will be noticed, a number of children are kept at work at the same time. This plan avoids an unnecessarily long wait between the exercises, which often results in faulty standing positions that do much harm.

Figs. 13 and 14 show two views of the same exercise. This is a very popular item among the children, and consists of a combination of "long" and "high" jumps. The spring-board is placed

gradually further back from the rope, which is close to the edge of the jumping-pit, the jump being made from the



FIG. 13.

spring-board, over the rope, and into the pit.

The advantages of a jumping-pit are great, especially in the "long" jump, as to land in about 2 feet of sawdust (with which the pit is filled) is an

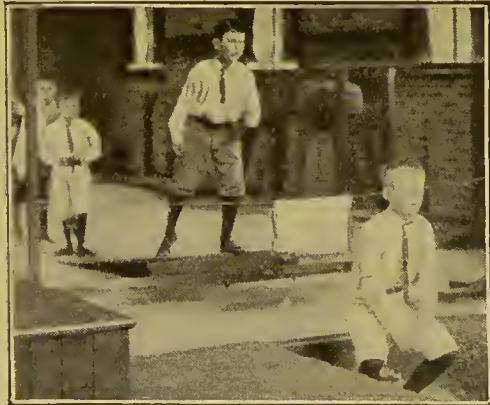


FIG. 14.

altogether different sensation from coming down on a hard mat; in this class of jump it is the heels and not the toes that touch the ground first, and therefore there is more jar to the spine; this is greatly diminished by the sawdust.

Fig. 15 shows a "front-leaning rest" with the knees *on* the ground; the exercise with the knees *off* the ground being



FIG. 15.

too strong a movement for young children. The hands should be the width of the shoulders apart, and the arms straight.



FIG. 16.

From the position shown in Fig. 5, allow the arms to bend (Fig. 16) till the



FIG. 17.

chest nearly touches, and, in the case of weak children, actually touches, the floor. From this position push up to the "straight arm position," and repeat the movement three times.

Fig. 17 shows the class lying with the arms above the head and the feet under



FIG. 18.

the foot-rest. From this position bring the arms over the head up to the position shown in Fig. 18, where the toes are being touched. Take a full deep breath through the nostrils as the hands are raised, exhaling as the hands are brought down as in Fig. 18. The foot-rest is a great



FIG. 19.

help, as it enables young pupils to do the exercise with less strain. This exercise can be done by weakly pupils at first with the arms folded behind the



FIG. 20.

back; then get into the forward position by a slight push from the ground.

From the lying position, raise the legs, as in Fig. 19. To begin with, it will be sufficient to raise one leg at a time. Then raise the legs with the knees bent, and afterwards straighten the legs.

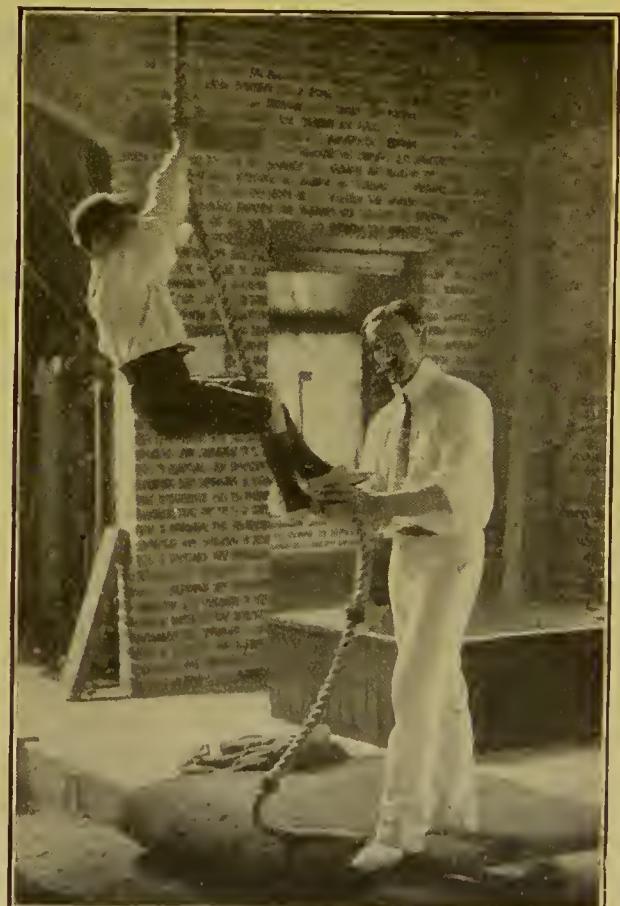


FIG. 21.

Figs. 17, 18, and 19 bring into play the muscles of the waist and abdomen ; and the greatest care should be taken to avoid over-exerting young children.

Fig. 20 shows a "balance movement with mutual support." The children, lightly placing their hands on the shoulders of those on their right and left, bring first the right foot to the front, raising it slightly off the ground ; then they bring it behind them, with the heel well down. The effect of these balance movements on the general carriage and bearing of a

class is most marked. They are of the utmost value for children with weak spines.

Fig. 21 shows a lesson in rope climbing. For the explanation, see the chapter on Gymnastics. A little lad of six years of age easily climbs over 20 feet.

Fig. 22 shows the class "lying at ease," or, in other words, "relaxing," in the way that has been already described in this work. How to relax should, without doubt, form a part of every child's lesson.



FIG. 22.

CHAPTER LVI.

HINTS ON SELF-MASSAGE.

Massage Usually Understood as Massage by Another—This was, and is, Practised in Many Places—Splendid Results—Various Kinds of Massage—Some of the Ways in which Massage Works—Dr. Schreiber—Extraordinary Range of Ailments Remedied—Need of Other Helps as Well—Naturheil Education among Millions in Germany—Needed in England—Advantages of Massage by Another—Requires Great Knowledge and Experience—We only Offer Simple Practices—Adapted to Use as Self-massage—An Example, for Sleeplessness—Dr. Hale—Capital Hints to Masseurs—Suggestion and Self-suggestion—For Athletes—Go to the Very Best Exponent, with a view to Becoming your own Masseur—Massage about the Spine Adapted, by the Editor, as Self-massage—Some Merits of this as Self-massage—A Roller—A Heavy Ball—Massage Round the Navel—Breathing as Self-massage—“Muscular Breathing”—The Editor’s Invention—Sir Lauder Brunton on Liver Massage by Leg Movements, etc.—Trunk Archings—All Movements are Massage—Full Movements are Excellent Massage—Squeezing out the Impurities—A Simple Explanation—Effects of Rest Without Massage—with it—In Cases of Heart Trouble—Attention without Tension—Realisation—Points Easy to Understand—Cleanness—Hints as to Facial Massage—Soap, Oil, etc.—Leisureliness—Not Pain—Warmth—Discrimination—An Expert’s Words—Special Values of Massage—Need of Knowledge owing to Complexity—The Art Cannot be Learnt Simply from Books—Books full of Useless Technical Phrases—General Rules—Remember how Cheap the Simplest Practices are—How to Study Books and Papers—A Sample Extract—Cold Extremities—Indigestion—Varicose Veins—Red Nose—Hair Massage.

WHEN we hear the word “massage” we usually think of one person treating another. Fig. I gives a typical example—massage of the back with movements

away from the spine: in this the patient should have his body relaxed. Massage is among the helps to health known by the millions of people who practise the Nature Cure methods in Germany. And massage of one kind or more has been familiar for a long while in China,

Japan, and India. It was known to the ancient Greeks and Romans. It is practised to-day in the Sandwich Islands, Turkey, America, Germany, Sweden—indeed, in almost all civilised countries.

And no wonder. As Dr. A. Creighton Hale says, in an excellent little volume



FIG. I.—MASSAGE OF THE BACK.

published by the Scientific Press, massage is generally hygienic or healthy, generally therapeutic or curative, and specially therapeutic or local. The first kind keeps a person in good health, keeps his bodily functions in equilibrium by stimulating and reviving all the functions without exaggerating any. The second kind revives and excites the vitality of organs and functions when they may seem to be nearly dead. The third kind treats fractured limbs, dislocated joints, and local disorders.

From his own experience this authority speaks of cures in cases of “impaired circulation, writer’s cramp, contracted muscles and joints, relaxed throats, and the early stage of pulmonary phthisis.” He quotes Dr. Schreiber’s words, that massage “causes an increased flow of blood to the muscles and soft parts, thereby improving the circulation and removing accumulations of waste-tissue whose retention brings various disturbances of functions;

that it strengthens muscle-fibres, and sets up molecular vibrations to induce changes not only of the muscle and nerve-fibres, but perhaps even in the nerve-centres themselves." Dr. Hale goes on to mention cures of "gout, neuralgia, and rheumatism, when the oxidising powers of the blood are increased by passive and active exercise of all the muscles." He mentions that, in cases of diabetes, constipation, cerebral congestion, and so on, the internal organs are relieved of congestion, because more blood flows to the muscles. Then, again, "in paralysis, hysteria, deformities, tenderness of the spine, nerve-prostration, sciatica, lumbago, dyspepsia, etc., massage will directly stimulate the sympathetic nervous system, and so increase secretion, and, reflexly, the activity of unstriped muscle-fibre." "In sprains and fractures," he says, "massage educates the morbidly affected muscles by systematic exercise, and converts abnormal into normal actions." He urges, of course, that it should be combined with electricity and a strict regimen.

Why do not people in England know of any good massage movements for even a few of these disorders, perhaps for headache or sleeplessness alone? They can go to another and be massaged by him, if they can afford it; but what do they know of the movements, or of self-massage?

Massage by another has its advantages,

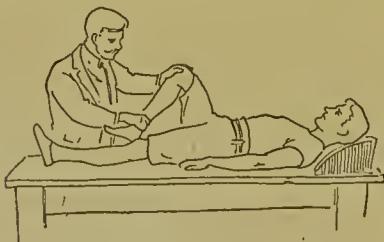


FIG. 2.—PASSIVE MOVEMENTS.

especially for the weak. Take the case in Fig. 2. The passive movements, if we can include them under massage, will

be good in case of a weak heart and general fatigue. Massage is, indeed, able to supply the body with supplementary hearts, quicken its circulation, and so relieve the main heart for the time, removing coggings in the system, enabling fresh blood to flow in.

At once, however, it must occur to the reader that there is need for the masseur to know the localities and directions of the channels of lymph and blood, the capillaries, veins, arteries, organs, nerves, and whether there is need to hasten or to slacken the circulation, to bring the blood to a place or send it away from a place, to stimulate the nerve-centres or to soothe them. Such information cannot be given here. The Editor does not claim specialist knowledge on the subject; he confines himself to what he has found useful, taking massage as usually practised by a masseur, and adapting it, with some loss, to massage by the person for himself or herself.

Massage by another is necessary where the parts are not easily reached by self-massage or ordinary exercise, and where the mere exercise of massage might counteract certain soothing effects. For instance, put your fingers over your eyes; then stroke your forehead upwards over the hair and back to the nape of the neck. In extreme cases of sleeplessness and weakness, the good done by this stroking might be counteracted by the exertion of moving. As a rule, however, this would not be the case, if one practised leisurely and gently.

When we consider a few of the massage treatments for insomnia, we find that most of them are possible for the patient as self-massage. Take the practices that Dr. Hale recommends. He says that everyone wants good sleep, everyone wants to rise refreshed in the morning. "In



FIG. 3.

cases where the spine and head are massaged properly it is really hard to keep awake, even if you try to do so, when you have been treated for twenty minutes scientifically by warm, soft, fleshy, sympathetic hands, full of animal magnetism ; bony damp hands would certainly have the effect of keeping the patient awake."

Then, after telling people to perform the offices of nature, and to make the feet warm by warm flannel, hot-water bottle, or massage, and to have very little light and no talking, he bids the masseur to work quietly, and, we should like to add, rhythmically, and with powdered fingers for the facial massage. First the masseur treats the upper limbs and the spine ; then works gently up from the forehead ; then goes through certain forms of facial massage (a circular movement round the temples is good) ; then strokes up from near the top of the spine, first straight, then in diverging lines ; then tries circular frictions over the head from the neck to the temples ; and so on. Now all these treatments a good many patients can do for themselves. We know several others equally good, which are usually recommended for massage by another, but are possible for self-massage.

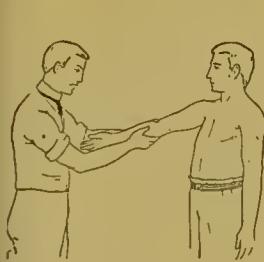


FIG. 4.



FIG. 5.

Of course " Suggestion " by another may be a great help. Dr. Hale tells the masseur thoroughly to impress the patient with the idea that he will be unable to keep awake ; but here, once more, " Self-suggestion " may be of value instead.

We are not claiming that self-massage is equal to massage. In cases of great exhaustion, cramp, and local mischiefs, in cases where the individual has hard hands, and is ignorant of the right ways of massage and too lazy to learn them, massage by another is better.

And it may be better in cases where an athlete does not wish to tire himself before his performance, as in Figs. 4 and 5. He wishes to limber up his joints, as the Americans do, before a sprint or a boxing match, or whatever it is. He prefers to have it done by another, but he could do it for himself.

So, also, such a simple neck-movement as that of Fig. 6 he could do for himself.

In a word, then, we should advise massage by another, as a help to learning the correct way. Go to the very best exponent of the art. But let his teaching lead you to self-massage, and, more important still, let self-massage lead you to freedom from any such practice by restoring you to the normal state.

Here is an example of self-massage of the spine. So far as I know, its application from the massage by another to self-massage is original. All good curative treatments recognise the importance of the spinal treatments. There is a certain acetic-acid treatment which consists of applying vinegar to the spine, where it corresponds to the affected part (say the stomach), and to the affected part as well, over the abdomen ; and this treatment has helped to produce cures. But against it is the unpleasant smell. And probably good massage or self-massage would be effective. An American expert tells me that she always masses the relaxed body of the patient (who leans forward as in Fig. 1, but is more



FIG. 6.

comfortable) up the spine. First she slaps ; then she uses the edges, the little finger edges, of her hands, at right angles to the spine, then the finger-tips, to strike the spine ; lastly, she rubs the spine softly, always up. This is an easy plan to remember. Dr. Hale urges brisk friction up and down the spine, gliding up the spine and

of self-massage, to add to it that special form of delicate fingering which closely resembles tickling, or to add to it the art known as osteopathy ; but we have no space for these details here.

Some spinal treatments you can give yourself by apparatus. The Flexten Roller can be used for a certain massage

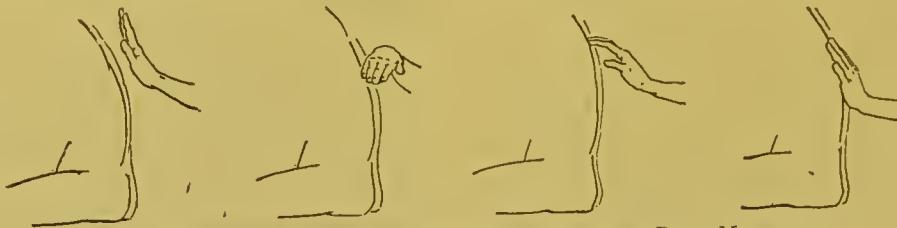


FIG. 7.—VARIOUS METHODS OF USING THE HANDS FOR BACK MASSAGE.

pressing down, running up with fingers on each side of the spine, pinching gently on each side, swooping down the spine ; then smoothing and stroking the back all over.

To apply this to self-massage, as far as it can be applied, you will notice at once that you are performing a healthy exercise in bringing your shoulders back and getting control of your arms. Relax your left hand and as much of your body as you can, bend forwards somewhat, as in Fig. 1, but do not touch anything ; then, working on the rough-and-ready plan to avoid confusion (first slapping, then using the edges, then the finger-tips, then the gentle rubbing), begin with the right hand sent up from the base of the spine as far as it will go ; then relax that right hand and begin with the left hand, ending up over the left shoulder. Next reverse, beginning with the left hand from below and finishing with the right hand sent over the right shoulder. Afterwards add Dr. Hale's treatment.

It would be easy to enlarge on this idea

up and down the spine ; it will bring your shoulders well back. We do not recommend the spring-grip part of it here.

Then there is the use of a heavy ball—say of lead. Lie relaxed on your back, and roll it in circular movements round your navel in ever-increasing circles, eventually moving it up the right side of your colon, across close under your ribs and down the left side.

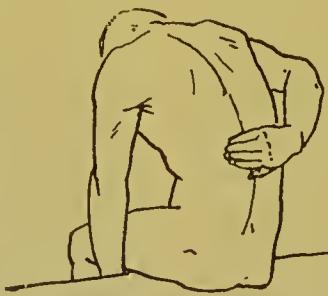


FIG. 8.—SELF-MASSAGE OF THE BACK.

Very few kinds of apparatus are really necessary. What is more important than digestion and breathing ? There are numbers of simple treatments for it. Here is one from Dr. Hale :—" With the fingers of the left hand slightly inclined, you friction smoothly and evenly round the throat, keeping the thumb on the right, while at the same time you bring down your right hand firmly as far as the transverse colon ; glide up. This movement favours the expansion of the lungs and respiration, and is also beneficial to the digestive organs. In cases of acute catarrh of the



FIG. 9.

pharynx or the nose it removes inflammation of the mucous membrane and assists expectoration." You can get somewhere near this movement in self-massage (Fig. 10), though of course you have to sacrifice something.



FIG. 10.

Sometimes you do not even need the use of the hands. In this one, for instance, you may help the movement at the beginning by having one hand or both on the abdomen, first to guide and relieve the internal muscles, as it were, later on to strengthen them against resistance. We have already described it. It is the practice of breathing in the three ways: first down, then out, then up. Breathing is self-massage. When you let your diaphragm down, you squeeze the stomach and liver below it. When you draw it up, you relieve them and squeeze the lungs and the heart.

A certain kind, called "muscular breathing" by some experts, has been found excellent in many cases of indigestion and constipation. First inflate your lungs fully; then, holding your breath in, move your abdominal walls vigorously in and out (Fig. 11), but do not strain. You will feel how that massages the organs.

The Editor has extended this popular remedy to the higher breathing (Fig. 12). Again fill your lungs. Then draw in your abdomen and keep it in; keep the breath in, and send your ribs vigorously in and out in all directions, including the backward direction.



FIG. 11.



FIG. 12.

After this you can fill your lungs again, pat your chest, liver, and stomach, and throw cold water over each part in turn. That serves as a shock. It is not advisable in all cases.

Another form of massage is suggested by Sir Lauder Brunton's remarks about the liver. It also involves no use of the hands as a necessity, though it may be well to keep them on the hips, with the thumbs behind and the fingers forward, to prevent injury. First lift up your right knee towards your chest (Fig. 13). That will help to squeeze your liver as well as your colon. If you are strong, add to this a



FIG. 13.



FIG. 14.



FIG. 15.

bending of the body downwards to the right side (Fig. 14). That will squeeze these organs still further. If you add a similar practice on the left side (Fig. 15), you will massage your left or descending colon and your stomach rather than your liver.

The trunk-circlings (described in the Courses for men and for women) done in both directions, and the golf-swings, described in the same Courses, are forms of internal massage. In fact, if you go through our various Courses, you will find and feel plenty of such massage for the internal organs.

All movements are massage, in a sense. The fullest movements in both directions are the best massage of all. Mr. Macdonald Smith has shown the Editor an

interesting experiment. First he pinches his tongue, or gets some one to pinch it, as tight as possible, and you notice the degree of paleness, which shows how far the small blood-vessels have been emptied of their contents. Then he massages the tongue without touching it, simply by a full movement. The tongue becomes far whiter than before: the massage has been more effective than the most violent squeezing between thumb and fingers. Much of the benefit of the system is due to the massaging by full movements in both directions.

This is partly because it helps the excretion. It empties away some of the waste matters by squeezing, and so enables new blood to flow in. Sir Lauder Brunton gives some good diagrams that describe this process. We have copied them here in Figs. 16 and 17. He says, "I think there is a good deal of misapprehension regarding massage. Its effect on the body is really very simple, and may be fitly compared to the effect which clearing out the ashes has upon the fire. When the coals begin to smoulder in our fireplaces, we stir the ashes out with a poker, and then we sweep away the ashes and cinders into the ash-pan, restoring sometimes a few of the cinders to the fire. In massage

we have also a twofold action: we stir out the waste-products from the muscles, and we sweep them into the general circulation, where parts of them are excreted by the kidneys, and parts of them undergo further combustion. There is a natural provision for removing the muscular waste by a process of muscular action. The fascia or bundle which covers the muscle consists

of two layers, and between them is a lymph space connected with the lymphatics. Each time the muscle contracts it becomes thicker, and pushes the inner layer of the fascia against the outer. The lymph, which contains the products of muscular waste and lies between these layers, is thus driven upwards into the lymphatics, and its return is prevented by the numerous valves with which these muscles are provided. When the muscle relaxes, the two layers tend to be drawn apart, thus causing a sort of vacuum into which the juice containing the products of waste is sucked out of the muscle. Thus it is that muscles in the healthy body will go on acting for hours together without the least sign of fatigue. Moreover, the constant removal of the waste tends to bring about a freer supply of blood with fresh nutriment, just as we almost invariably have to put fresh coal on a fire after we have raked out the ashes. Thus it is that constant exercise of the muscles, instead of making them become smaller, increases their bulk and strength, and the body generally shares in their well-being. The appetite increases, and the spirits become brighter. When we put our patient to bed and insist upon absolute rest, we put a stop to this natural removal of waste, and we must supply its place by some other means. Now the place of exercise is, to a great extent, supplied by massage. The mas-

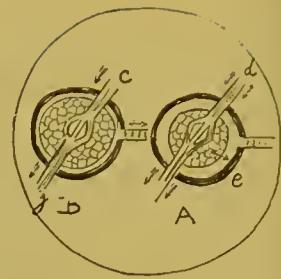


FIG. 17.

"Diagram of transverse section of voluntary muscle to show the pumping action exerted on the muscle, juice, and waste-products during action. To the left (B) the muscle is contracted and presses the two layers of the fascia together, so as to drive the muscle juice out into the lymphatics. To the right (A) the muscle is relaxed and tends to draw the layers of fascia apart and suck the juice out of the muscle into the lymph space. c, Artery. d, Artery. e, Lymphatics. f, Vein. g, Vein. The double arrows (in A) are intended to indicate the increased blood flow through the muscle, and the single arrow within the muscle to indicate the passage of fluid from the muscle into the lymph space between it and the surrounding fascia."



FIG. 16.

"Injected lymph spaces from the fascia lata of the dog, after Ludwig and Schweppe-Seidel, *Lymphgefäß der Fascien und Sehnen*. The injected spaces are black in the figure."

seur or masseuse removes the waste-product from the muscles, and at the same time quickens the flow of blood through them by kneading them, so as to squeeze the lymph into the interspaces between the layers of the fascia. He then presses the lymph into the general circulation by slow, regular strokes upwards along the course of the lymphatics. We all know how fond people are of recommending exercise to their patients or friends. The great disadvantage in many cases is that the patient is practically too weak to take the exercise. Either his muscles and nerves are too weak, or his heart is too weak. Massage gives the patient the advantages of the exercise, without overdoing either his muscles or his nervous system or his heart. In cases of heart-disease, massage removes the feeling of weariness and irritability, fidgetiness and unrest, which the patient gets. It helps to clear away the swelling from the limbs. It helps to empty both the lymphatics and the veins."

Now it is very important to understand one point: this is, that you should fix your mind on the muscles which are being treated. You should not grip. You should practise what Dr. George Wilson would call "attention without tension." Either look at the parts or at their reflection in a mirror, or get a picture of them and the muscles in your mind's eye.

And understand why the massage is good; realise vividly exactly what is happening.

The easiest point to grasp is the cleanliness and the comfort. More blood is coming to the part; more rapid changes are going on; more waste is being removed; perhaps some of the waste on the skin itself is being removed as well.

Another point easy to understand in certain kinds of massage is the removal

of wrinkles. You see a wrinkle on your face—say one on your forehead or down from your nose to the corners of your mouth. You can easily understand how certain forms of massage will help to remove it. There are three ways (Fig. 18). You may rub with your fingers straight across the line of the muscles, or, better still, at right angles to it and away from it in both directions; or you can make circular movements, like pothooks, along the direction of the muscle. Some prefer one way, some another. For the face it may be well first to clean with soft cloths and warm water; then to rub gently with pure green soap with or without cream, or with tincture of green soap; then to dry gently yet thoroughly, and apply powder to the finger-tips; then to proceed with the massage. An article in the *Daily Mail* gave some valuable hints here:—

"The woman whose lines are already set and who wants to change them can do it by the Swedish method of smoothing them out. It is accomplished by means of the finger-tips, and must be done very gently, for the face cannot stand harsh treatment. The Swedish method of face-culture is the one that develops the tired muscles and stimulates them to perform their duty. To get the best results from this treatment wet the finger-tips in salt and water, and go over the lines of the face carefully. Do not treat them roughly, but gently and in a soothing manner, as though one were caressing a tired child. Treat each little wrinkle in this way, wetting the finger-tips repeatedly in order to stimulate the skin and to develop the small muscles. Five minutes of such treatment in the morning is sufficient.

"The nightly treatment for tired muscles and a wrinkled skin is entirely different. Now the face must be treated to a plumping-out process. To do the

work thoroughly, take a little saucer of pure oil of sweet almonds, olive oil, or sweet oil. If good pure oil cannot be easily obtained, then a very good cold cream should be used.

"Heat the face a little before beginning, by applying hot cloths to it. Then dip the finger-tips in the oil and describe massage movements upon the face. Go over and over the lines, not leaving out a single furrow. As soon as the finger-tips are dry, moisten them and begin all over again. A quarter of an hour's steady work will be required."

As to some conditions, it is a question whether oil should be generally used. Undoubtedly, if the skin is tender, oil will help. Undoubtedly, also, the skin should be thoroughly cleaned both before and after any use of oil; and the oil must be of the very purest.

But there is no doubt about another requisite—that is, leisureliness; you must be leisurely not only during the massage, but after it as well.

There should not be pain. True, every now and then pain may be necessary, but as a rule it is the result of hurry and tactless violence. We remember the time when the dentist seemed to think that he was not earning his guineas unless he touched the pulp (which we thought was the nerve) several times each visit. The modern dentist, as a rule, gives the minimum of pain.

The leisureliness and the right conditions almost require muscular relaxing, such as we have outlined again and again, together with rhythmical and rather full but not forced breathing; and Suggestion by another, or, better still, Self-suggestion, may always increase the good effects.

By helping to fix the attention this will send more blood, more vitality, to the special parts. You will get a similar

effect, once again, by remembering the reasons why the massage is good.

If only for the sake of the attention, do not massage yourself too soon after a heavy meal.

And cover yourself in case you feel cold. It is a mistake to coddle the strong, but it would be a mistake to expose the weak to severe chill.

Here, as everywhere in life, you must discriminate. A leading specialist has some excellent words on the need of discrimination, tact, and tenderness. He says, "A bruise is never given by a skilful and properly trained masseuse. Massage must be most cautiously used after sprains, etc., also in treating varicose veins, for fear of causing haemorrhage. It must not be employed at all where the skin is abraded, or for wounds and tumours, etc. Do not at the commencement of the treatment insist on employing movements which seem particularly objectionable to the patient. See that the feet are warm before you leave the patient. Do not masse within two hours after a meal, and let there be an hour's rest after treatment."

He goes on to say, "Massage counteracts the craving for stimulants and sedatives. It is of the greatest benefit to women at critical times, also to the aged, keeping the tissues nourished and the muscles and joints supple. It certainly restores an appearance of comparative youth, and, by increasing the secretions, prevents the joints becoming dry and stiff."

These words will illustrate our difficulty. Massage is said either to stimulate or to soothe. The sluggish need stimulating, the restless need soothing. Though some kinds are effective for general health, and therefore for restoring all upset balances, special kinds are wanted for special purposes. So you need to have abundant

knowledge before you can try an elaborate massage effectively.

A great deal of the art, as Dr. Hale says, cannot possibly be learnt through books. Yet how else can the PHYSICAL EDUCATOR teach it, except by books and illustrations? We offer our hints as very far from complete teaching, but as better than nothing at all, so long as the reader understands that we are not teaching him, but rather suggesting to him a few ways in which he can begin to teach himself.

We should urge him to go, if he can afford it, to an open-minded expert, and to have half a dozen lessons. The Editor

such diverse mischiefs as stiffness, headache, constipation, indigestion, paralysis, depression, restlessness, insomnia, dipsomania, weak heart, lungs, neck, etc., obesity, wrong positions, sedentariness, and laziness.

Remember also that part of the practice is very cheap and simple. Contrast it with that remarkably effective practice, the Weir Mitchell treatment. In this, so we are told, the patient must spend vast sums of money (the cure seems to us terribly expensive); must rest absolutely, doing no work at all, for many weeks; must be dieted in what seems to us a very



FIG. 18a.



FIG. 18b.



FIG. 18c.

THREE WAYS OF MASSAGE FOR A WRINKLE (p. 699).

once had a lesson in stropping a razor; he has kept his razors in good condition ever since. In the same way a lesson or two in massage would keep the whole body in better condition once for all.

There would be no need for the ordinary student to learn a mass of details. Dr. Hale's book will give him long lists of names—about the *cerebellum*, *medulla oblongata*, the various cranial nerves, including the *trachea*, and the *superior maxillary*, the *abducent* and *portio mollis*, and the *glosso-pharyngeal* and the *hypoglossal*. It will tell him about the *foramen magnum*; it will give him the names of any number of muscles and bones, most of which information is rarely alluded to in the practical treatment. Rather omit as many technical terms as you practically can; a very few names will suffice you.

Practise cautiously and study consistently.

Realise the advantages. Remember that cures have been effected in cases of

peculiar fashion; and perhaps will not be permanently cured after all, but will have to go back again and have some more of it. In the case of self-massage, your small initial expense (perhaps your experiments, and the help of a few books we could name, would do away with that initial expense itself) would give you enough practices to make you normal, and therefore independent even of self-massage.

Do not be frightened by the complexity of the art. You will be told that "the masseur must have broad, smooth, supple hands, of a comfortable temperature; must have a certain knowledge of anatomy and physiology, punctuality, patience, and thoroughness, strict cleanliness in every detail, and a silent tongue." You are short of this ideal. But come nearer to it, and, if you cannot learn the whole art, start with a section of it, and use that as a basis for further operations.

Self-massage is not intended to work in opposition to other treatments—

repose, various exercises, sensible diet, fresh air, good light, water-applications, and so on. It is to co-operate with them sensibly and economically, relieving them, and perhaps being effective in respects in which they for you are a failure.

Your study of books and papers should not be in a fussy spirit, nor yet in a credulous spirit. Make notes as you read, selecting the practices that seem to you safe, and not despising them merely because they sound ridiculous. These movements you can easily practise in privacy and with a smile at them and yourself. Here is an instance from the notes that the Editor has thus collected :—

"It is really astonishing what a little judicious rubbing of the right kind in the right place will accomplish. So true is this that a humorous [?] physician has said that a man who understood personal massage might practically become his own doctor. Some practical massage hints for spare moments will, perhaps, be of interest.

"Do you have cold feet and chilblains ? If you can spend a few moments out of doors in the morning, raise one hand to the level of the head, grasp its fingers between the finger and thumb of the other hand, and slowly and firmly squeeze the blood out from finger-tips to wrist. Every morning squeeze your hands, and every night your feet, repeatedly. Your hands and feet will be warm, and you will not have chilblains.

"Probably half the people either have, or claim to have, liver troubles. You can turn a spare five minutes to excellent account by giving your liver a lift. Just place one hand heavily on the right side at the lower border of the ribs, and rub it down slowly four or five inches. Do this a dozen times, and you will empty the overfull liver of its superabundant contents. This relieves the liver, cures

heartburn, and remedies cramps by removing the acidity from the stomach.

"The food of a dyspeptic remains too long in his stomach fermenting and becoming acid, and causing inflammation. Try the plan of helping your stomach get rid of its contents. Place one hand at the extreme edge of the left side, immediately under the ribs, slightly overlapping them. Then work it around to the right by pressing the fingers as hard as you can, and drawing the hands extended in front. Then swing to the right, and then to the left, and repeat the process. Practise this daily before meals, and you will never have cause to complain that reasonable food 'sets like lead' on your stomach.

"Here is a suggestion for full-blooded people: When you are waiting for the fellow who does not keep his appointment, place your hand at the back of your neck, where the hair joins it, and rub downward. You will thus empty the glands, and prevent their swelling and turning into boils. Or, put your fingers on the neck at the angle of the jaw, and draw them smartly downward over the course of the jugular vein. This will remove the used-up blood from the brain, make that organ feel light and clear, and help you to keep cool when you are tempted to say unpleasant words of the fellow who keeps you waiting.

"If you have a tendency to varicose veins, when you sit down elevate your feet. The blood will flow out of the turgid veins, and give you great relief. By friction from the heel upward, you can encourage the return of the blood to the heart, as well as give tone to the feeble veins.

"Some people are unfortunate in a tendency to contract a red nose. This is because the blood enters the nose and does not return from it. All you have to

do to remedy the matter is the regular performance of this little feat: Grasp the tip of the nose between a thumb and finger, and massage upward to the root. This operation empties the nose of used-up blood, and allows fresh blood to flow in. A cold in the head is not half so likely to seize you.

"Another good suggestion, which is not exactly in the line of massage, is to give the eyes a rest. When talking, listening to music, or thinking, close your

eyes. You have to use them, anyway, ten times as much as your grandfather did his.

"Massage of the head will do more to keep the hair healthy and prevent it from falling out than any amount of hair-tonics and other preparations. Give your head a good rubbing with the fingers every night, and do not wear your hat more than you are positively obliged to. If this is done habitually from youth, you will not be likely to be bald."

CHAPTER LVII.

GYMNASTICS.—III. (*concluded*).

BY LIEUTENANT FLYNN.

(Illustrated from photographs by C. I. Mann, Ealing.)

Technical Terms—Style—Commencing Exercises—Finishing Exercises—Rhythm—General Hints on Gymnasium-training—A Few Words to Beginners of Gymnastics—Note on the Horizontal Bar—Rope-Climbing—The Sparred Plank—Horizontal Ladder—Inclined Ladder—Inclined Plank—Travelling Rings—The Pair of Rings.

NOOTE.—*The Editor has included the whole list of technical terms by the writer, though numbers of them are not alluded to at all in the exercises.*

Crop Hang, Side Hang.

It is important to understand these terms, as all exercises are done in either one or other position.

Fig. 1 in the Horizontal Bar series shows a “side hang”—i.e. the gymnast is parallel to the apparatus.

Fig. 2 shows a “crop hang”—i.e. the gymnast is at right angles to the apparatus.

Front, Back.

“Front” means that a gymnast’s face is towards the apparatus. “Back” means that he has his back towards it.

Grasps.

Fig. 1a shows “ordinary grasp”—i.e. the knuckles face the gymnast.

Reversed Grasp is shown in Fig. b. The knuckles are turned away from the face.

Combined Grasp is shown in Fig. c, when one hand has the “ordinary” and the other the “reversed” grasp.

Twisted Grasp, when the wrists are twisted and the grasp is made backwards (Fig. d).

[The Editor would suggest to gymnastic writers in general that they should use some term which has only one meaning. He has found that different people understand three different parts of the hand by the term “knuckles”! Here, as in fencing and boxing, etc., the finger-nails give an unmistakable guide.]

Jumps, Vaults, Mounts.

Flank is when the side of the gymnast

is towards the apparatus. (See the flank vaults on the Horse.)

Front is when the gymnast makes a quarter-turn inwards towards the apparatus. (See the front vault on the Horse.)

Rear is when a quarter-turn outwards is made away from the apparatus. (See the rear vault on the Horse.)

Screw Mount is when a circle of one leg is made with three-quarter turn of body.

Squatting is when both knees are drawn up towards the chest. (See the squat on the Horse.)

Straddle is when both legs are extended wide apart, either sideways or forwards. (See the straddle exercise on the Horse.)

Wolf is when one leg is in the squatting position and the other is straddled sideways. (See the wolf vault on the Horse.)

Feint is when one or both legs are swung round one arm, and are quickly brought back again.

Rests.

Rest is when body is supported on straight arms (see the parallels for exercises). In the *Bent-arm Rest* it is supported with bent arms. In the *Elbow Rest* it is supported on the elbows. In the *Leaning Rest* it is supported on the arms and feet. (See the front and back leaning rest, Parallel Bars.)

Circles.

Knee Circle means a circle from one knee and with the help of the hands. (See the Horizontal Bar exercises, knee circle.)

Seat Circle means a circle from both knees with the help of the hands. (See the Horizontal Bar, seat circle.)

Hock Circle means a circle from one or both knees without the help of the hands.

Hanging-stand means hanging from the arms and resting on the feet.

Leaning Hang means hanging from both arms and legs.

Riding Seat is the same as the position on horseback, but with straight legs.

Thief Jump is a jump from one foot.

Hints on Style.

Generally, the head should be carried erect, with the chin well pressed back. Therefore avoid looking on the ground. And avoid looking at the apparatus.

Keep the legs absolutely straight and the toes pointed. This is not easy, but it is of the utmost importance, not only because it is "good form," but also owing to its beneficial results to the gymnast, as by the effort of doing, or trying to do, an exercise in finished style you bring into play many more muscles than when you do it in a slack manner.

Again, remember that the legs should be together at the knee, the ankle, and at the ball of the foot. This should be specially the case in all "balancing" work.

Commencing Exercises.

In beginning an exercise—say on the parallels—do not casually lounge through them as if you were going through the turnstile at Earl's Court Exhibition, and didn't care much whether you went in or not. Instead of this slack style, walk up to the apparatus, then stand for an instant in what is known as the position of "attention," with head erect and body straight; grasp the apparatus, and go through your exercise.

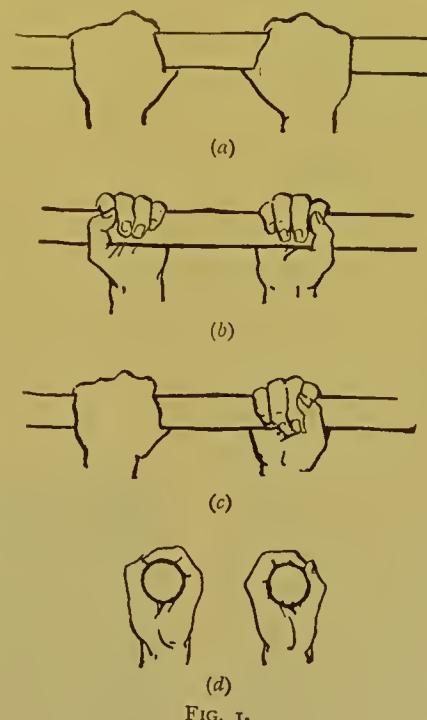


FIG. 1.

Finishing Exercises.

Too much attention cannot be paid to this important point, which is often neglected by beginners to-day.

Bend your legs just as they are about to come to the ground, alighting on the balls of the feet; then straighten your legs, and come to the erect position. Remember to keep your head in a good position, with the eyes off the ground.

In alighting from a height you must bend your knees still further outwards, holding your arms well out from your sides.

Rhythm.

Swinging work should be done with the same even rhythm throughout. Slow work cannot be too slow, but it must be *even* all through from start to finish.

To help a good style there is nothing like plenty of criticism, and the sharper and more pungent his critics, the better the gymnast should get on.

General Hints on Training for Gymnasts.

This varies very much according to the individual. Take a common example. A well-made, fairly heavy man, with "good understandings," will have probably to pay special attention to his abdominal muscles if he wishes to do slow circles; to the muscles of his back for such exercises as "hollow back lifts"; and to his forearms for a "slow uprise." For "rope climbing," his dorsal muscles will want touching up. Readers are referred to previous chapters.

On the other hand, there is the slight, wiry type of man with good development in the "upper storey," and not too much weight in the "ground floor." This type of man requires very little of the "leading up" exercises, and can generally make fair headway right from the start. All he requires in order to become a good gymnast is plenty of practice under a good man—of whom, happily, there are plenty now.

A Few Words to Beginners.

(1) Aim at all-round development. Do not stick all night at one apparatus just because you fancy yourself at it. Have a cut in at something you do not like. It will do you good, physically and mentally.

(2) If you have been trained or are training on the British system, do not condemn as mere "monkey tricks" the systems and styles of exercise of other nationalities before at least you have had the common fairness to test them personally. If your system was not "made in England," do not absolutely condemn the English military *régime*. Remember that the primary object of military instruction was not to tickle the physically jaded appetites of an ignorant and undiscriminating public by displays which owe a large measure of their success to their spectacular effect. It was originally intended to mould often very inferior material into men, in the quickest possible time. Try to find good in ways other than your own, so that in the end you may become as large in mind as in muscle, and be a "good fellow" to your fellow-men.

Do not make your big efforts, those that require your utmost strength and skill, immediately on entering the gymnasium. Wait till your muscles have been braced and warmed up first with light apparatus

or mass work. By so doing you will get much better results.

(3) Never put on damp, sweaty clothing.

(4) If you can stand it, always have a cold shower-bath after exercise.

(5) Do plenty of *open-air* deep breathing.

Additional Note on the Horizontal Bar.

The dimensions should be as follow :— Length, 7 ft. 6 in.; diameter, about $1\frac{3}{4}$ in. The height, for the "high bar," should be such that the gymnast is able to hang at full length without touching the ground. When the bar is about the height of the shoulders, it is called the "low bar." Most large and well-fitted gymnasia now have two bars, the one always at full height and the other with short uprights at the height of the shoulders. This saves trouble in adjusting.

The up-to-date bars are very much thinner now than they were some years back. Consequently, the grip being so much easier, there is better form, and more variety of exercise. The best bars are made of steel and are generally covered with wood or leather. It is of the highest importance that all the fittings should be of the very best. The cheap article we absolutely condemn.

Probably there is no instrument that appeals so much to the advanced pupil as the horizontal bar. On it he can show to best advantage the perfection to which gymnastic training can be brought. It is a most powerful developer of shoulders, neck, and chest, while the abdominal muscles and muscles of the back are most prominently brought into play in many of the slow exercises.

ROPE-CLIMBING.

The "Bars," "Horse," and "Rings" each number many adherents among

gymnasts, and rightly so, for it is only by all-round work that a good development can be secured. But it is scarcely too much to say that for practical utility the rope takes a high place, perhaps the highest, viewed from this standpoint of everyday requirements. One has merely to glance at the papers to learn this. Take the case of a fire. A rope is thrown to some terror-stricken inmate of a third or fourth storey building. He has "*merely to let himself down.*" What would he not give at this moment to be able to execute this life-saving piece of advice, but alas ! he has never learnt the art of rope-climbing. Therefore we say to everyone, "*Whatever else you neglect in a gymnasium, tackle the rope.*"

Fig. 2 shows the starting position, with the arms at the "reach" (*i.e.* the point to which the hand is raised to the full upward extension of the arm), the head slightly thrown back, the eyes directed to the hands.

Fig. 3 shows the right leg raised. The



FIG. 2.



FIG. 3.

rope is inside the knee and outside the foot.

Fig. 4 shows the left foot and leg brought across the rope. This grip with

the feet is of the utmost importance, and beginners as a rule find it difficult to prevent the rope from slipping between their feet. A good plan, therefore, is



FIG. 4.



FIG. 5.

to have a few knots at the lower portion of the rope, as in the Figures. By this means the pupils are at once enabled to climb some little way, whereas on the plain rope in the case of weakly pupils it is only after many struggles that they acquire the necessary strength in the adductor muscles.

A very good exercise and an excellent preliminary is the one in Fig. 4 of the chapter on the British System. This very soon develops the necessary strength.

From the position shown in Fig. 5 push well from the feet and pull in to the rope, hollowing the back as much as possible, and directing the eyes towards the hands. From here, again raise the hands above the head. Then raise the knees up, and again pull in. In descending, bring one hand down under the other, relaxing the grip of the feet and gradually lowering the body.

The above exercise should be practised with the right hand leading, with the left hand leading, and hand over hand.

The Stirrup Loop.

This useful method of climbing is shown in Fig. 6.

The first few feet of the climb is somewhat more difficult than with the last method, as you have to rely chiefly on your hands. When once, however, you have got some little way up, the weight of rope under the feet forming the "stirrup" gives you a very fine footing, so much so that you can let go with your left hand and use it for any purpose you may require, which is the chief advantage of this style.

Fig. 6 shows the first position, the instructor holding the rope so as to form the loop. The pupil places the right foot

the grip of the feet, and come down hand under hand.

The pupil, having mastered rope-climbing with the hands and feet, should next practise climbing with the hands only. The legs should be straight, and the whole body perfectly upright; the toes slightly turned out, the rope lying between the feet.

A still more difficult method of climbing is that shown in Fig. 8, known as the



FIG. 6.



FIG. 7.

in the loop, the rope being kept outside the leg.

Fig. 7 shows the second position, the loop being formed by the pupil placing his left foot beneath the rope, and pressing it well up against the right, which supports the weight of the body. From this position let the pupil again raise the feet and legs, still keeping the same grip, then pull in to the rope, and raise the hands up. In descending, let him relax



FIG. 8.

"sitting position." This should be attempted only by pupils who have had considerable practice in climbing and whose abdominal muscles have been strengthened by less arduous exercises. Most emphatically it should not be given, as it frequently is, to young and overgrown boys. We should remember always that strength to be permanent must be built up gradually.

THE SPARRED PLANK.

This apparatus is one of the very best for the prevention of round shoulders, and the straightening out of the spine. It consists of a deal plank ($1\frac{1}{4}$ in. thick and 18 in. wide), with wooden spars ($1\frac{1}{4}$ in. square), which are screwed across

the back, and project 6 in. on both sides of the plank.

Fig. 9 shows the first position on the plank. The arms should be extended to the full

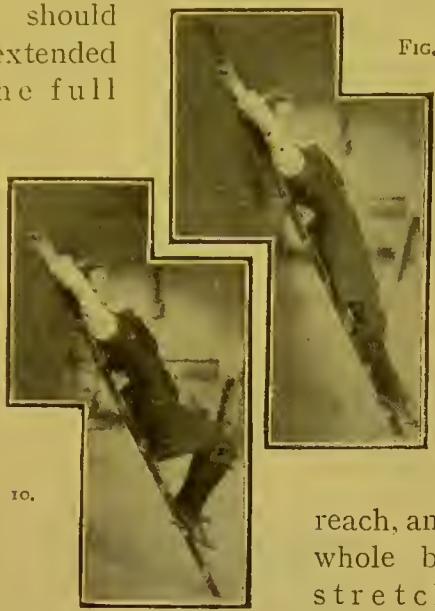


FIG. 9.

FIG. 10.

reach, and the whole body stretched. The head should be flat on the board, not poked forward as it frequently is.

Fig. 10 shows the feet raised on to the next two spars.

Fig. 11 shows the legs straightened up,

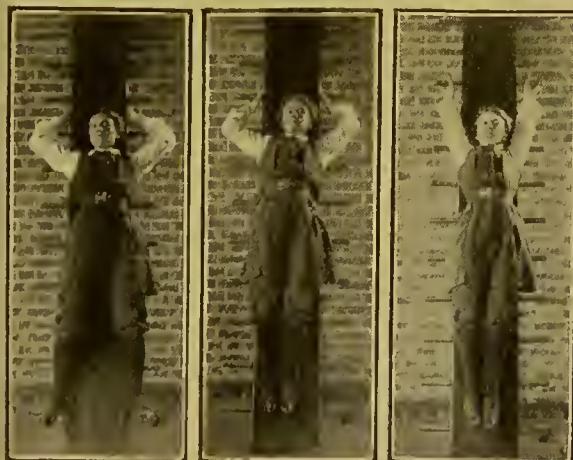


FIG. 11.

FIG. 12.

FIG. 13.

the knees well pressed back, and the hands raised on to the next two rungs.

Continue these movements until the top of the ladder is reached.

Fig. 12 shows the descending movements.

Here the arms are kept in a bent position, supporting the weight of the body, which should lie, as in the Figure, perfectly flat in the centre of the board, the knees, heels, and toes—pointed downwards—close together, and well stretched.

Fig. 13 is a continuation of the descending movement, showing the body at full extension. It is this particular movement which is of such great value in straightening the spine, raising and expanding the chest, and flattening the shoulder-blades.

HORIZONTAL LADDER.

This apparatus should measure about 18 ft. as a minimum, the width should be 14 in., and the spars or rungs $1\frac{1}{8}$ in. in diameter, and $8\frac{1}{2}$ in. apart. Although not as popular an instrument as either the bars or horse, it is, for elementary purposes, of the highest value, as a means of developing the chest, shoulders, and arms. The exercises which we show are all done with straight arms; and this we consider quite sufficiently difficult for women, children, and beginners. More advanced pupils can do the same exercises with bent arms.

Fig. 14 shows an exercise known as “right hand leading,” along the sides of the ladder. The head should be thrown back, the back hollowed, the knees, heels, and toes kept together, and the legs perfectly straight.

An important thing to notice is the grip of the hands. They should be brought well over the sides, the ladder coming in the palm of the hand, not grasped merely with the finger-tips, a common fault of beginners.

The exercise consists in travelling along the ladder, moving the right hand first, and then bringing the left level with the

right. Repeat, the left hand leading; then with the two hands alternately, hand over hand.

Fig. 15 shows the commencing position for a forward movement along the rungs. Grasp the rungs with the backs of the hands towards each other.



FIG. 14.



FIG. 15.

From the position shown in Fig. 2, swing the right arm downwards, past the side, and upwards, grasping the rung as shown in Fig. 16. The main points to note in this exercise are that before let-

as the arm is swung down, you should turn your head to the left, looking towards the rung which you are about to grasp. It is this turn of the head which much facilitates the correct performance of the exercise.

Fig. 17 shows an exercise in the "side hang" on one side of ladder. From this position gradually extend the right arm to the full reach of the arms, as shown in Fig. 18, then bring the left arm up to the right, and repeat the exercises along the ladder.

We now come to the inclined ladder, beginning with the upper side and then proceeding to the lower side.



FIG. 18.



FIG. 16.



FIG. 17.

ting go with the right hand you should turn your head towards this hand, then,

THE INCLINED LADDER.

Exercises on the Upper Side of Ladder.

(1) Ascend and descend forwards, grasping the sides as in Fig. 19.

(2) Ascend and descend forwards, grasp the rungs.

(3) Ascend and descend forwards, using only the right hand, the left hand being kept on the hip.

(4) Hang both hands on the rungs, leaning the feet on the sides. In this position travel up and down, one hand after the other.

(5) The same exercise, with one hand over the other.

(6) "Hop" with the hands, grasping one or two rungs.



FIG. 19.

Exercises on the Under Side of Ladder.

Fig. 2 shows an exercise on the under side of the ladder, the pupil being in the act of descending. The following are useful exercises of gradually increasing difficulty.

(1) Ascend and descend, grasping the sides, and moving the hands alternately, without using the feet.

(2) Ascend as in Fig. 1, and descend on the under side, hand over hand.

(3) Ascend and descend, grasping the rungs.

(4) Ascend with one hand on the side, and the other on the rung ; descend in the same way.

(5) Ascend and descend "hopping"—*i.e.* with both hands moving forward together.



FIG. 20.

THE INCLINED PLANK.

The plank consists of a deal board, 12 in. wide and 2 in. thick, and should be placed securely against the wall at an angle of 45°. It is especially useful

for giving suppleness rather than muscular strength.

Fig. 1 shows an exercise on the inclined plank. Lean forward and raise the right hand, grasping the edge of the plank at the "half-reach"—*i.e.* opposite the face, the left following on the left, the fingers under and the thumbs above. Lift the right foot from the ground, and, bending the leg, place the knee on the plank, inclining the body to the right, and resting on the right foot. Lift the left foot and place it beside the right, resting on the fore-part of feet, with knees bent, back



FIG. 21.

raised, arms straight, head bent back, and eyes directed to the hands. Repeat the above up the plank. To descend, slip the right foot down, followed by the left, resting on the hands; rest on the feet, slip down the right hand, and follow with the left.

[NOTE.—The Editor, who often uses the inclined plank, cannot agree with Lieut. Flynn that it gives "suppleness rather than muscular strength." It gives the former, and it does not develop the biceps and arm strength so noticeably. But true strength is something beyond this. The imitation of the breast-stroke as one lies on the back, and the above exercise—we have many others—do give strength to many of the trunk-muscles.]

TRAVELLING RINGS.

This apparatus consists of a row of single rings, as shown in Fig. 22. They should be suspended about 6 ft. from the ground, and about 7 ft. apart; but distances will vary according to the height of the pupil. As a rule there are five or six rings, but more can be used with advantage. The pupil should stand



FIG. 22.

in a direct line with the rings, grasping the first ring in his right hand (Fig. 22).

The special object is the equalisation in strength and development of the two sides of the upper half of the body, and of the arms. As can be seen, only one side can work at a time, and the amount of exertion being the same for each it therefore follows that the weaker side will actually have more exertion, being the weaker, and



FIG. 23.



FIG. 24.

will in time become equal in development with the one that was at first stronger.

[The unused side should be as completely relaxed as possible, so that little energy may be wasted by needless tension. Gymnastic instructors too often neglect this repose of the parts that we should gain nothing and should lose something by keeping stiff and strained.

—The Editor.]

Fig. 23 shows the second movement. The pupil runs forward and grasps the next ring with the left hand.

From Fig. 23 position, swing with a quarter-right-turn to the position shown in Fig. 24, pulling well up to the "bent-arm."

Release the grasp of right hand, sweeping the arm downwards and forwards, as in Fig. 25, and grasping the next ring of the row.



FIG. 25.

THE PAIR OF RINGS.

This apparatus consists of a pair of iron rings which are usually covered with leather, about 5 in. in diameter, and

suspended on ropes which should be adjustable, so that the rings may be raised or lowered at will. They should be about 18 in. apart. They powerfully affect the trunk, especially the upper portion, and the arms. They can be strongly recommended for those suffering from weak backs and spinal curvature in the elementary stages, and especially those exercises which are done from the hanging position on the hands with a swing, the effect of all hanging exercises being to straighten out the spine.

Fig. 26 shows the starting position and the grasp of the rings.

From the posi-

FIG. 26.



FIG. 27.

tion in Fig. 26, allow the body to come forward gently to the position in Fig. 27. The head should be slightly thrown back, the eyes directed to the hands, the arms straight, the feet and legs together, and the toes pointed. Weakly pupils must be careful to avoid a jerk when coming forward.

From the last position, pull up to Fig. 26, and from there allow the body to lean back as in Fig. 28. Have the back hollow, the legs straight, the eyes directed

towards the rings. From this position again pull up to Fig. 26. Repeat the above movements from three to six times.

Both these exercises are most useful for strengthening the back muscles and spine.

From Fig. 26, allow the



FIG. 28.



FIG. 29.

body to lean over sideways to the left, as in Fig. 29. In order to preserve the

balance, cross the right leg over the left.

Again pull up to Fig. 26.

Do this exercise to the opposite side.

From Fig. 26, lean back and circle round to the left, allowing the body to rotate from the hips, and keeping the legs straight and feet together.

Do this exercise to the right side.

From the rings placed within easy reach, pull up from the straight to the bent-arm-hang, as shown in Fig. 30. Press the elbows firmly in to the sides; this will materially help you in preserving this position. Have the knees, heels, and toes together, the



FIG. 30.

legs straightened well out, and the toes pointed towards the ground.

From the position in Fig. 30, extend the right arm outwards as in Fig. 31. Do the movement with the left arm.

(1) In the "bent-arm-hang" position, raise one or both knees; also one or both heels.

(2) Raise one or both legs.

(3) Raise both legs to "half-lever"—i.e. straight out, at right angles to the upper portion of the body.

Exercises with a Swing.

(1) Swing forwards and backwards, starting with three, two, or one ordinary steps.

(2) Do this pushing off with both feet together.

(3) Swing, and at the end of the front swing straddle the legs.

(4) Do this at the end of back swing.

(5) Swing sideways to and fro.



FIG. 31.

(6) Swing in a circle to the right or to the left.

(7) Swing and raise the right leg on to the right arm.

(8) Do this, but raise the right leg on to the left arm.

Turning of Body in the Swing (the rings to be again within easy reach).

(1) Swing with a half right or left turn in the front swing—the ropes are crossed
(a) before you commence the swing,
(b) at the end of the back swing.

(2) Continued swing with a half right and left turn at the end of the back swing.

Swinging with Arm Movements (rings within easy reach).

(1) Swing and pull up to bent-arm-hang (Fig. 30) at the end of the "back-swing."

(2) Do this, pulling up at end of "front swing."

(3) Swing and pull up, and drop again at the end of the "back swing."

(4) Do this at the end of the "front-swing."

(5) Do this at the end of the "front" and "back" swing.

(6) Continued swing with bent arms.

CHAPTER LVIII.

VARIOUS SYSTEMS ESTIMATED.

What to Demand from Systems—The Better System in Detail—All-round—Flexible Muscles—Breathing—Muscular Economy—Leisureliness—Small Time, Space, etc.—Cheap—Attractive—Encouraging Individuality—Self-correction—Quickness—Judged by Effects—Social Effects—Prospective Effects—Mrs. L. C. H. Wallace's System—Demands almost Complete Choice of Conditions—Definite—Selections from Rules—Begging the Question about Fermentation, Salt, Wool—The Diet—Excellent Cookery-rules—Generally on the Safe Side—Cost of the Foods—Inorganic Minerals—We Want to Hear Pros and Cons—Exercise—Demands Sacrifice of most Present Occupations—Behaviour at a Social Meal—The Happier Mean—Praise for Work Done—Dr. Bryce's System—Exercises with the Steel Exerciser—Breathing—Holding the Extensions—Quietness—Large Muscles—Samples—No Strain—Why Begin Leg-exercises Against Resistance?—Why Both Sides Together?—Why Both Hands Gripped?—Why the Hands All the Time?—Useful Course for Most Women and Elderly and Hasty People—Government Censorship of Advertisements Needed—German Hygienic Exercises—Faults—Not for Independent Control—Not for Liteness—Not for Repose—Omitted Essentials, as usual—Cheap, Brief, Simple, etc.—But not Attractive to Anglo-Saxons—Stereotyped and Against Originality—Emended Instructions—Von Boeckmann's System of Lower Breathing—No Relaxed Breathing—Stern Expression—He Exposes Fallacies—Not in Favour of Strain—Seems to Rely on Breathing as Sole Avenue to Health—"Muscle Antagonizing" System—Does Not Suit All—Bad for Many—Both Sides Always Together—Fault about Relaxing—The Usual Failing—The Pity of It.

In an early chapter we tried to define what we should demand from Systems of exercise. We said that we should demand *the most all-round benefit and the least harm at the smallest expense of money, time, and energy, and with the greatest independence of external conditions, and a fair advertisement to show the interests and advantages, and the limitations.* We shall deal with this better System in more detail before we estimate various Systems which do not seem to us sufficiently original or sufficiently well known among our classes and masses to claim a chapter each for itself.

The System should be all-round, develop-

ing both sides of the body, so that the individual may have independent control of the two sides and their various parts. The extremities must be made free, yet reasonably strong.

The trunk must be made flexible, yet reasonably strong also.

The breathings—there are many kinds—must *all* be developed: lower, middle, upper, and combined breathings, and also the relaxed breathing.

Relaxing and economy or non-use of muscles that are not needed on any given occasion *must* be included; without it there can be no real physical culture: certainly there can be no real gracefulness and poise beyond what the pupils possess naturally and retain *in spite of* the exercises.

Leisurely eating is—for the reasons we have pointed out in another chapter—an integral and inseparable part of all-round physical education.

The System should require only a short



FIG. 1.—THE SECOND EXERCISE GIVES MORE INDEPENDENT CONTROL THAN THE FIRST.

time, only a small space, not much apparatus (or at least not expensive apparatus); it should be cheap; it should be for all—that is to say, it should be safe and advisable for all, or at any rate for the majority, or else its dangers or disadvantages for certain people should be pointed out. Does any orthodox System admit these?

In order to be for all, it must be interesting for all, attractive enough to be continued regularly until it is no longer necessary; that is, until it has established the normal.

It should allow and encourage originality. The individual, by the end of the Course—and, indeed, long before then—should have learnt to combine the exercises in different ways, and to work out others for himself.



FIG. 2.—THE SECOND EXERCISE IS ALSO TRAINING IN REPOSE AND ECONOMY, IF THE LEFT SIDE BE RELAXED.

For it must be a general system; yet, on the other hand, it must show the individual the way of self-correction according to his or her particular needs.

It must be tested by its all-round effects after fair trial; its effects on the appearance: its effects on the body, the intellect, the character, the senses, the nerves, the enjoyment of life.

In physical, intellectual, and moral spheres, the individual must become quick to start rightly, quick to carry through and finish rightly, quick to stop rightly, quick to adapt himself to new

requirements; yet with all there must be repose and endurance.

There must be good effects on the economy of the individual. The Course must help his money-earning, as well as his money-saving capacity.

It must have social effects, tending to friendly intercourse between different people by means of games and athletics and other competitions, and walks and drills and other "co-operations."

It must have prospective effects; it must tend to the all-round improvement of the race.

In this chapter, which will be followed later on by a chapter dealing with one or two other Systems, we shall confine ourselves to a few Systems which are accessible to the public through cheap periodicals or books. Where the inventor or advertiser of a System keeps certain treatments only for those who pay a (usually high) fee, as in the case of one with which we dealt in a previous chapter, we can only consider his ways in so far as they are open to a large public.

For example, practically the whole of the Wallace System is clearly explained in Mrs. Leigh Hunt Wallace's "Herald of Health," a penny monthly; the whole of Dr. Bryce's System in his shilling book called "Ideal Health"; nearly all the German Hygienic Exercises, which belong to many other Courses, in various German books, such as Gerling and Köhler's "Practische Naturheilkunde." Schönenberger and Siegert's "Naturheilkunde," I. Aidall's "German Nature Cure," etc.

Some of Von Boeckmann's (American) System is explained in a twopenny monthly called "Vim," and in a little 25 cent (one shilling) booklet, "Lung and Muscle."

First for Mrs. Wallace's rules, which she formulates for "The Physical Re-

generation Society." She appeals to many people who can regulate for themselves the greater part of their lives—their localities, occupations, meals, and also their will-power—as distinct from those who are under the dominion of a household or school or other group. We quote some extracts here from the rules of the Society, as published in the above-mentioned paper. The rules have the advantage of clearness and definiteness in most respects:—

EXTRACTS FROM MRS. WALLACE'S RULES FOR THE MAINTENANCE OF HEALTH:—

"As followed by Members of the Physical Regeneration Society.

"Dare to be wise."

"*Abstain* from fish, flesh, fowl, and dishes prepared from them; alcohol, tobacco, and all intoxicants; mineral water; fermented foods; mineral salt and salted foods; from preserved foods unless sterilised by cooking only; baking powders, vinegars, and pickles; sour milk and unripe or decomposing fruits; uncooked dry fruits (except absolutely fresh and sound), or wormy fruits, and most manufactured foods—unless it is known that they are unadulterated and innocuously prepared; from artificially isolated food elements, and from artificial food compounds; tea drawn for longer than three minutes, black or boiled coffee, or coffee made from coffee beans that are not *under*—or *pale* roasted, or chicory used as an adulterant; unboiled milk or unboiled water. Do not eat fruit-skins unless they are washed or scalded, as worms' eggs are frequently lodged on them, neither allow fruit peelings or fly-blown banana skins to remain on the plate you are eating off, as microscopic maggots and maggots' eggs are likely to adhere to your bread and butter, or other food.

"*Abstain* from drugs of every description, whether in the form of sleeping or other draughts; pills, castor-oil, cod-liver oil, pick-me-ups, tonics, jujubes, lozenges, etc., or for outward applications, as lard, ointments, vaseline, acetic acid, blisters, powders, hypodermic or medicinal injections; hair dyes, lotions, etc.; or, as inhalations—smelling salts, iodine, sulphur, or other corrosive vapours; or pastilles, or medicated waters for bathing, etc.

"*Never eat when over-fatigued*, but rest till actual exhaustion is relieved and a sense of hunger is expressed.

"*Eat slowly and chew well*, reducing all food to a liquid. . . .

"*Observe regularity* in eating, drinking, and sleeping.

"*Keep all food covered* from air germs and dust, moths and other insects, also from being fly-blown, or contaminated by vermin; never buy food that has been exposed for sale.

"*Eat the foods that are in season.* . . .

"*Clothe* in undyed all-wool, all over porous material, whether for underclothing or linings; do not wear garters, waist-bands, or corsets; do not wear starched clothing; have waistcoat linings of wool. . . .

"*Systematically exercise* every muscle of the body daily; walk several miles daily. . . .

"*Live in the open sunny air* as much as possible.

"*Avoid* the lung-poison air of crowds in confined spaces.

"*Employ yourselves* from six to eight hours daily in some useful and non-injurious occupation."

A justification of most of these rules is scarcely needed, though occasionally the question is begged rather than the theory proved. For instance, there is a theory about fermentation. In it is an important principle. Mr. Wallace's experiments are interesting. It seems generally agreed that a duty of the white corpuscles in the system is to counteract and remove disease in some way or other. Now suppose a person had little or no disease in him. Naturally, fewer white corpuscles (scavengers, etc.) would be needed, fewer would be present, and it might easily be concluded that, because a man had only a few white corpuscles, therefore this was a cause rather than an accompaniment or a result of purer blood. While we grant that the pure-blooded person might need very few white corpuscles, it does not in the least follow that these little animals are not needed in large quantities by the impure-blooded. In the same way, when we consider Mr. Horace

Fletcher's theory that we do not need to swallow fibre or cellulose in our food, we grant that *he* may not need to swallow it, since he has very little waste-matter to be carried out by the help of the fibre ; the less waste-matter he has, the less fibre he needs ; but those who are full of waste-matter may find the fibre valuable, as helping them to move on and get rid of their undesirable stuff. It is necessary to weigh the pros as well as the cons in this waste-question ; for instance, as a temporary remedy, we have known cases where one or two pills of fresh yeast have done away with constipation of the most obstinate kind. We must be as careful before we recommend it indiscriminately as we are before we condemn it indiscriminately.

Similarly in the case of salt ; it may have its remedial uses when it is dissolved in water and when bicarbonate of soda is added to it. Its use may be to counteract over-acidity and to get rid of certain harmful poisons. With the ideal life probably such a cure would not be required ; as a temporary remedy it may be extremely useful ; to deny that it has ever helped anyone, and to make out a whole case against salt and no case for it, is to ignore experience. Merely because it is inorganic, merely because it has not come to us through the plant-world, we must not conclude that it is utterly useless as a neutraliser and purifier. We shall return to this question directly.

Then, again, there is the statement about wool next to the skin. While, as we have said, it may minimise the danger of chills, yet it may irritate some skins, and it may fail to absorb much impurity. There are some skins which would be better suited by cotton or linen or linen-mesh underwear.

Nor is the diet that is advised a diet which attends to what all our scientists

are agreed upon—the prime importance of the body-building proteid. One might avoid all the things forbidden, one might eat some of the things commended, yet not get enough of this element.

But certainly in one respect Mrs. Wallace's *régime* is excellent ; in the cookery there is to be no needless waste. The method of cookery is the strongest feature in Mrs. Wallace's System. She deserves the very highest praise for her work here. The greatest attention is paid not only to economy, but also to purity ; anything which is considered harmful is to be left out.

Generally, we may say that the rules are on the "safe" side with respect to avoidance, except for such things as coffee, beans, peas, lentils, which, however they are prepared, are not satisfactory for all ; nor is oatmeal. In some cases they suit admirably ; in other cases they prove disastrous to fitness. If the Society professes to have a full list of undesirable things, it must include coffee, even made in the way that Mrs. Wallace recommends ; we have known cases where, even when prepared in this way, it produced sleeplessness.

An objection, however, is the expensiveness of the foods which are sold by the Wallace bakeries. Take bread, for example. The Editor can make a $1\frac{1}{2}$ lb. loaf of wholemeal bread, with pure oil and a little milk in it, a bread that tastes delicious and is generally found digestible and otherwise useful, for about twopence. Mrs. Wallace's air-raised loaf, containing eggs, does not last so well, and costs fourpence for 1 lb. weight. And the wholemeal biscuits and other articles of food, pure and good as they are, yet seem to us not nearly cheap enough to be *popular* foods.

In the System, which has done an immense amount of good to those who

were utterly ignorant, making all kinds of mistakes, yet willing or desirous to be guided, there is too much dogmatism.

To come back to the question of salt dissolved in water, Mrs. Wallace has distinguished it from fruit in its effects. Now, up to a certain point, we cannot deny that salt is unlikely to build the body, and that fruit and other plant-foods (according to Gustav von Bunge) are likely to build the body; but, directly we get beyond a certain point, we find that fruit, whether we consider its "salts" or its fibre, does *not* build the body: it is a remedy, and cannot be compared with bricks and mortar and wood; its object is to counteract or get rid of certain poisons in the system. Surely that is precisely what salt and water may do, and may sometimes do more quickly.

Suppose the Editor knows, as he does, cases in which various disorders have been removed by a glass of water with salt and bicarbonate of soda dissolved in it. Both these are inorganic minerals. But the question is not whether they are inorganic. It is whether they may soon produce a regular state of fitness in which such cures are unnecessary. That is what they did in cases which have come under our notice; and, in view of this, we simply cannot tolerate the absolute silence of the paper with regard to any such cases; it is not at all in our line. We must have the pros of salt, as well as the cons. Does the paper invite experiences of people helped by salt and water? No. Has it ever published such instances? We have not seen them. Are such instances known? We believe that among the readers of the PHYSICAL EDUCATOR there must be many known; and we should be glad to hear of them.

The advice about exercise, which is the point that chiefly concerns readers of these pages, is in many ways good, but

is vague. There is recommended the long walk, but, like many other recommendations, it simply *is not feasible if the person is to continue an ordinary life.*

Take a clerk in the City, a clerk who has not a sensible and a humane manager. If he obeyed all the rules of the Society, he might be far fitter physically—and therefore, perhaps, financially, too. But he has an occupation—maybe a wife and family as well—and he dares not give them up. So long as he continues his present livelihood or deadlihood, he must put up with the conditions of bad air, bad light, very little time for walking, very faulty food. Now let him accustom himself to eat or drink none of the things forbidden. What happens when he goes out to a meal? He refuses the meat-soup; he refuses the white bread, because it is not a natural food and contains yeast; he refuses the butter, because it has a little salt in it; he is offered vegetables, but they are drained of their juices, and perhaps have salt and pepper added to them; he refuses the cheese, because it is in a decomposing state; the pudding has white flour and sugar in it, and sugar does not suit him.* He eats nothing; he is a sort of silent preacher at the feast—a guest far worse than a skeleton. Suppose he tries something with salt in it; suppose he has not touched salt for six months; then the chances are that, after it, he will feel seedy; the Editor has known cases of people who have been obliged to retire from an irresistible feeling of nausea.

This is simply slavery. Either he has to give up the Wallace ideal, or he has to give up his work and social life; or else

* It is amusing to go through a list of the foods provided in most places (or even recommended by Mrs. Wallace), and to see how many are left when we have cut out all "artificially isolated food-elements" (such as butter).

he has to modify the Wallace ideal. And then he does not belong to the Society. He probably compromises by taking salt in certain foods. Perhaps he does not take flesh-foods, but he does take cheese and other condemned articles. His blood may not be absolutely pure, but at least he moves among his friends—and these friends include some of the best people living ; he moves among them not as an abstainer from everything, but as, to some extent, one of themselves. He finds the compromise worth while for the present.

But let us do the Society justice. We learn all our lessons in life only by extremes ; afterwards we see the happier (if not more—theoretically—hygienic) means. If, in each number of the paper, Mrs. Wallace insisted that a few steps were better than none, that a following in all the steps together would mean an entire severance from certain branches of life, then she would have fewer leading people refusing her ways. At present, she has many enthusiastic and grateful followers who can, and do, carry out her rules. She has many equally enthusiastic and grateful followers who carry out some of her rules. Read with tact and discrimination, the laws of the Society will help almost everyone. But, taken as a perfect way of life in a city, they will not be adopted by ordinary people.

We turn now to Dr. Alexander Bryce's System, which is, we believe, feasible for everyone. We shall not touch on his advice about clothing, water, sleep, and food—his views about food have changed in our own direction lately, with very great advantage, we believe, to Dr. Bryce and his patients. It is his exercises that we want to consider here.

He speaks of the special effects of exercises as remedies, and he gives a Course

for a particular exerciser. The movements are, for the most part, those which belong to other exercisers. They deal with muscles which most people neglect. But, in the case of Dr. Bryce, there are several features which must be praised.

First of all, he gives good instructions about breathing. He says of the exercises with the expander, "Breathe in slowly through the nostrils whilst you are putting the exerciser on the stretch. When you have filled the chest apparently to its greatest capacity, then try to inhale just a little more air, and at the same time thrust the hands a little further from each other. Keep the air in the chest for a few seconds, then slowly breathe it out as you return your hands to their original position."

Here, besides the breathing, we notice that he encourages people to hold the extensions, not to rush straight from them to some other movement. As we have pointed out, it is a weak feature in the Macdonald Smith System that the extensions are made, then suddenly left ; they are not held ; the pupil does not become familiar with them ; no sooner has he made them than he unmakes them.

In another respect, too, Dr. Bryce's System differs from most : he absolutely insists on quietness. For this reason many ladies and elderly people will find his exercises good. They must be performed with a steel spring apparatus, and slowly and deliberately, without jerky action, so that the spring vibrates as little as possible.

Besides this, the Course, like most Courses, deals with many of our largest muscles. The samples which we give here are good specimens ; they apply especially to the pectoralis major, deltoid, latissimus dorsi, rectus abdominis, and extensor cruris muscles, as well as to those of the arms.

" EXERCISES 5 AND 6.

" 5. PECTORALIS MAJOR (Lower portion).—Side to the exerciser, beginning with the right. Advance left foot and bend the knee so that the leg (below the knee) is at right angles to the floor. Body quite erect, chest well projected and shoulders drawn back, head erect, and chin drawn in. Grasp a handle in each hand, that in the left being held firmly on the left pectoral muscle just below the clavicle, that in the right hand being on a level with the right shoulder,

the arm being fully extended and the palm downwards. Now bring the right hand steadily and firmly down to a point just in front of the right groin, inhaling as it comes down and retaining it in this position for four or five seconds, then let the arm return to the horizontal position and repeat.

" The same exercise

must be repeated with the left side to the exerciser. When the student is strong enough, both handles may be grasped in either hand alternately and the exercise performed as before. Great care must be taken not to bend the elbow in any of these exercises.

" 6. PECTORALIS MAJOR (Upper portion) AND ANTERIOR DELTOID.—Side to the exerciser, in precisely the same position as No. 5. The movement in this case is made by bringing the extended horizontal arm straight forward in front of the body, always keeping it on a level with the shoulder, retaining there for a few seconds, then returning and repeating. This exercise may be made of more effect on the two muscles mentioned by standing with the back to the exerciser and performing the action as before. (See Exercise 4.)

" Use either arm in turn and keep the elbow stiff throughout."

" EXERCISE 7.

" LATISSIMUM DORSI AND TERES MAJOR.—Side to the exerciser, beginning with the right, and taking precisely the same position as No. 5. In this case the movement is made by bringing the hand down to the

back of the right hip, at the same time slightly rotating the arm so that the palm looks backward and the back of the hand touches the back of the hip. Retain here for five seconds and then return to original position and repeat.

" Use the left arm and repeat. When strong enough, both handles may be taken in one hand. Be careful to keep the elbow stiff throughout."

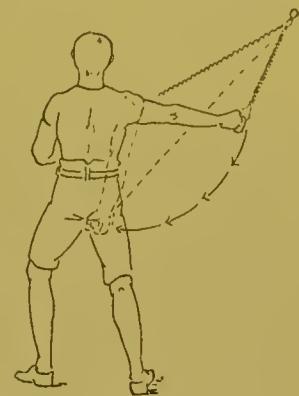


FIG. 4.

" EXERCISE 22.

" RECTUS ABDOMINIS MUSCLES (Front Abdominal Muscles).—Back to the exerciser, and take precisely the same position with body and hands as in No. 21. Now bend forward the body, the knees and ankles being kept perfectly firm and all the motion taking place at the hips. Retain this position for four seconds, and then return to original position and repeat. All the air should be expelled from the lungs as the body is bent forward, and a deep inhalation should be taken as the body moves upwards and backwards.

" The exercise should be repeated with the other leg advanced. When both the straight abdominal muscles have been exercised separately as described above, it is well to exercise both together. This may be done by standing with both feet the same distance from the wall and about twelve inches apart, toes slightly pointing outwards, knees perfectly straight, hands as before mentioned, and the body bent as far backward at the hips as possible. This is the position depicted in the chart and diagram. Now bend the body forwards and downwards till the head is on a level with the knees, which are kept perfectly still throughout the movement. Retain this position for

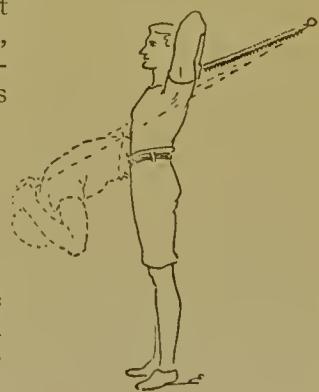


FIG. 5.

about four seconds, then return to original position and repeat. Expiration should take place when the head is going forward, and inspiration when it is going backward."

"EXERCISE 31.

"**QUADRICEPS EXTENSOR CRURIS.**—Back to the exerciser, feet at an equal distance from the wall about six inches apart. Sit in a crouching position on tiptoes, knees and thighs being well bent, and the body slightly inclined forward. Grasp a handle in each hand, palms to the front, and bend the arms and the forearms so that the hands are just in front of the shoulders. Now raise the body to a perfectly erect position, standing on tiptoe, and pressing the hands and arms up overhead as far as possible towards the ceiling. Retain them there for four seconds, return and repeat. A deep inspiration should be taken as the body rises."

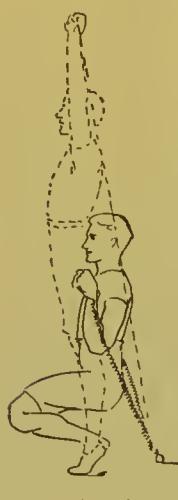


FIG. 6.

Such exercises, when done according to the instructions, will not strain the person, will not upset his functions. We take these exercises from the Course with the expander and the arm-apparatus. We now give one for the leg-apparatus.

"EXERCISE 39.

"**SARTORIUS MUSCLE,** or Muscle used for crossing legs on inside of the Thigh.—Left side to the exerciser, body erect, handle on right foot, chair on left side, with left hand on back, right hand on waist. Now raise right foot until it is on a level or higher than the left knee, the body remaining perfectly still. Retain in this position for four or five seconds, then return to original position and repeat.

"Reverse positions and do exercise with left leg."

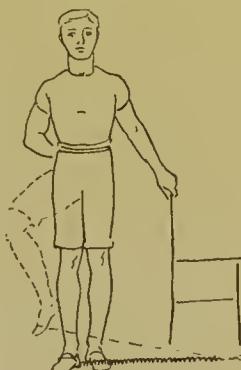


FIG. 7.

Here we ask why we should begin against resistance. Surely the feet and the legs should have freedom and liteness first. However advisable it may be for the trunk-muscles to move slowly, this cannot apply to the feet—at least at the start. Dr. Bryce does not carry the exercise always against resistance to its extreme absurdity. In one well-known Course with an arm-exerciser, the pupil is actually advised to use this resistance in the practice of bowling and throwing at cricket, where two of the prime requisites are freedom and speed, or rather control of pace; but there surely are movements in which resistance is not required at first.

Then, again, throughout the Course both sides are used nearly all the time; there is no repose of one side, of one hand—and therefore of part of one side of the brain—while the other is working.

Both hands are gripped all through the first two sets of movements. We should far rather see an occasional use with an open or expanding exerciser for the hands. This would counteract the gripping-tendency.

And why perpetually exercise the hands, forearms, and upper arms? Cannot we exercise trunk-muscles and train them without the use of the hands and arms? If it is particularly a latissimus dorsi or rectus abdominis movement, do the hands and their grip really help, or do they not rather distract the attention and the blood-supply? True, the exerciser itself is an inducement. This particular exerciser has as its characteristics safety and gentleness and leisureliness, so sadly needed to-day. For most women and for men past their prime, the Course is a decidedly useful one. For occasional practice, especially with an expanding handle instead of a grip, we believe it

would help hustlers and worriers, and other criminals, very considerably.

It is not complete, and it does not profess to be so. There is need to add to it extensions of the hands, fuller breathing (especially at intervals), and muscular relaxation and control, as well as play and movements to encourage free self-activity.

It would have been very easy to criticise many more and perhaps better-known Systems than those which we have selected here—for instance, the Oertel and the Schott-Nauheim. But we have preferred the above, as illustrating principles quite clearly enough.

The public must be warned against over-estimates. It is so important a matter, so many thousands are deceived, so many individuals are injured yearly, that—there is no Government censorship! Indeed, we are not sure that any department of Government is in the least competent to estimate and condemn any System. There are departments which occasionally fine one person for putting too much water or boracic acid in the milk, another for putting too much brick-dust in the pepper, another for putting too much sand in the sugar, too many twigs in the tea; but, when a Firm (with a big F) claims that So-and-So, agreed by leading analysts to be mainly stimulating and narcotic and almost devoid of body-building powers, is the best food, the life of the body, etc., or when another Firm or individual commands all people of both sexes and every age indiscriminately to practise a Course unadvisable for many, positively dangerous and (we have irrefutable evidence) disastrous to not a few, Government is absolutely and hopelessly silent. Simply, it has no body of men whose province it is to deal with such frauds.

We have done our best to estimate and point out the merits as well as the deficiencies of the Wallace and Bryce Systems. The former is not so feasible as Mrs. Wallace seems to imagine. The latter is feasible, excellent for some people, but not complete. We now come to the Hygienic Exercises, as practised in Germany and elsewhere, especially among the *Naturheil* followers. The reader should look at the specimen-exercises, and read once again our estimate above. Here we note a few points that will be sure to have occurred to him independently.

The Hygienic Exercises move both sides together, and do not encourage independent control; they do not encourage free extremities. The movements may make the person stronger—at least, may give him stronger trunk-muscles—and favour better positions, better breathing. They will not make him lithe, however; they will not develop all his breathings—for instance, they will not compel him to keep his diaphragm up when he goes through the exercises, so as to bring his lower organs into better places. The Editor has watched Germans practising these movements. They have not kept their abdomens well in and their diaphragms well up. They have not relaxed the parts of their bodies which the movement was not meant to affect.

Indeed, in this Hygienic Course, there is absolutely not one single word about economy or non-use. Nor is there more than a vague reference to leisurely use. Leisurely mastication—that is another omitted topic. A person may frown and hurry as much as he likes, but so long as he goes through the *movements* and attends to them, this is all that the Hygienic Course insists on.

In its favour, however, is that it needs only a short time, only a small space, only

a little, if any, apparatus, and that of a cheap sort—for instance, dumbbells and a chair.

Then it is applicable to very many different classes, though not to all classes. It is not applicable to most children, we

like anything in real life. They are alien to Anglo-Saxon interests.

Nor do they encourage originality. They are stereotyped. They require a spirit of obedience, a spirit of persistency, but not a spirit of intelligence, nor a spirit

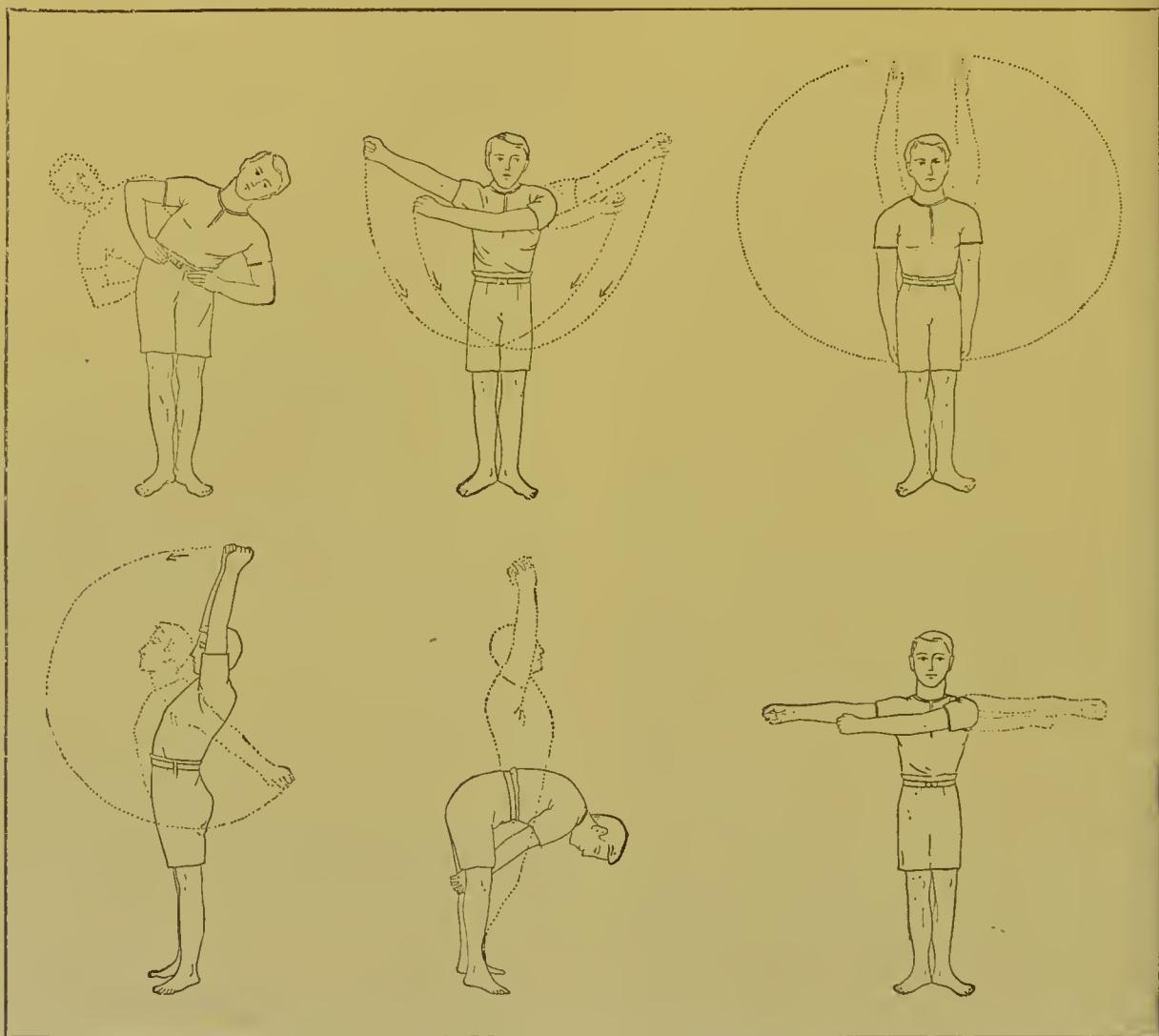


FIG. 8.—TYPICAL (GERMAN, ETC.) HYGIENIC DRILL.

think. Their exercises should be enjoyable, brisk, not severe.

The German movements are not interesting enough to Anglo-Saxons. They have not the military spirit. They are unlike games or athletics. They are un-

of individuality. In a word, they are Continental.

As to their general effects, they will probably benefit largely the pose of the body, the respiration, the digestion, the excretion, the strength, the endurance;

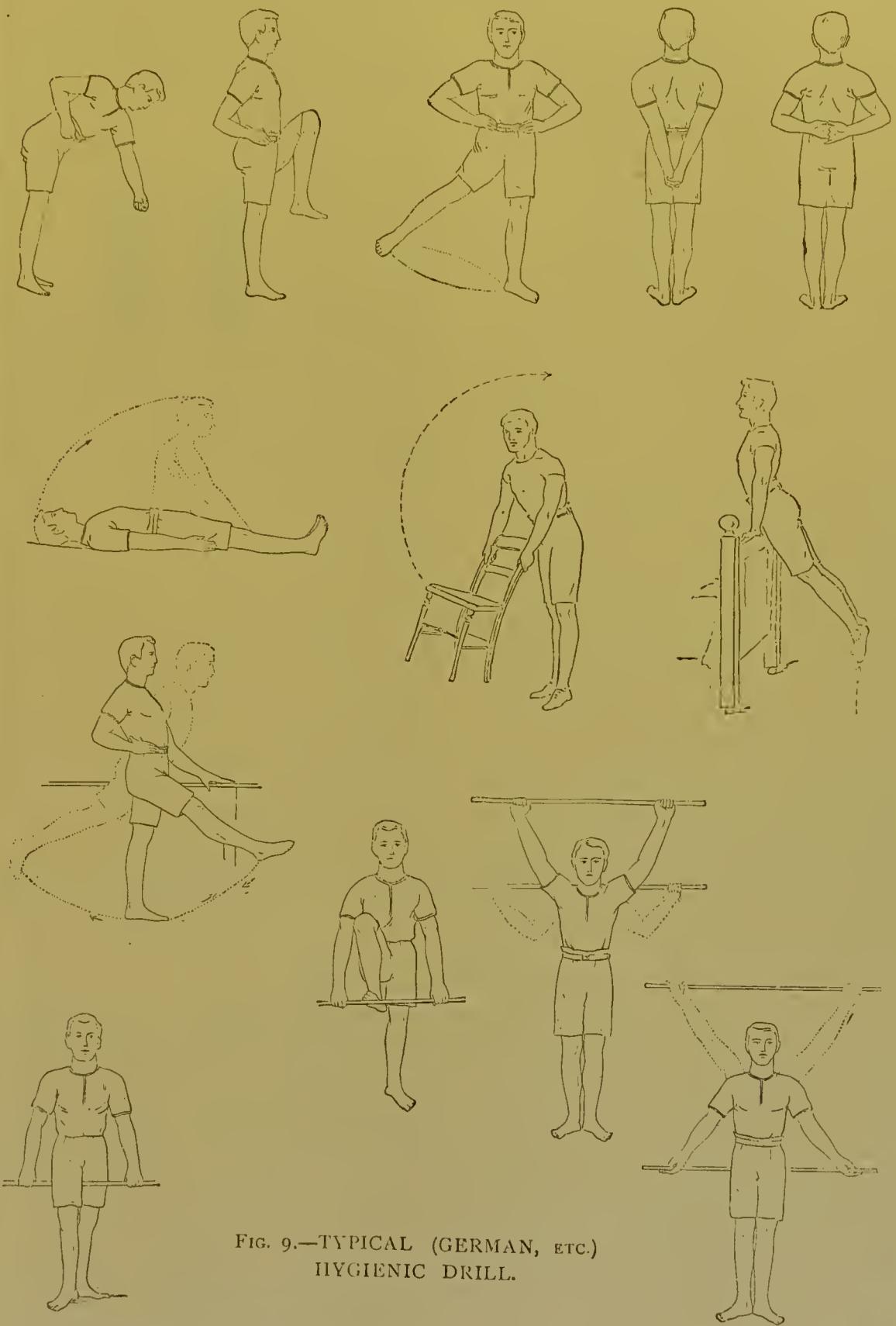


FIG. 9.—TYPICAL (GERMAN, ETC.)
HYGIENIC DRILL.

but they will do little for promptitude and power of adaptation ; they will do little for nerve and courage ; they will

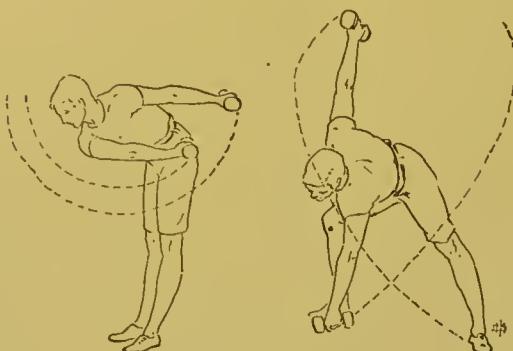


FIG. 10.

do little for rapidity, freedom, and lithereness ; they will do little for relaxation, repose, and economy, gracefulness.

Continuing our list of requisites, we should say that they would probably increase the money-earning capacity, and they might be made social ; indeed, they are often performed by groups among the Germans and elsewhere.

But the samples will give the reader the best idea of the System.

Those who find the exercises good, will find them still better if they do not grip their hands during some movements ; if, as we suggest in the emended exercises above, they do a certain number of the movements with one side at a time, letting the other arm hang relaxed (except in cases where it would be good to support the organs by the hands). And they should add other helps and other movements, especially those to encourage promptitude, rapidity, lithereness, repose.

The last System which we shall criticise here is an American one, advocated by Mr. Boeckmann, who started as a "respiratory specialist." It was his little book that first drew our attention to his methods.

He advises people to practise only the

lower breathing, and much of his advice as to how to practise that breathing and why to practise it is excellent.

Obviously, the fault here is the usual one : he does not tell people how sometimes to hold and keep up their abdomen, and so get their lower organs into a less incorrect place. One of the commonest features of "civilised" beings is that their organs of digestion and excretion have sunk too low, perhaps at least a couple of inches too low. Now this lower breathing—fine as it is in certain respects—is not the remedial breathing that *these* people mostly need. They rather need to hold their abdomen in and to breathe often with the middle and upper breathing during the day. During the night they will naturally breathe with the lower breathing.

Nor has this writer any word to say about repose. Apparently the relaxed breathing is utterly unknown to him, and one would judge that he was unacquainted with the art of repose, by the facial expressions of himself and of his model pupil, unless the illustrations are incorrect. They are not types of repose at all. There is no need to look at all stern when one is performing a breathing-movement ; there is every reason not to

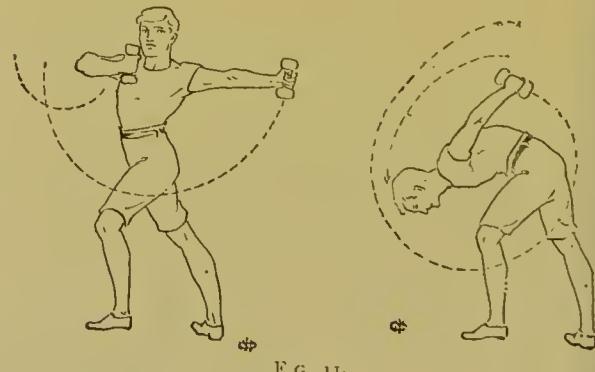


FIG. 11.

look fierce. One's duty to one's lungs is not to frown at them.

The Course may be particularly good

for women who wear the wrong kind of corset and whose lower breathing needs to be developed especially. The writer

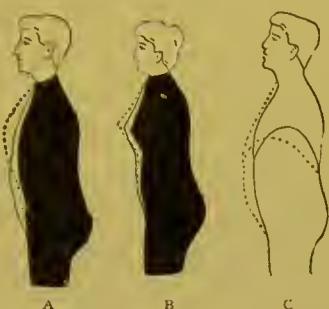


FIG. 12.

Changes in the dimensions of the body during different respiratory movements. Solid black represents the body when the lungs are deflated and chest contracted. Dotted lines represent enforced chest inspirations. Continuous black line represents movement during enforced diaphragmatic inspiration. Fig. C shows the vertical action of the diaphragm. In comparing Figs. A and B one can readily see that in the male (A) the point of greatest increase in dimension of the body in diaphragmatic breathing is a little lower than that of the female (B).

wisely gives an example of a woman's breathing, and the effects which this lower breathing will have in improving it.

And in his book is much valuable matter. He sanely exposes the fallacy that a person with a large biceps and weight-lifting power is necessarily a healthy man or even a strong man, strong in respect of vital strength. He

that a most important point is, How much oxygen can you inhale regularly? And how much carbonic acid can you exhale regularly? Both the inhaling and the exhaling are important.

Then, again, he is not in favour of strain : he will not let people burst their lungs by holding in their breath.

His fault is one-sided exaggeration. He treats his particular way of breathing—as distinct from the upper breathing and the relaxed breathing—as the sole avenue to health. Not only did he (in the edition of his work before us) ignore the value of right diet and leisurely eating ; but he also gave no instructions as to the best kind of breathing when the air is foul ; for, as we have said more than once, the worse the air is, the less of it one should be able to breathe in. If this method increases the breathing-capacity so many inches inevitably, as the advertisements profess, well then, what is the result directly the pupil comes into foul air ? Surely the result is bad.

But, as distinct from this book, the same writer contributes (to "Vim") articles on "The Muscle Antagonizing System of Exercise." When we first read it, we wondered how a muscle did antagonize a System of exercise ; then we found that the generally misleading (American) plan of omitting the hyphen accounted for the queer name. In this System all movements are to be done with the severest possible tension all the while. Both sides are always to be exercised together, and, as in the breathing-advice, there is no word about economy and repose of the unused parts during any movement. The idea of imagining one's self as lifting a weight is good, though not original. The idea of relaxation after the movement is good also, but the writer has not understood the art of relaxation ; for it follows normally,

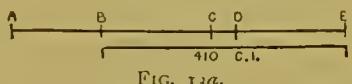


FIG. 13a.

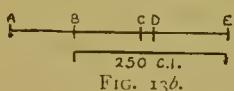


FIG. 13b.

Figures 13a and 13b show the relative quantity of air contained in the lungs of two persons, one having a lung capacity of 410 cubic inches and the other 250 cubic inches, also the relative amount of air breathed habitually. CD represents the breathing air or tidal air, the quantity of air that is habitually exchanged. The amount in this case is about 30 to 35 cubic inches in Fig. 13a, and about 20 cubic inches in Fig. 13b. DE represents the complementary air, the quantity that can be inhaled over and above the ordinary inspiration. The quantity is about 190 cubic inches in Fig. 13a, and 125 cubic inches in Fig. 13b. BC represents the reserve air, the air which can be expelled after an ordinary expiration. The quantity of air exhaled in this manner is about 185 cubic inches in Fig. 13a, and 115 cubic inches in Fig. 13b. AB represents the residual air, the quantity which still remains in the lungs after a most violent expiratory effort. The amount depends in a great measure upon the absolute size of the chest, but is estimated to be from 100 to 200 cubic inches.

exposes the still more pernicious fallacy that a large chest is the same as a large chest-expansion, or that a large chest-expansion is the same as a large lung-capacity. He is perfectly right in saying

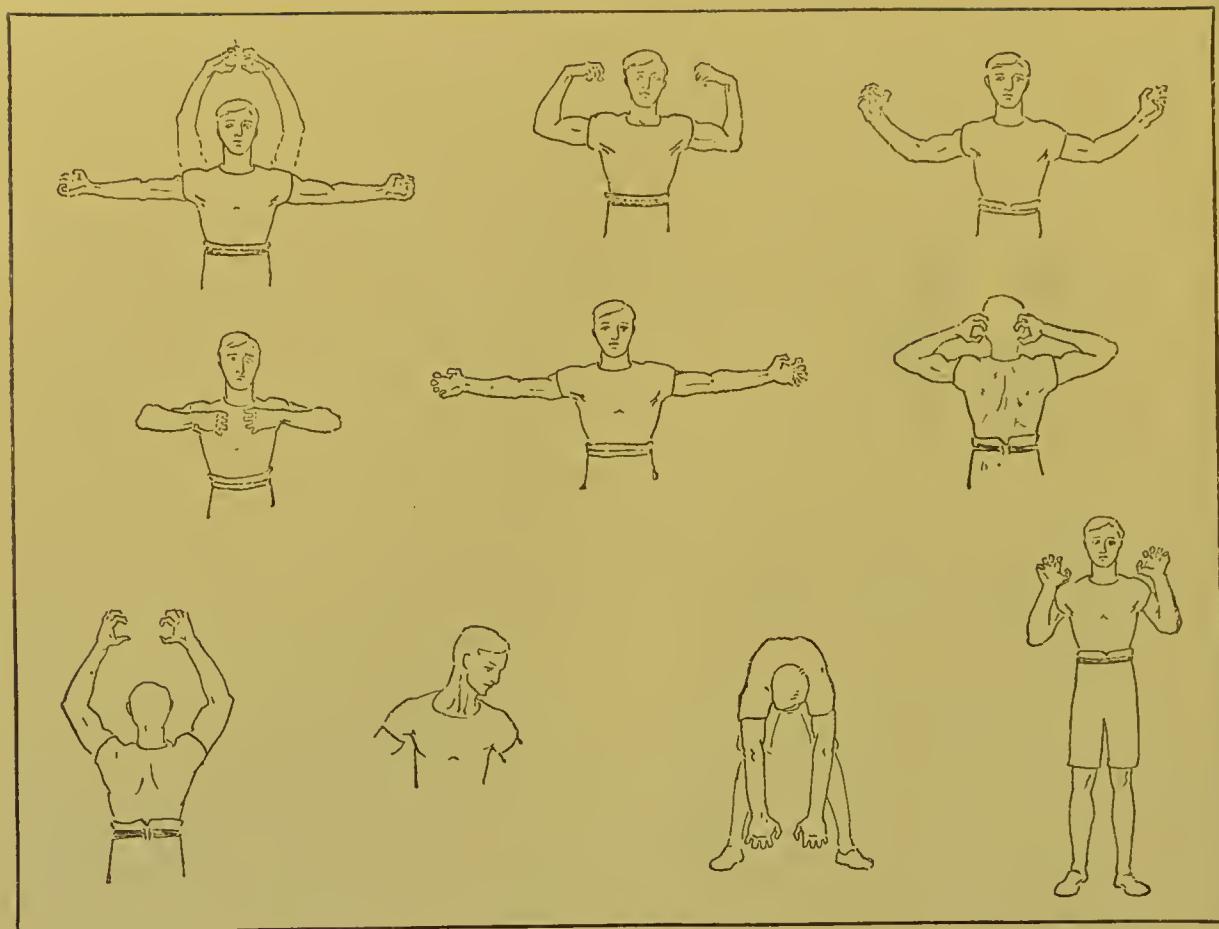


FIG. 14.—SOME OF BOECKMANN'S EXERCISES.

not after grippings, but after extensions, as when we yawn and relax afterwards.

The above figures illustrate the movements. They are to be done slowly and tensely, and with full concentration, though the same writer seems to have another system of movements done snapily and tensely.

Our objection here is the usual one. The System is put forward as the sole System, or at least as the best. It is not everyone who needs this System. Both sides are moved together always. Independent control, economy of the side that is not wanted, are neglected. There is no repose for either side of the brain. There is no exercise in speed, no exercise in promptitude, no encouragement of originality.

But, on the other hand, in contrast with many Systems, this one would not be ostentatious if practised in the street, at least if the writer adopted our advice, and urged people to practise one hand at a time while the other hand rested.

The name which he elsewhere gives to a System of his is impressive. He calls it the "Momentum Inertia System."

Such a plan is likely to be excellent practice for prolonged positions, as in office-work, and *together with other methods* belonging to other Systems, such as the Delsartean.

That is the pity of it: these people will not admit that there are virtues which they lack. They are all so complete in their own eyes, so one-sided in the eyes of the impartial critic.

CHAPTER LIX.

A FEW HINTS TO TEACHERS.

To have Taught Year after Year does not Mean to Know Everything—Experience does not Always Teach—Wanted: the Experimental and Open Mind—Neglect of Physical Economy—Muscles have at Least Two Functions—Parents as Teachers—Advantages of Family Exercise—Book Knowledge not Sufficient—Knowledge of Play Needed—Also of Psychology and Educational Methods—Some Requisites—A Natural Fallacy of Abstract Reasoners—Interest and Motives—Reasons—Not Bare Orders—Pathology of Fatigue—Against Dull Routine—Breathing and Repose—Need to BE what One Preaches—Variety—The Play Spirit—Examples—Correctness—The Teacher must have Sympathy and Become a Child Again—Discrimination—Classification of Pupils—Medical Examination—No Fear of “Inconsistency”—Object to Make the Pupils Self-teachers—Need of High and Progressive Ideals—Need of Candid Admissions—The Error of Partial Models Set Forth as Perfect Models—Children most Imitative—Character of the Teacher.

THE Editor is not a teacher of physical exercises in the ordinary acceptation of the term “teacher.” He has had a good deal of experience as a schoolmaster and as a coach and lecturer at Cambridge; he has tried to teach himself many exercises, and occasionally has tried to teach others in an amateurish way, welcoming questions from them, and welcoming objections. So, of course, it is open to teachers—to specialist-teachers—to abuse him as not an “expert.” But he would like to say, by way of preface, that merely to have taught year after year, while it does give experience, does not always give expertness or a sense of proportion and perspective. The Editor knows many teachers who have taught year after year, and profess to be “experts” because they have had many pupils under their care. They have taught in a whole-hearted way. But never a word, from beginning to end, about the art of relaxing muscles which were not required for use. These experts seem to agree with most writers on Physiology that the only function of a muscle is to contract. A muscle has another function, which is to rest. Now the movements for holding the body, let

us say, in a certain position, are attended to by the “experts”; but the repose, the economy when there is no call to spend energy, has been neglected. Yet think of the body. Assign to it its full number of muscles, and ask yourself how many you are using at any given moment during the twenty-four hours. Then ask yourself how many you ought to be using; to how many you might give a holiday with advantage to yourself and to others. I think you will find that the majority should rest at least as much as they should work.

While the Editor, then, does not profess to be an “expert” in the sense of a professional who has taught exercises for years, yet he does profess to be an experimenter, and to make, as far as he can, a fair estimate of advantages and disadvantages, and to be open to new ideas. Besides this, he has had the advice of more than one practical instructor in some of the chapters of this work.

The earliest teachers should not be the “experts,” but should be the parents. It is essential that parents should get the confidence of their children. They can get it best by doing exercises with their children. This applies also to nurses,

governesses, and school-teachers. The play of these with the children is as good for the elders as for the children ; it will help to keep the elders young and fit.

But it is not easy for elders. It requires a vast amount of knowledge and tact, and a willingness to try things, rather than merely to read about them and listen to them. The mother who can do an exercise with the child has a great advantage over the mother who can only tell the child to move its arm, or leg, or trunk in this or that way.

Knowledge is essential. It is not merely knowledge of names of bones and muscles ; it is knowledge of the body itself and of the mind, of the muscles and of the nerves, and so on.

It must not be book-knowledge ; it must be sense-knowledge. Especially must there be pictures in the mind, living pictures of the muscles and the work that they do in holding and moving, and also of the repose which they should enjoy when there is no demand for work. And we are sure that there should be knowledge not only of anatomy, physiology, and hygiene, but also of play and athletics, so that the child may be trained not simply for "development" and appearance and some strength, but also for recreation : trained to take its pleasures sanely.

Few teachers of physical culture have realised that the first subject to master, or to try to master, is not anatomy and physiology, but psychology and educational methods. An instructor of wide experience expresses this differently when he says, "Candidly, I think precious little about so-called Systems, of whatever name or nationality. Can a man teach ? Does he know enough physiology and hygiene to distinguish good from bad ? and has he got common-sense and tact ? Is he prepared to admit that his most cherished idea may be wrong ? And can he, when

he witnesses other people's work and methods, dissociate the work from the worker ? "

This teacher has hold of part of the truth, but he makes a terrible mistake when he thinks that a so-called "system" is of no value ; that a name is nothing. At the beginning, for certain types of mind, a name is almost everything. You may abuse the people for being so foolish, but you must admit the fact that one of the attractions of the Sandow System, for instance, is the fact that it *is* the *Sandow* System. Remove Sandow's personality ; make it, as this teacher would, an impersonal theory and practice ; and we believe you remove the interest of the great majority. In fact, this teacher seems to have no sort of notion of what interest and attraction are : they are among the essential requisites of the teacher. The teacher should study educational methods, and he will find that every theorist and every successful practiser of every kind of education must set healthy interest first and foremost if he would be a true teacher. And interest does not simply consist, as this man thinks it does, in the exercise being good ; it depends on whether the exercise appeals to the individual.

The teacher should explain some reasons for most movements, instead of giving a bare order. In other words, he should know the reasons himself, feel them, realise them. Suppose, for instance, he takes one of the Editor's favourite exercises in privacy. He has the left hand limp and relaxed by the side, holds the chin in, and keeps the small of the back reasonably hollow ; then, with his right hand, massages the head ; he can, if he likes, just command children to do this exercise, but it will be far more effective if he explains to them how it draws up the lower organs of the body into a better

position, and strengthens some of the muscles, especially those of the abdomen ; how it develops the upper breathing, and the lower breathing against resistance ; how it improves the circulation of the blood in the head, and the cleanliness of the scalp, and the growth of the hair ; how it tends to better carriage, better appearance, greater health. By a plain talk of this sort he can turn a sheer duty into a pleasurable duty.

The teacher must know something of pathology, too. Directly we come to fatigue, we are on the ground of pathology. Prolong fatigue, and you get a disease, if not a death. The teacher should know that a fatigued body or mind doing dull work is using up many times more units of energy, and wearing itself out many times more quickly, than if it did the same work when it was fresh, or did other work that was interesting.

No teacher may neglect the study of breathing or the study of repose. Instead of exercise upon exercise, with scarcely a pause, and very likely dull exercise upon dull exercise, there should be intervals for breathing through the nostrils, and for repose of as much of the body as possible. Comparatively few teachers teach repose. Still fewer teachers are themselves reposeful, poised. Most frown—that is, unless they are apathetic. We would almost rather that they frowned.

The younger the children are, the more they will need this repose and this fuller breathing, the less they will be able to stand prolonged strain. Variety is almost as good as rest for them. Their tendency is to change their attention quickly ; to attend *splendidly* for a short time ; then to attend only with an effort to the same thing, but to attend almost equally splendidly to a new interest. Few teachers take advantage of that faculty of children, a faculty which looks like a

fault until we understand what it means : it means that the child has a desire—almost a craving—for a wider experience ; a sort of disgust at too early specialisation. There must be ever-increasing control of the attention ; but at first the severe demand would be strain-work, exhausting.

If the teacher will not teach his pupils fuller breathing, better repose ; if he will not vary his exercises ; then at least let him turn as many exercises as possible into a game ; because children, like animals, will often enjoy a game and so become healthier from it, where they would find sheer drill tedious and *therefore* unhealthy for them. Instances of health-exercises turned into games have been given already. Children can play at swimming, and a very useful training it is. They can play at being cricketers, bowling, stooping, throwing, catching. They can play at football, and so on. Or they can play at being animals, windmills, parts of machinery, etc.

This does not mean that correctness is to be sacrificed ; the exercises must be performed as correctly as possible.

They must be chosen and worked out with the very greatest care. One shudders to think of the correctness with which some children perform disastrous exercises, exercises utterly inappropriate to ordinary children, exercises of prolonged stress and strain, for which the arteries and hearts of little boys and girls are absolutely unadapted.

But, granted that a given exercise is suitable for most children, then let them perform it correctly and attentively, and therefore probably slowly at first, and perhaps part by part, just as the Editor had to perform the complex movements of ball-games, not as whole movements at first, but as a series of pieces which he afterwards fitted together. The foot-drills were practised by themselves as

correctly as was feasible ; then the trunk-drill was practised ; and so on. Correctness at the start would have saved him many years of training in this simple alphabet afterwards.

Since a teacher needs knowledge of his subject and of the way of teaching it to children, he must become a child himself. That is the essence of discrimination and tact : to be the person with whom you are dealing ; to see things from two points of view. The teacher must discriminate between kinds of people and between different Systems of exercises. One pupil may be a fit subject for an elastic exerciser. Another might find this work too stiffening. What that other needs is relaxing, and quick and brisk movements. The teacher cannot always teach pupils as individuals. He must have or acquire the art of classifying pupils, and knowing by the build, and the look, and the way of this pupil, that he belongs to the class which needs smart work ; of that pupil, that he belongs to the class which needs slower work ; and so on ; just as in business one must have or must acquire the art of classifying people, and of saying : That person is no good to me ; this person will suit my purposes, if he can alter that habit of his ; this one is just the person whom I want for this work. The teacher cannot deal with every child always individually ; it would be sheer waste of time and energy for a teacher to do this, though it may be invaluable as an *early* training and apprenticeship for him. He must get, as it were, a series of pigeon-holes in his mind. In each pigeon-hole are certain exercises. He must acquire an instinct for putting a pupil at a glance into his right pigeon-hole. But, of course, a medical examination is necessary as well, in case he should make a mistake.

And the teacher must be exceptionally open-minded, ready to abandon the old,

ready to add the new, or at least to give it a fair chance, ready to encourage criticisms and original suggestions from his pupils and others. How sadly few instructors are of this kind ! They fear to be thought inconsistent, to lose their authority. What has the true teacher to do with "a foolish consistency" ? His prime function is to use the best ways available, not to bolster up his own ignorant dignity.

For his object must be to make his pupils self-teachers, self-active men and women. Those who practise "Suggestion" agree that their object is at first, of course, to help the patient. Eventually they consider themselves failures if they have not made the patient able to help himself. Now too many teachers, in spite of all their years of work, have failed to make their pupils self-active. So long as the pupils are there, under the teacher's glaring eye, listening to his loud-voiced orders, they do the exercises ; but remove the teacher, and you remove the habit of exercise too ; it has been forced from the outside.

Most of the teachers whom we have met have an ideal ; but it is what one might call a stationary ideal, the same to-day as it was ten or fifteen years ago ; it is not far in advance of the actual. Many of the teachers, indeed, actually imagine that they have reached *the limit*, and have attained their ideal ; they cannot see any possible progress beyond their present work. Now the teacher's ideal should not be a fixed one ; it should go far beyond his present achievements.

Whatever it is, in the first place it cannot be too high or too wide ; and, in the second place, the teacher should try to be more and more a living example of it. Among religions we find that some have a low ideal. Mahomet's is among them (at least, as it is popularly understood).

And there have been many who have reached that standard ; it is a definite standard, and one easy to reach. But then there comes a resting upon the laurels. Other religions, such as Christianity, are abused because they are always falling far below their professions and ideals. Christians are accused of failure to realise their ideal. They will fail to realise it until they become gods, because their ideal—at least the ideal of true Christians—is so high.

Now the teacher of physical education should have an ideal to which he cannot attain, but to which he is coming always nearer. Instead of being content with a few acrobatic performances, and a few routine-drills, which he certainly does with considerable skill himself, he should aim at something beyond. He is like the Mahomedan who has attained his ambition, and who has no further heights to climb. It would not be so bad if the teacher were a fine specimen all-round, but, if he suffers from colds, headaches, and many other physical, mental, and moral blemishes, we see that he is suffering from too low an ideal. He has the wrong kind of self-respect ; he respects the self as it is, not the self as it might, and should, and could become.

The harm is less when there is candour, when the expert says, " I do not profess to be healthy all-round. I can do certain exercises on the parallel bars, on the horizontal bar, the horse, the rings ; I can box a little ; I can fence a little ; I can swim a little ; but I am not a person to be imitated with respect to my colds and headaches ; they are a weakness which I shall do my best to remove." As it is, however, too often he passes as having mastered physical education ; he describes himself as the " expert." Now, if physical education is the man's one and only occupation, if it is the study of his life,

and if it leaves him with all these blemishes, then let us tell him straight out that it is an utterly inadequate kind of physical education. If he dies of consumption, if he suffers from indigestion, constipation, what not, he has no right to call his work physical education. Once again we are forced back to that French idiom, with *de*, which at school we translated by the word " some." The teacher of whom we are speaking has *some* physical education, but he has not the whole of it ; he has *de l'éducation physique*, not *l'éducation physique*.

Knowing how imitative children and others are, every teacher should beware what models he sets before his pupils. Let him be sportsmanlike ; he will not lose by it in the end. Let him, for instance, tell his pupils to reproduce, with attention, a certain movement of the right arm and left leg which he himself performs correctly. But let him—hard as we know it to be—occasionally have the honesty to tell his pupils that which they should *not* imitate, whether it be his colds, or his temper, or merely his shouting voice. For this confession would compel him to do his level best to remedy these defects. At present the average " expert," in spite of the grand work he has been doing for the nation and for posterity, in spite of the skill with which he moves in certain exercises, has so many physical defects—to say nothing of the mental—that, even if it be perfect physical education which he is preaching, it is not perfection which he is practising.

And, as Emerson says, a man's character really often speaks so loud and convincingly that you cannot be impressed by the opposite words of his lips, so a teacher's physique—his whole all-round state of fitness or unfitness—speaks to many of his pupils more loudly than his words, or even his movements.

CHAPTER LX.

A FEW CURIOSITIES OF PHYSICAL CULTURE.

The Curiosity of One Age is the Commonplace in the Veneration of Another Age—How shall we Deal with Monstrosities?—The Value of Ridicule—The Crank who Guarantees Universal Cures by One Method—The Fraudulent Advertiser—Constipation due to Many Different Causes—An Exercise that will Help to Cure some Kinds—Biceps-Culture—Absurd Demands for Rapid Cures of all Sorts—Spinal Curvature—The American Public—A Useful Measure—Remedies too Often Regarded as Helps to Continuance of Mistakes—Games as an Example—Physical Exercises Treated as the Sole Path to Fitness—How Advertisers Gull the Public—A Grossly Ignorant Assertion of "Science"—How do "Expert" Specialists Defend Themselves?—Idea that Long Life Means Complete Knowledge—The So-called Crank may be Saner than the Orthodox Drill-Machine—Spring-grip as a "Panacea"—"Concentration"—Muscles that Always Stand Out, Tough and Fibrous—Posing as a Hero—Ever Against Resistance—The Awful Word "Development"—Fossilised Learning—The Ridiculous is Not Necessarily Useless—"Untensing" the Eyes—The Lady of the Fashion Plate—The Cake-walk less Absurd—Strict Privacy Justifies some Curiosity—Grim Seriousness is Often Absurd—So is Self-satisfaction—Posterity shall Judge—An Excuse for the Advertising "Experts"—Misleading Models Imitated by the Young and Others—Criticism is a Compliment—Aldermen in a Procession and at a Banquet—The Disgrace of To-day.

WHAT is a curiosity? Every generation answers the question quite confidently, quite differently. The freak of to-day may be the divinity of some past age, or may be the divinity of some future age. The object of this chapter is to point out a few of those features of modern times which posterity will very likely reckon as either abominable or ludicrous or pathetic, or else—impossible. Whether it is better to abuse them or laugh at them or pity them, or—as the Christian Scientists would—deny them, we cannot say. It seems to us, however, that if they *are* faults, then we shall be more likely to remove them by pointing out their absurdity than by any of the three other ways. As a schoolmaster of considerable experience once said to the Editor, "It isn't every boy that will give up a bad habit when you

tell him it's disgraceful. This may even make him go on smoking his cigarette, as if it were grand. But tell him he has no idea what a silly little ass he looks, and the chances are that he'll be genuinely frightened out of his stupidity." It may sound unkind, but it is far more effective than to make the boy feel that the idiotic mistake is in any way brave and fine, or even martyr-like and "misunderstood." So here, in these pages, without any desire to make fun of serious matters, as certain vulgár minds jeer



FIG. 1.

at physical deformities, we cannot help showing that no amount of pomposity and strutting and prestige can hide from the sensible examiner the fact that the self-satisfied person is, in this respect, well—there is no other fitting phrase in the English language—a silly ass.

In some of the cases, however, those whose errors we point out may prefer to be classed under the higher-sounding title of *earnest ignoramus*.

"If anything was needed to convince me once for all of the *infallibility* of —'s method for the cure of diseases, it was the *following example. . .*" Now this is certainly one of the "earnest ignoramus" curiosities of physical culture, and especially of remedial work—this inference made (usually by a money-making and personally interested teacher) from certain genuine instances, and extended to all possible instances. We find it in nearly every advertisement which is issued. Doubtless the particular method, whether it be a pill or a bean or a tonic or a set of exercises or a special diet, has had its successes—we do not dispute them; what we do maintain is that the public should be warned against the loose reasoning, and should see the dogmatist as he is—let us call him "*unscientific*." It is a gentle word. It does not imply that he is a swindler with malicious intentions.

We often read cases of this in the papers. Not only is there the fraudulent advertiser, who suppresses failures while he states or exaggerates successes. There is the success himself. He tells of his cure; then, in all faith and folly, guarantees cure to all others, however different their conditions. His was a case of constipation due to the lack of a certain juice; the drug helped to take the place of that juice, and also served as an irritant and spur. Another case may be due to the lack of another juice, which (let us suppose for the sake of argument) might be supplied by a tea made from bran and raisins; another case may be due to lack of fluid alone, and would be cured by a glass of water, hot or else cool, taken at night and in the early morning;

another case needs more fibre or cellulose, and fine wholemeal bread or biscuits are "indicated"; another is caused by wrong foods or drinks—white bread, hard-boiled eggs, meat, strong tea; another is a case requiring such an exercise as is shown in Fig. 3, which will help to squeeze out the contents of the liver and to move along the contents of the intestines and colon, while other exercises, judiciously selected, will serve the same purpose, and will also strengthen the muscles that keep the organs in a better position; another case may be due to anxious tension, perhaps to strain as well, and may be relieved—as the Editor has known it to be, within a few days—simply by untensing and relaxing.

When we look at advertisements and testimonials in this light, we see precisely why they are "curiosities."

Or consider the case of a man who is, physically, a loafer, wanting some pride in his body and some outlet for his excessive energy. He strains and strains at biceps-culture, and at length the mere effort of attending has gone far to help him to general health. Well and good. He writes and says that Goliath's exercises are the best for all. Goliath publishes the testimonial. As if biceps-culture were the sole road to health! The public is deceived.

On the other hand, think of that public. It is ill. It may be suffering from any dozen out of a hundred disorders. Yet it expects to be cured of everything in a few days. "I want you to reduce my weight, to enlarge my chest, to cure me of a spinal deformity, to take away my

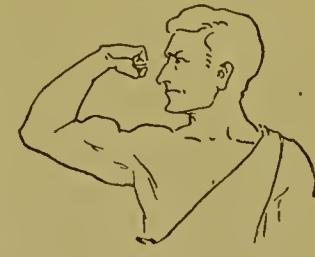


FIG. 2.

gout, to make me succeed in my business as an undertaker, to make me attract the opposite sex, to make me sleep well, to relieve me of indigestion and constipation and headache and fast eating, which I know to be wrong. I cannot give up my smoking." He demands absurdities, just as the indiscriminate advertiser advertises absurdities for his one-method-for-all-alike strain-work.

As another example, take a case of spinal curvature. A teacher has to deal with a particular kind, which, perhaps, had been pronounced incurable. By a certain set of exercises he cures the curvature and restores the normal. Then he advertises that he has a perfect method for the cure of all spinal disorders, of however long standing. The public is completely taken in by the bold assertion. Carefully the man hides away all records of failures, brings forward all records of successes. The curiosity here is, again, not only the want of logic of the advertiser, but also the gullibility of the public; and, when all is taken into account, perhaps the American public, sharp as it is to make money, is more gullible than the British public in spending it; possibly because it reads more and is more influenced by new ideas. America packs its mails with dollars for the man who guarantees to turn the dwarf into the giant.

It is natural enough that this or that treatment, including, let us say, the exercise shown in Fig. 3, would be good for a sluggish liver and certain cases of constipation and indigestion, and, if practised together with proper breathing, for consumption also; as a remedy for *one* kind

of spinal deformity; for the figure and carriage generally; and to help to remove obesity of a certain type; and it is quite possible that there is a case where all these mischiefs were, to a great extent, remedied by this single exercise.

The Editor has a letter describing how a walk up and down the inclined plank and a few other movements for ten minutes a day cured an obstinate case of sluggish liver, constipation, indigestion, and obesity; it happened to suit that particular case. Probably, with a tactful teacher who would choose and graduate the exercises, it might be useful in more cases than it is at present, especially if the teacher told the patient to attend to sensible treatments of other kinds—massage, diet, repose. Nor is there any doubt that the regular practice of even this one exercise might have a good effect on the mind and morals.

But too often people regard the remedial treatments as a help to enable them to continue their mistakes. We remember seeing a person who was suffering from obesity; every day in the morning he used to lose three or four pounds of weight by vigorous running; every evening he used to put it on again by vigorous eating and drinking. This will serve as a type that we look upon as almost normal, but that is really quite the reverse; the people are among the eccentricities of modern life; we can count them by thousands; they play their Football, Cricket, Hockey, Lawn-tennis, Golf, or they row, swim, shoot, and so on, not as a luxury, but as a necessity, and to counterbalance the stupid mistakes which they make in diet. Posterity will regard them as among the curiosities of physical culture; they have turned regular exercise, of a decidedly energetic and often expensive kind—expensive of money and time as well as energy—not so much into



FIG. 3.

a pleasure and a treat as into a sheer necessity ; they are slaves to regular exercise ; without their two or three hours of it nearly every day, they are knocked up, unfit for work, or indeed for life.

Not very different from them are those who regularly walk ten miles a day, and regard that by itself—not the ability to walk, but the habit of walking—as a *sine qua non* of fitness. As a matter of fact, however good it may be for various reasons, it means slavery ; if it is indispensable to health, surely it shows that there is something wrong in the way of living.

And then, with regard to the way in which physical culture Courses are described and defended, as if exercises were the sole and only road to well-being : first of all there usually comes a general account of the value of exercise, as if all exercise were one, instead of being a remarkably complex whole of many diverse parts ; then it is assumed that the particular exercises of the particular System (perhaps consisting entirely of spring-grip dumbbell work) are identical with that general and all-round and appropriate exercise about which all the good things have been said ; then there comes a huge list of all the bones and muscles, and so on, in the body, impressive diagrams of skeletons and muscles and nerves and organs ; then the Course itself. That is how the public is hoccusse^d perpetually.

To take a little detail, there is an imposing account of muscles. "The sole function of a muscle," it is said, "is to contract. Our System contracts the muscles." We cannot exactly see how any system of movement can fail to do so, but the public does not know this. The public does not know, either, that an equally important function of a muscle is

to relax. Whether it is a function of a muscle to extend, we cannot yet say ; it is quite possible. But, anyhow, the statement that the *sole* function of a muscle is to contract, goes on and on through hundreds of books absolutely unchallenged. How easy it is to refute it ! Take your first finger, and bend it as if you were beckoning to someone ; you are now contracting a muscle ; you are extending the opposite muscle. Now let your finger go back again ; let it stay limp. What is the muscle doing ?

It ought to be doing something which these authorities say is not its function at all—namely, relaxing. It is so clear directly we come to think and try for ourselves ! The marvel is that the public will *not* think or try.

How do the advocates of special systems justify themselves ? How do they fence off criticism ? That is another curiosity of physical culture. They do not justify themselves : they simply assert that they are perfect ; they appeal to custom and authority ; they say, "We have taught *this System* for ever so many years ; therefore we know more about *Physical Culture* than anyone."

Now, in order to realise that many of these Systems are sheer monstrosities, instead of sacred and perfect and unimprovable things for ever, approach them for once from the point of view of the child, and ask whether such-and-such Systems are good for children. That question is simply never asked by the ordinary teacher ; he does not say to himself, Is this the right way for the child to learn the thing ? Or, Is this the right thing for the child to learn ? No, he simply teaches, as he has always taught, and he imagines that *therefore he knows*.

Nor does the ordinary person see that nine-tenths of his drill-exercises—so-called

physical culture—are profitless. He thinks it fine to expend his efforts on some elastic stretcher, or on some form of sport, or on some gymnastic apparatus work. Well, these things have their merits. But what would he think of anyone who took similar exercises, only turned them to a useful purpose? What is the name given to such a person, who gets almost exactly the same exercise, but can show sensible results from it? What if a person ground coffee or whole wheat or nuts, or had an apparatus by which his work could be turned into heat or refrigerating power, or as power for electric light or for watering the garden? He would be called a faddist and a crank! "I get up and pull at my stretchers for fifteen minutes, and move about my spring-grippers for another fifteen minutes. But that man Jones, next door, is absolutely mad. He does his own household work, scrubs his floors, polishes his silver, blacks his boots, and so on. He's quite a faddist. He



FIG. 4a.



FIG. 4b.

FIG. 4a THE RIGHT, AND FIG. 4b THE WRONG, POSITION FOR BOOT-CLEANING.

insists on doing everything in the right way."

It is only the philosopher of to-day and future generations that can see how most of the orthodox pursuits are really supremely ridiculous. The solemnity of custom at present serves as an umbrella

to shield these absurdities from the rain of public laughter or anger.

As an instance, already we have quoted the case of the person who advises a spring-grip dumbbell to all performers of exercise, in order, among other things, to help their concentration. This is a real freak in physical culture; you have to hold a spring-grip dumbbell in each hand; the strain reaches all the way up the arm. Does that help concentration when you wish to exercise a muscle of the thigh or spine or abdomen? Take that first exercise in this chapter; does it help you to concentrate on the spinal and abdominal muscles when you hold spring-grip dumbbells tightly in both hands? Surely it produces the very reverse effect: you concentrate, but not on the muscles which you are using; or, if on them, why grip the spring-grip dumbbell? But people are not yet trained to criticise anything. An "authority" states—they listen and obey.

Then there is the idea that muscles which stand out all over the place are fine. A figure is displayed on placards, bulging all over with hard fibrous knots. Where is the physical economy? Where is the gracefulness? In the position in which he stands, many of those muscles should be at perfect rest; the figure gains nothing whatsoever by making them all stand out; the model is a deformity; he does not know it, nor does the public.

Then some figures have about them a false attitude of heroism, which is ridiculous in the eyes of a player of games, or a performer of sporting work on the Horse, bars, etc., or a diver, or a wrestler. There stands the man with an elastic exerciser in an attitude like that of Ajax facing the thunderbolt, or Horatius keeping the bridge. What does he do? He pulls the elastic strand for a quarter of an hour. There is in it none of the nerve-training,

pluck, "eye," poise, rapid adaptation to new conditions, co-operation, and division of labour, of a good game of cricket or football. No, he is doing a tame thing, a thing hygienic up to a certain point, but not in any way more heroic than walking, yet the public is quite taken in once more; the public believes the man to be a hero.

Then, again, this same figure will illustrate another curiosity. Throughout the whole of the Course there is to be strain against resistance; never at any time whatsoever is there to be any freedom, especially for the poor fingers. True, the legs and feet in life are often resisting the ground; exercises of strain may be less inappropriate for them—at least, for the feet; but we see the ridiculousness of it when, in a well-known book, a person is told to practise bowling and throwing at cricket, with a strong elastic exerciser.

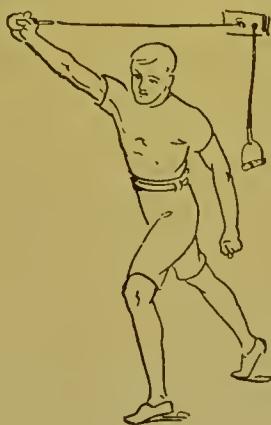


FIG. 5.

For practice in bowling and throwing against the wind this might be good, and, indeed, such would be good practice for weight-putting, swimming, and so on; but, when the teacher extends it to throwing, in which accuracy and speed are among the supreme requisites, he is not improving the throwing-power, but (as in Fig. 5) actually spoiling it.

Perhaps he will tell you that he makes the muscles "grow" or "develop." That is another curiosity—the perpetual repetition of that word *develop*. You can develop a child's brain; but in what directions do you develop it? Surely the ideal of muscle-culture is *not* development, but the right kind of development? *You can develop muscles all over your body, and develop them quite wrongly*, so that they are not flexible and lithe, but woody and fibrous. Yet nine people out of ten will not know this; they will tell you it is quite enough merely to develop the muscles. True, when a muscle is very weak, it may be better to develop it somehow; but even in that case there should be a certain amount of the right work to ensure liteness. Ought not every muscle in the body to be lithe? Instead of that, you find a teacher himself grinding and sweating, making his pupils grind and sweat, forcing things all the time. It becomes the kind of movement that—when relied on as complete—corresponds to a grunt.

Such ways are absurd in the eyes of the true philosopher—the Plato who does not despise exercise, but insists that it shall be the right sort of exercise for to-day. Yet scarcely less absurd are those modern people who write on political economy and national well-being, and other topics, and never make any mention of exercise or rest or diet. They are the curiosities, not of physical culture, but of pedantic and fossilised learning and literature.

It is not every ridiculous exercise that is absurd. Here are some faces performing contortions which at first one condemns as utterly useless. They are copied from a book published by Gale and Polden, entitled "Ideal Health." Some who have tried them in privacy—with a due sense of their humour—have

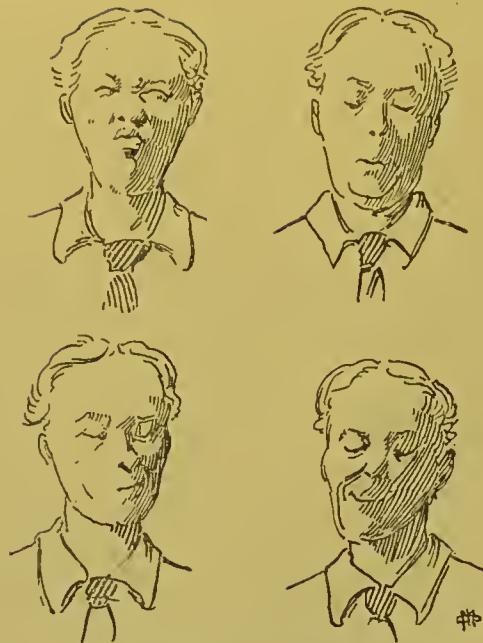


FIG. 6.—SOME FACE CONTORTIONS.

found them quite useful in improving the expression of the face (eventually !) and the temper as well, and in removing wrinkles, and even in helping voice-production. On the other hand, look at the straining figure in an early chapter of the PHYSICAL EDUCATOR. No one regards that as absurd. Yet the expression of that man's face is far less to be commended than the expression of the faces of Fig. 6 ; the latter, at any rate, is not venomous or sharky.

Then, again, suppose you have some trunk-muscles that need to be brought up



FIG. 7.—PEOPLE BEHAVING LIKE CHILDREN.

to the mark, since at present they are too flabby and fail to do their work in holding and moving. You see people behaving like children in Fig. 7. They are lying about on the floor, rolling about on the floor, and so on, You say, " How absurd ! " Truly it is a curiosity, but the Editor knows a family which behaves like this. These floor-movements are not valueless simply because they are so " silly " that they compel even the performers to laugh.

Then there is another exercise from De Laspée, giving movements for the eyes (they are copied in Fig. 8). You say, " That is too idiotic." But, when you come to think of it, the power to move the eyes easily in any direction, especially when one is crossing the street, is decidedly valuable. These exercises will really increase one's range of vision in every sense of the word. Dr. George Wilson simi-

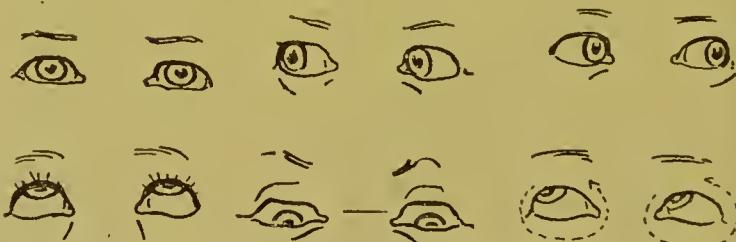


FIG. 8.—EYE-ROLLING RECOMMENDED BY DE LASPÉE.

larly was ridiculed for his suggestion that people should " untense " their eyes sometimes and look at the horizon or imagine a distant object. Such an exercise the Editor has found to be distinctly useful in cases of worry ; at the same time he recognises that, from one point of view, it is ridiculous. So does Dr. Wilson himself.

Here is another instance, Fig. 9, taken from " The Thomas School of Psycho-Physical Culture," though here the ridiculousness is less in the position than in the drawing ; but what is there

more ridiculous in the drawing here than in the drawing of a woman on a fashion-plate ; you read ladies' papers, and you



FIG. 9.—A THOMAS SCHOOL FIGURE.



FIG. 10.—A FASHION PLATE CURIOSITY.

find hundreds of such drawings. No one considers them curiosities ; surely to the philosopher they are curiosities not of physical culture, but of the absence of it.

Till quite lately anyone doing a cake-walk anywhere would have been thought mad. Then it became fashionable, so it is no longer ridiculous ; it was quite "the thing to do." Five years hence, as five years ago, it may be a curiosity of physical culture ; at present it is "all right." And indeed, as physical culture, it is far healthier than nine-tenths of the fashion-



FIG. 11.—THE CAKE-WALK.

able fads of to-day. The best cake-walks are fine exercise for feet and legs, for poise, for spinal and abdominal muscles, for the stomach, liver, and so on.

It is time that we began to regard at any rate our *private* practices in a new light. A certain man claimed that he had kept himself healthy by going out into his garden every morning and picking up one twig ! Suppose, instead of that, we picked out some weeds or rolled the lawn or did some digging or marked out a lawn tennis court, or suppose we did household-work for hours during a few days. Provided that we attended to the right positions—with the chin in, the small of the back hollow, and so on, and took care that we did not use parts of our body unnecessarily, we could have excellent physical culture at no expense, and with considerable advantage all round.

It may be as well to give a few instances of personal experiences that have been condemned as cranky fads. We do not advocate them for others. What we do insist is that they hurt no one (among other reasons, they were done *in strict privacy*), and they taught us a certain number of truths which we could scarcely have found out otherwise. Among the experiences were a week of complete inmastication of food ; three days of fasting ; one day of exercises for racquets, practised in short spells at intervals, in contrast with one day of exercises practised continuously each time up to the point of exhaustion ; three months of

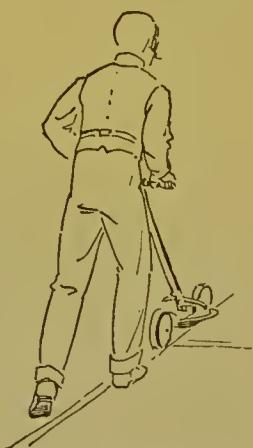


FIG. 12.—MARKING THE LAWN.

practically no exercise at all ; consecutive work for eighteen hours ; frequent practice of muscular relaxing ; air- and light-bathing, with hair-massage ; and so on. Many of these things would be considered impossible without loss of health ; each of them would be considered absurd by most people, and the air-bath would be considered positively indecent. But the chief defence would be that all through we had some sense of the humour of the experiments.

On the other hand, note the grim seriousness and pomposity with which people do really comic things, like relaxing in its extreme form, slow drinking, complete mastication, and—prolonged dumbbell-work. Notice the inane and sickly grin with which they do absolutely uncomic things. They say, "How are

last, that awful disease of saying that his method is quite good enough already !

This is one of the chiefest of all curiosities in physical culture, a veritable menagerie of curiosities already. The "expert" has lived for so many years, has taught for so many years, and therefore "knows everything." He is older, therefore better. He has had experience, therefore he can learn nothing. This has been the way all though the world's history. Then comes along some Newton, Galileo, Watt, Stephenson, Edison, Marconi, and makes the orthodox authorities alternately jeer and grunt. Perhaps the man who sees the truth dies in poverty, while the orthodox authorities exist in ease. Posterity shall judge.

Is it not really also a curiosity that, with the little we know about the body and mind—their natures, functions, effects, relations—and with the still less that the advertisements know, especially about the mind (except the mind to be appealed to by advertisement), we get such arrogant assertions of omniscience so tamely believed by the public ?

But, once more, these teachers of physical culture have an excuse : they have seen many excellent results from their work ; hundreds of them all over England have earned the gratitude of thousands of those who, having worked under them, have got back a great measure of health, improved appearance, power to work, and so on. It is not their work that seems ridiculous to us ; it is their assumption that they know *all* about it.

And they are quite sane by the side of those people whom we mentioned just now, who write books professing to deal with religion, classics, history, divinity, philosophy, political economy, success, poetry, yet exclude exercise or hygiene among the vital departments of life.



FIG. 13.—THE SMILE THAT WON'T COME OFF !

you ?" and up comes the smile to their cheeks ; they pass the mustard, and out comes the grin. What ridiculous muscular exercise !

Notice, also, the self-satisfaction of the man who has a panacea. We knew an eminent physician who had a panacea for spots on ladies' faces. He himself had one of the most pimply faces in his own city, yet many ladies consulted him, without seeing the absurdity of it all. Or look at the so-called athlete who professes to know all about physical culture, and who yet suffers from coughs, colds, headaches, indigestion, poor sleep, close-mindedness, uncontrolled morals, bad temper, and,

And surely those are curiosities who set forth such authorities, learned in one sphere, as all-round successes, as all-round models for the imitative young.

We cannot take too great care what models we set before the young. At present they have extremely bad models set before them. We remember a case of two little boys who were told to be good and do what they were ordered—in fact, to be like soldiers. It was thought that this would appeal to them. So it did. The next time they were introduced into the drawing-room to show off before visitors, they refused to use their handkerchiefs, which they had thrown away, and they even proceeded to spit on the carpet. When reprimanded, they defended themselves by saying that they had been told to do what soldiers did. So it is with children. We ought to set models before them, but tell them clearly and precisely what these models illustrate. Let them imitate A for one point, B for another point, but not A for that second point. Let them imitate the strong man for strength (but in moderation). Let them perhaps go to some other man as a pattern for activity, and perhaps to some other man as a pattern for lung-development. Let them discriminate between the good and the useful, if not harmless.

And then, again, a curiosity in physical culture is the indignation of some "ex-

perts" when they are criticised. Surely criticism is a compliment; that anyone should consider a system to be worth notice is in itself a compliment. All criticisms ought to be taken as if they were meant in good part. The good should be extracted and used. No one is omniscient and omnipotent yet.

As a matter of fact, physical culture is still in its infancy. It has hundreds of new problems to face, especially the problem of how to keep healthy in the sedentary life of a city, amid many temptations. There are some people who are doing their best to solve this problem; if occasionally they lead us into crankiness, morbidness, and fussiness, let us not be too quick to condemn their teachings as a whole; let us rather turn to a typical procession—a procession of overfed, unexercised, blatant, extravagant, pompous aldermen, let us say—and strip these people of all their customary deckings and external dignities, and see them bare for a moment—if you blush, then, in your imagination, clothe them in silk tights—and ask whether they, as they are, are not *the curiosities of physical culture after all*, and whether that procession of atrophied muscle, taking up a large part of a day and ending with a positively iniquitous banquet, is not really a thing to be treated with ridicule when we come to consider the high position which these people are supposed to hold.

CHAPTER LXI.

A COURSE FOR PEOPLE PAST THEIR PRIME.

Even Inappropriate Courses have Helped some Elderly People—It is Better for these People to Study Principles, including Principles of Food—Less Bulk—More Alkaline “Salts”—Leisurely Eating—Not Long Spells of Severe Work—Tact—Walk and Trot—The Ball—Games—Apparatus—Poise—Neck-exercises—Massage—Joint-pulling—Extensions—Relaxings—Inclined Plank—Swimming-movements—Leg-lifting—Breathing—Muscular Breathing—Gardening—Positions—Walk—Ride—Golf—Adapted Cricket—Training the Memory and Imagination—Hints to the Younger.

THE Editor has had the privilege of looking through three much-advertised Courses specially intended for those who had confessed themselves to be elderly. It struck him that, if these patients continued any of the Courses, they must be very strong-bodied as well as strong-minded, since the exercises were not only long and dull, but also severe; whereas, if they refused or soon gave up exercises so inappropriate to them, they must be very sensible. As a matter of fact, in all three cases the veterans persevered, and, though we could see that two of them were harmed in some ways, yet in other ways they were benefited. We concluded, then, first, that these three people were not really so old as they thought themselves; secondly, that the mere fact of doing regular exercise, even of a far from sane sort, was better than sheer sedentariness. The Editor has every hope, then, that if he can suggest a Course, not too dull, not too long, not too severe, not too injudicious, yet not too blatantly self-satisfied, then, after trying it, hundreds of readers who imagine themselves already aged will find how mistaken they were.

We shall adopt a policy different from that of the usual teacher. It may be good, to some extent, to map out and lay down a hard and fast set of exercises for the very young. But for people of age and

experience this surely is an error. Such people can understand reasons, and should be encouraged to adapt and add for themselves. It seems far better to suggest to them samples and principles, and to leave them to work out the details.

As an instance, however “advisable” it may be thought to tell children to “eat whatever is put before them, and ask no questions” (one reason being that the elders could not answer these questions), it is time that the mature mind asked itself whether a given dish was really good merely because some kindly intentioned body called it “a nice, good plate of soup,” or “a good glass of wine.”



FIG. I.

“to keep up your strength.” The mature mind, in view of its present and future health, should be more reluctant than it usually is to enter into the leading-

strings of a second childhood. It is quite old enough now to judge for itself!

Probably stiffness, and over-acidity of the blood, will be among the commonest features in old age. It seems important to get sufficiency of alkaline "salts" to counteract the acidity. Green foods, like lettuce and endive, are rich in alkaline "salts." Old people are sometimes told not to take lime, but to take iron. We do not believe that the organic lime of cereals, etc., could do them harm. As to iron, it is extremely doubtful how far the mineral iron in most of its advertised forms is assimilated by the system, whereas, if the iron be extracted from bran or barley or spinach or some other plant-source, it seems to be well assimilated, according to experiments made many years ago by Gustav von Bunge. Phosphates are another fraud. It is more than doubtful whether some of the mineral phosphates puffed up by fraudulent firms are really assimilated by the system, in contrast with the phosphates extracted from cereals, etc.

So we would urge those who think they are past their prime not to let advertisements educate them, but to study food-values up to date. A sensible study—and cooking as a hobby—would be worth while.

Every one seems to be agreed that the less bulk people take when they are past their prime, the better. In the first place, their growth was over long ago; indeed, it seems quite usual for people to begin to un-grow, to grow smaller, after a certain age, partly because the liteness is leaving their bones and cartilages. They take less active exercise, and so need less bulk to repair their waste. They ought to be well-practised, so that their movements are more economical than before. For other reasons as well, and especially because now any excess will

throw vast work upon the old and fatigued nerves and muscular systems, they must be very careful to get down their food, not to the vanishing point, but towards the sensible minimum.

The first exercise for those who are past their prime will be a daily exrcise, to be practised at every meal. It is thorough mastication. The more thoroughly one masticates, as we have explained elsewhere, the less bulk one needs. Leisurely eating is, therefore, of great importance for those who are past their prime. It is not merely a fine thing for these people; it is the right example for children. What is a child to think when it sees a man of sixty, who generally professes to know everything because he is sixty, and who boasts of his wide exprience and refuses to learn any new truth, gobbling down his food greedily?

Shakespeare speaks of second childishness in his "Seven Ages." Second childhood is in more ways than one a characteristic of old age. As in childhood, so in old age, there should be short spells of exercise and very little severe stress. Longer spells of severer work are for the healthy middle-aged; even they should be careful in leading up to the great feats.

But those who are past their prime, though they need short spells, need slower work also. The heart and arteries of children are adapted for brisk sprints, little runs, and so on, almost at full speed for a short while, and followed by a rest. Those who are past their prime should not try these violent sprints; their physical work should be brief and free from grinding strain; it should be free from strain by over-rapidity and by over-tension. An occasional use of strength exercises is good, but a perpetual confinement to spring-grip-dumbbells and severe apparatus-work with an unpleasant frown

(as in Fig. 2) is execrable for those who are past their prime; it throws far too

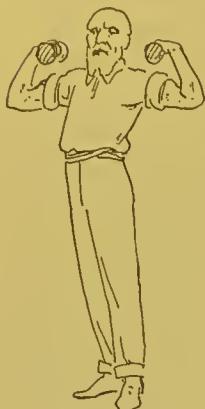


FIG. 2.
AVOID TOO MUCH
OF THIS.

much effort upon the heart. Indeed, the general effect may be one of stupidity and slowness, mental as well as physical. The trunk-muscles can bear this strain far better than the extremities; in fact, they need it more throughout life. Many exercises belonging to the *Naturheil* System (see Figs. 3 and 4, and the special chapter on

Various Systems), if they are carefully done, will be good for those who are past their prime, only, once again, we suggest that one side should work while the other rests.

There is another matter of great moment. Most people who are past their prime feel various degrees of energy at

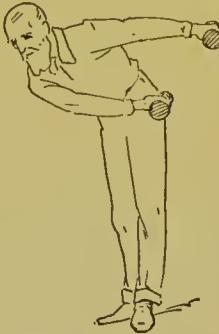


FIG. 3.



FIG. 4.

ADAPT THESE, USING ONE ARM AT A TIME.

various times. Whatever be the causes, the exercises which will be quite too mild for a person at one period will be far too fatiguing for the same person at a different period.

Take, for instance, the Hundred-Up exercise, described at the beginning of this PHYSICAL EDUCATOR. It resembles the movements of walking and running.

Now, we know several old men who find a gentle trot in the early morning (Fig. 5) excellent for their health. Others prefer a walk. The trot and the walk can be imitated to some extent by the Hundred-Up. On some mornings and afternoons the person will feel inclined for a walk of five minutes; beyond that time he might feel bored, if not tired. Let him, then, do the exercise for that time. It would be a pity to stop here on another morning when he felt quite young again; let him, then, enjoy ten minutes of the movement, if he likes.



FIG. 5.

A soft ball (a Lawn-tennis or Ping-pong ball would be good) might suggest that for which very few people are too old—an exercise of bowling or throwing underhand, then catching (Figs. 6 and 7). One can bowl or throw at a mark on the wall! It is a pity that so many who are past their prime give up their ball-

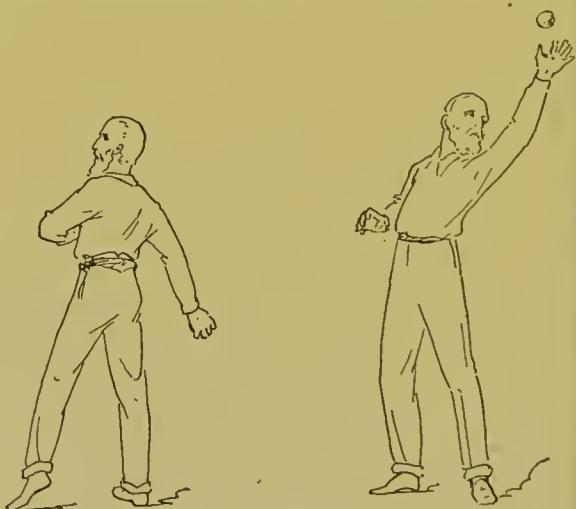


FIG. 6.

games and ball-practice too. Whereas most orthodox experts mention clubs

and dumbbells, stretchers and elastic exercisers, and so forth, as if they were the sole implements, the soft ball is an equally important one; the number of things one can do with it is enormous.



FIG. 7.

ing younger men at tournaments to-day. Veteran Tennis players the Editor has seen performing excellently; the marker,

day. Now there may be times when the spirit of youth returns, or should return. Then, in quite a small space, it would be easy to go through the movements of

Many people who are past their prime are still able to enjoy a game of Cricket, or Fives, or Lawn-tennis. Take, as an example, veterans like W. G. and E. M. Grace. We could cite a good many instances of veteran Fives-players at Eton and Cambridge. Veteran Lawn-tennis players will be found beat-

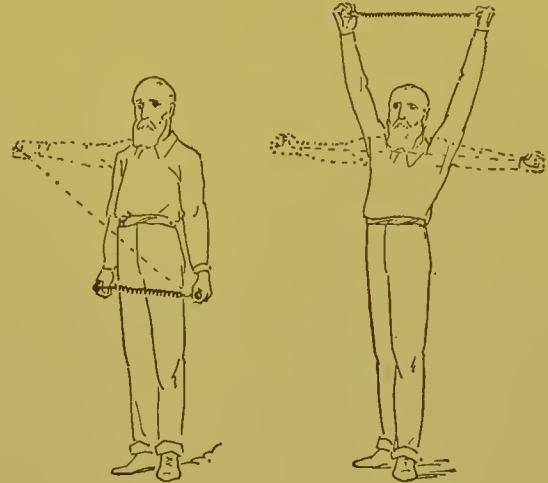


FIG. 9.

one of these games or some other form of sport. Imagine a game of Fives. Without the vigour of the boy's play, you can still stoop, take a high volley, in fact,

go through the whole performance for a minute or two. Or you could go through a game of Cricket. It will help to keep you young and in sympathy with the young—which is an important duty of old age.

We are not condemning apparatus. Once more, we only condemn the indiscriminate use of apparatus, and reliance upon it as if it were complete physical education. Take, as an instance, the expander. In a previous chapter we have pointed out the advantage of the Terry Exerciser for certain cases; it ensures a leisurely movement; some

chest-expanding and other exercises (Fig. 10) can be done in a short space of time.

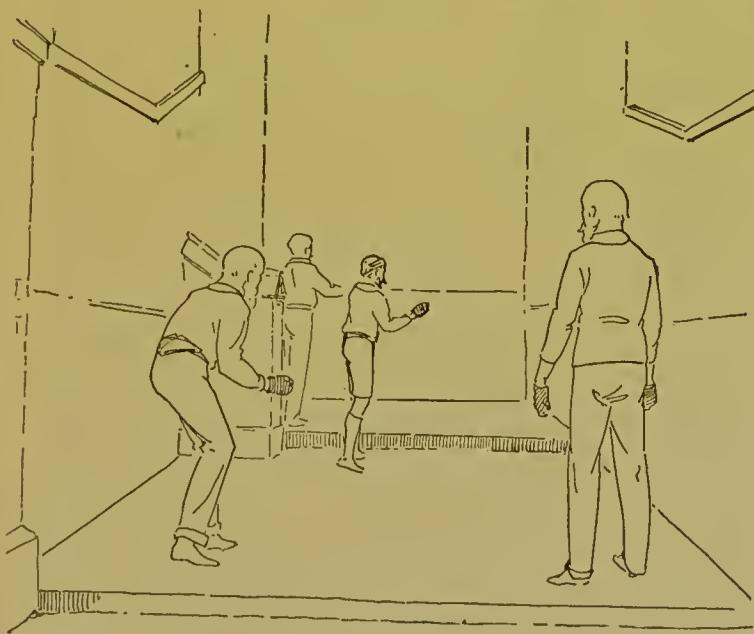


FIG. 8.

Jim Harradine, at the Cambridge courts, is getting on towards his fifty-fifth birth-

We should rather see most of them done with the apparatus attached to the wall and used by each side in turn while the other rests. But it is a great mistake for anyone past his prime to think that this sort of thing is complete physical culture. It is nothing of the sort. There must be plenty of work without apparatus, and as much play as is possible without strain.

A useful practice for those who are past their prime is a practice along a line upon the floor. One is never too old to be accurate and poised. Among the simplest and cheapest helps to physical culture I should set this straight line. It can be made by a piece of chalk, or, better still, a piece of tape fastened at each end with a drawing-pin. Along this line one can walk (Fig. 10) as if it

were a tight-rope. This gives a gentle exercise in accuracy and poise. Attention should be paid to the position, the chin being kept in and the back hollow. The eyes should first look at the feet and the line to ensure correctness; afterwards they should be raised and should look straight ahead. There should be as little gripping as possible. This

gripping seems the chief fault of the orthodox ways of doing things. You find the man who comes down after his high jump or after his horizontal bar work pays great attention—and rightly so—to the bending of his legs and the outward turning of his knees, but he does not pay attention to the state of his hands; he seems to consider it correct to keep them tense. The effect upon the spinal column is not good.



FIG. 10.

In order to help the position and carriage of the body, not only with a view to appearance, but also with a view to the position and health of the trunk-organs, the neck-exercises should certainly be kept up. We have described them elsewhere. First send the head back and look up; then draw the chin in and bend the head forwards; then, keeping the chin in, turn first to the right, then to the left. At the end of each turn, make a bow to an imaginary person, as in Fig. 11. Then bend the head over first to the right, then to the left; then circle it round in each direction in turn.



FIG. 11.

Combine these neck-movements with some of the arm-movements and with breathing through the nostrils.

Afterwards, or at some time during the Course, there must certainly be massage. The simplest form is to rub all over the body with a hand or hand-glove or loofah or flesh-brush (Fig. 12). The latter, if not too hard, may be found excellent in case of sleeplessness. It will



FIG. 12.

also tend to keep the skin pure and remove those acids which really do make the arteries and the whole body older and stiffer. Then there is the quiet massage, starting from the forehead and going over the head to the back of the neck,

in case of sleeplessness or restlessness or headache. There is the facial massage in general, and the important massage

round the eyes, as described in a special chapter. There is the massage round the navel to help digestion and excretion. There are other varieties, such as we have offered.

A particular kind seems appropriate to all ages. It is to take each finger in



FIG. 13.

turn, and every now and then each toe in turn, and pull it, as in Fig. 13, not too violently. Old people tend not only to shrivel up, but also to crinkle up, going back to the monkey-shape which human beings are supposed to have possessed once, perhaps even going back to the crab-shape which others say was their ancestral form. An antidote is this extension. The stretching of the fingers is very easily managed by this pull at each finger in turn, and also by the simple plan of pushing with the palm of the hand against the wall.

Then, again, there is the extension of the feet, which we have recommended as a remedy for cold feet. First (see Figs. 14a and 14b) stretch the toes down;

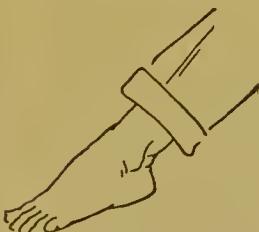


FIG. 14a.



FIG. 14b.

then stretch the heel down; afterwards move the toes about freely.

There is also the extension of the head upwards, of the hands and arms upwards and outwards. There should be no strain,

for the joints are not so supple as they were. At the same time there should be a distinct sensation of stretching.

After the extensions should come the relaxings, which we have described more

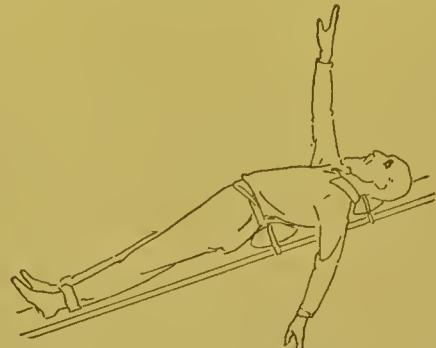


FIG. 15a.

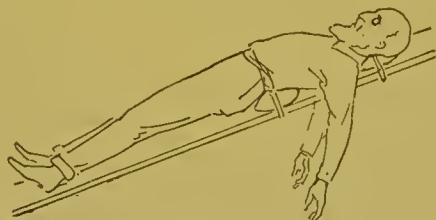


FIG. 15b.

than once. Each can take his choice between the sitting, standing, and lying exercises. It is quite probable that many will prefer the lying exercise on the inclined plank; one arm hangs down limp; the other arm is raised (Fig. 15a) while you breathe in, and is allowed to sink down (Fig. 15b), while the breath is allowed to ooze out.

The inclined plank seems particularly appropriate for those who are past their prime, the exercises are so easily graduated. Instead of walking violently up a mountain for an hour consecutively, you can walk gently, as in Fig. 16, up and down the plank, mildly



FIG. 16.

practising poise, and performing certain simple movements with the arms. Such an exercise, by itself, apart from the many other plank exercises, may go far to remove those evils of old age—obesity, indigestion, constipation, and general stiffness and crampedness of position.

The swimming movements, starting with the upright attitude, or starting on the back upon the inclined plank, have been cited already. Swimming itself should form part of the Course for

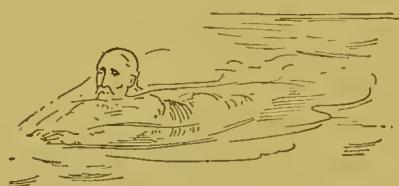


FIG. 17.

those who are past their prime. There are few finer exercises, few exercises more easily graduated. Without going to violent extremes, one can get a pleasant recreation and a series of movements that are not too fatiguing, partly because they are well practised and rhythmical.

Then there are the inclined plank or floor movements of lifting each leg in

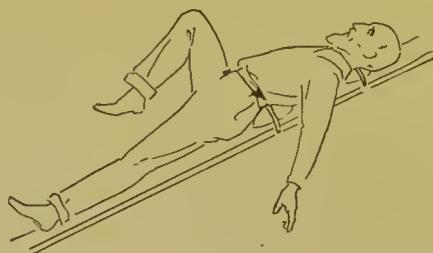


FIG. 18.

turn (Fig. 18), then of lifting the trunk, as in the Course for Men.

Throughout, at intervals, there should be breathing exercises of all kinds. There is no time at which it is too late to learn how to eat more thoroughly and leisurely, or how to breathe more thoroughly and leisurely. Children and those who are

past their prime have the best opportunities. Since their exercises should be in short spells, with intervals, they have just the very best opportunities for breathing practice. They should practise those kinds which we have suggested elsewhere—the downward breathing in which they send the abdomen out and, later on, the downward breathing in which they send the diaphragm down, but hold the abdomen in. The diaphragm now works against resistance, and massages the stomach and liver more thoroughly. Then there is the kind in which they hold the abdomen in and send the chest-walls well out in all directions. Then there is the upper kind, in which they take a full breath—first down, then out, then, keeping their abdomen in and their chest-walls in, they send the air up without too much violence to the top of the lungs. All the time the breathing should be well up through the nostrils.

After the full breathing there should be the relaxed breathing.

Another kind is what has been called "muscular breathing." In this kind first (Fig. 19) the abdomen is sent out while a



FIG. 19a.



FIG. 19b.

deep breath is taken in; then, while this breath is held in, the walls of the abdomen are moved in and out. The second kind has been suggested in the chapter on self-

massage. Here (as in Fig. 19*b*) the abdomen is kept in, and, while the chest is full of air, the chest-walls are sent in and out.

Gardening should form another part of the Course for those who are past their prime. It also can be easily graduated. But great care should be given to the position of the body: the chin should

be kept in and the small of the back hollow. Then the stoopings and stretchings, the work with spade, hoe, mowing-machine roller, and so on, in moderation, will be admirable for the trunk and other muscles. The effects of contact with nature are too obvious to need mention.

Among other exercises, of course, there is the walk, varied, by those who have the courage to try it, with the trot. Here, also, the right attitudes should be observed, not with the object of making the person fussy, but with the object of improving the value of walking and trotting. The same applies to cycling.



FIG. 20.



FIG. 21.

Riding is admirable, provided that the animal is a quiet one and the expense is not too great.

Golf is another fine occupation. As a rule, those who are past their prime should have more leisure time and more money. Golf involves some excellent movements for the trunk. It involves gentle walking, which serves as a rest between the more violent movements; it involves fascinating brain-work; and it should involve social intercourse, though many people take their golf too grimly or pettily, with a ridiculous sense of separateness, isolation, self-circumference-ness.



FIG. 22.

It is a pity that men give up their Cricket so early, for Cricket is a game that few people take fiercely or selfishly. The Editor counts among the greatest pleasures of his life cricket in a little garden in Hampstead. Only a small piece of lawn was needed; any level space would have done almost as well. The handicaps were carefully arranged according to skill: the Editor played with a broomstick; one sister had one innings with a bat, another had three with a bat, another six with a bat, and so on. As a rule, a soft ball was preferred, because it did less damage.

The second childhood should include play, which belongs to the first childhood. Play will go further than anything else to keep the mind and the joints supple.

And here we repeat what we have worked out in detail in a special article elsewhere and what we have alluded to here—the importance of training the memory and imagination. Some of the sweetest memories, some of the sanest

physical culture, will be given in this way. If one has not the opportunity for play,

at least one can (as in Fig. 23) go through play affectionately in imagination : when one watches people at play, one can, in imagination, move and act with them.

And occasionally one can give advice to help younger people to greater skill and greater enjoyment. The Editor remembers well how it was an old man who gave him the best advice that he had ever had about play. The late Mr. Smale, the veteran Racquet-marker at Wellington College, put many young players on the track of self-improvement and self-respect. Words from him came with weight ; he had studied the matters. We could

mention many old Cricketers who have been a godsend to young players by their timely words coming with full authority. Looking back, we wish that we had received advice from more than a hundred veterans, rather than from less than ten. Probably one reason was that the other ninety had ceased to play in imagination : they had looked on at play, when they did look on at it, from the outside, not from the inside.

This is not a complete Course. There is no need for a complete Course for those who are past their prime. The Editor has merely pointed out lines along which people can work independently. It would be a grand error to tie them down to any set of movements. All that he hopes to do is to give samples which they themselves will be old enough to adopt and interested enough to adapt if it should be necessary.



FIG. 23.

INDEX.

- Accuracy and thoroughness: Training of the senses for, 225, 230; cultivation of, through Sloyd system, 672; practice for, 748
- Adaptation, Encouragement of, xiv—xv
- Air: Open-air sleeping, 81, 392—393; air-baths, 144—156, 268, 399; general notes respecting, 393—399; composition of, 621 (*see also* Ventilation)
- Alcohol: Obesity caused by, 134, 138; general remarks respecting, 233—247, 608—609; substitutes for, 609—612 (*see also* Dipsomania)
- Alexander, A., and Alexander, H.: Work in drawing up the British system, 345
- Ambidexterity (*see* Left Side Training)
- Ambidextral Society, 544, 551, 552, 665, 672
- America: Athletic clubs and associations in, 41; practice for sports in, 105, 661; notes on food in, 128—130; physical education in, 253, 464—477; methods of sport in, 563—582
- Anatomy and physiology: Notes about, 616—628
- Anderson, Dr. W. G.: Experiments with regard to the circulation, 231, 232, 276, 625—626; use of training mirror recommended by, 401; method of teaching gymnastics, 472—473, 515, 540, 685; experiments with regard to left side training, 551
- Andrews, Harry: System of training, 122, 359, 440—442, 573
- Ankles: Remedial exercises for, 480, 487, 488
- APPARATUS: Chest-expander, 10—12, 195, 491; stretching apparatus, 61; extending rubber exerciser, 135; bath exerciser, 149; condemned by Ling system, 171—172; value of, in gymnastics, estimated, 179—180, 214, 509—515, 629—637; Sandow exerciser, etc., 282; swimming apparatus, 321; rowing machine, 323—325; British system, use of, in, 339—349; German system, use of, in, 343—344; Narraganset, 345; combination pulley weight and rowing machine, 364; pulley weights, 365; Terry's patent Hercules expander, 366; quarter circle, 367, 369; sparred plank, 369, 708, 710; American inventions and improvements, 474; for weak ankles, 480; parallel bars, 515—520; rings, 687—689; for children, 689—692; horizontal ladder, 709—710; inclined ladder, 710—711; travelling rings, 712; pair of rings, 712—714; steel spring exerciser, 721—722 (*see also* Clubs, Dumbbells, Horizontal bar, Mirror, Plank, Punch ball, Vaulting horse, Wands)
- Archer, Mrs. William: Method of relaxing, 13, 76, 77, 271, 474, 500
- Ardwick Reformatory Industrial School, 396
- Arm, anatomy of, 617
- Army system of training, 42—43
- Athletic sports: Preparation for, 350; American methods in, 464—477, 563—582; for girls, 661—662 (*see also* Games and Play)
- Atwater, Professor: On uses of food, 128—129; pamphlets on food edited by, 469
- Bacon, Mr. G. W.: Theories on ventilation and air, 394—395, 396—398
- Badminton, Suggested adaptation of, in cities, 102—103, 302
- Balance and poise, 230, 677—679; practice for, 748
- Balancing exercises for children, 686, 691—692
- Ball-games (*see* Throwing and Catching)
- Barclay, John, Diet of, 294
- Baseball, 105, 564, 570—572
- Basket ball, 661, 663
- Bath Club, Squash courts at, 39, 101, 103
- BATHS AND WATER TREATMENTS: Enemas, general hints respecting, xvii—xviii, 69, 315—320; air and light, 47—49, 160, 268, 399, 675; Nature Cure methods, 146—155; packs, 148, 317—319; sand baths, 149, 151; electric light and heat, baths, 153; Turkish baths and bath cabiuetes, 315—316; partial baths, 316; alternate hot and cold baths, 319; useful exercises after baths, 370; colour and heat baths, 398, 399; Roman, 589
- Bedales School, 221, 224—228, 665
- Bed-clothing, Hints respecting, 392
- Bedroom practice: For boxing, 187—188; for racquets, 597
- Behnke, Quotations from, 272, 275, 537
- Benson, Mr. E. F.: Scheme for open-air sitting-room, 48; diet of, 119
- BLOOD: Effects of alcohol on, 236; fatigue caused by acids in, 377—387; composition of, 618, 620 (*see also* Circulation)
- Boeckmann, Mr. P. von, System of, 716, 726—728
- Boxing: General instructions, 181—189; exercise for lunge, 408; ancient times, in, 589—590
- Boys: Diet, training, etc., for, 350—370
- BREATHING AND VOICE-PRODUCTION: Organs affected by the diaphragm in breathing, xiv; general rules for, 4—5, 87—92; better breathing and voice-production, 87—97, 269—279; importance of, in nerve-training, 159, 162; effect of slow eating on, 330—331; neglect of, in British system, 345; nasal breathing, 435; Delsartean theories, 498—505; advantages of better breathing, 448—463; necessity for teaching to children, 538; leisureliness in, 602—603; physiological facts about, 620—621; intervals for necessary, 685, 731; massage for, 696; Bryce system, 720; von Boeckmann system, 726—727
- BREATHING AND VOICE-PRODUCTION EXERCISES:** For indigestion and constipation, 36; for women, 68; for obesity, 116—117, 136, 140; for nerve-training, 162; for lower, middle, and upper breathings, 402—403; Hindu, 425; for boys, 368; Delsartean, 501, 504—505; for right and left nostrils alternately, 548, 550; Chinese, 585; general, 697, 751
- Brunton, Sir Lauder: On League of Physical Improvement, ix, x; on exercise, xix, 626—627, 140; on white bread, 127; on effects of alcohol, 237, 242, 246; suggestions by, for sluggish liver, 246; on walking, 438; on yawning, 628; on massage, 698
- Bryce, Dr. Alexander: System of physical culture, 716, 720—723
- Bryning, H., Cycling feats of, 294
- Bulk, Fallacies as to, 263—264
- Bunge, Gustav von: Researches respecting iron in foods, 612
- Burdett, Mr.: Notes on diet by, 119—121; remarks respecting value of fixed apparatus, 630—631
- Calisthenics (*see* Gymnastics and Drill)
- Call, Miss A. P.: System of repose, 474, 537, 544
- Camp, Mr. Walter: Hints on walking by, 569; on track athletics, 574, 580
- Cannon, Dr., Experiments by, 625
- Catching (*see* Throwing and Catching)
- Cereals: Percentage of water in, 233; protein values of, 622
- Chant, Mrs. Ormiston, Musical drill condemned by, 172
- Cheese: Percentage of water in, 233; "salts" contained in, 613; protein value of, 622—623
- Chest expander, 10—12, 195, 491, 747
- Chesterton, Mr. T.: List of games quoted from, 537; second model course devised by, 530—532, 535—539
- Chewing (*see* Mastication)
- Chilblains, Massage-movements for, 702
- CHILDREN: Injurious effects of fatigue on, 371—377; training and remedial exercises for, 478—491, 672; games for, 658—659; course for, 680—692; hints for teaching of, 729—731
- Chinese, Physical training of, 458—459, 585
- Circulation: Effect of emotion on, 469—470, 481—482; experiments by Dr. Anderson, 231—232, 276, 472; teaching with reference to, 619 (*see also* Blood)

CLOTHING: Displacement of organs by wrong corsets, 115—116; effect of tight clothing on the breathing, 272; fatigue caused by wrong clothing, 385—386; general notes on, xvi, 388—393; importance of comfortable clothing for walking, 435; practical teaching necessary, 623; for the feet, 670, 673—677; rules of Wallace system as to, 717, 718

Clubs: Exercises with, 8—10, 141; for obesity, 131, 141; value of, in training muscular sense, 218; fancy manipulation, 341; trunk-bendings and lungings in, 341; experiments with "snake" movement, 473—474

Cobbett, Mr., Nomenclature for club-swinging devised by, 341

Coffee: Percentage of water in, 233; bad effects of, 239; substitutes for, 610

Colleges for physical training, 659

Competition: Stimulating effects of, 241

CONCENTRATION: Theories respecting effects of, 231, 469—470; training for, 231, 603—604; wrong principle of, in Sandow system, 286, 287, 671; hints for, 653; helps for children in, 686; von Boeckmann's system, 728

Constipation: Causes of, 34—38, 718; apparatus for remedying, 480; breathing exercise for, 697

Cookery: Education for the senses by, 222—223; necessity for teaching with respect to, 525; vegetable-tables, 614; rules of Wallace system, 718

Co-operation, Development of, by games, 466

Corsie, Mr., Play organised by, 100, 259, 302—311, 348

COURSES: For most men who are too busy, 1—13; for women and girls, 68—78; to remedy obesity, 131—143; of physical development for boys, 350—370; few minutes' for very busy people, 400—410; first model, 531—534; new syllabus, 532, 536—541, 543; second model, 530—532, 535—539; for little children, 680—692; for people past their prime, 744—752

Cricket: Practice for, 26, 28, 57—58, 572—573; analysis of movements in, 20—30; left-handed play, 552; adaptation of, for girls, 656—657, 661

Cycling, 113, 442—447

Deformities: Exercises for remedying, 111—117; correction of, by apparatus, 214; of the extremities, 666—667, 673—677

Delsarte system (*see Systems*)

DIET AND FOOD: Notes respecting, xvi—xvii; taste, importance of, 15—16, 128; remedial diets, 37—38, 134, 142—143; ordinary and training diets, 118—130; meat diet, advantages and disadvantages of, 124—126, 526—528; percentage of water in various foods, 233; Japanese, of, 295, 428; no-breakfast plan, 296—297, 328, 334—338, 470; for boys, 356—359, 363—364; American pamphlets on, 469; how to begin a change of diet, 521—529; influence of, on the mind, 559; teaching with regard to food values necessary, 537—538, 622—623; in ancient times, 583—585, 589; for children, 683; for people past their prime, 745 (*see also Cookery, Digestion, Drinks, Mastication, Recipes, Stimulants*)

DIET, FLESHLESS: Karl Mann's, 118, 293—299; Nature-Cure, 145—146, 148; Lahmaun's, 155; fallacies with regard to, 262, 297—300; experimental, 290—300; of Hindus, 422, 423—424; physical feats accomplished on, 432; Dr. Kellogg's, 472; remedial effects of, 677

DIET, TRAINING: For boxers and fencers, 189; for walking, 436—437; instructions by Harry Andrews, 442; Wallace system, 717, 718, 719

DIGESTION: Stimulating effect of taste on, 15—16, 128, 479—480; effect of alcohol on, 236—237, 609; leisurely eating good for, 329; Pawlow's experiments with regard to, 335; fatigue caused by disorders of, 382; better breathing an aid to, 451; practical teaching necessary with regard to, 623, 624; massage for, 696

Dipsomania: Causes of, 14—15, 244—245, 608—609; cures for, 229, 245—246, 603

DISCRIMINATION: Training the sense of, 222—225, 230

Doherty, R. F.: Service, 16, 55—57, 408—409; backhand drive, 30

Dress (*see Clothing*)

DRILL (*see Gymnastics and Drill*)

Drinks, General notes on, 233—247, 608—615

Dulness, Bad effects of, 376, 386, 670

Dumbbells: Experiments with, 473; spring-grip dumbbells, 668—669, 670—671; exercises, 726

Dyspepsia, Massage-movements for, 702

EMOTIONS: Fatigue caused by, 382; effect on the breathing, 452, 459—460; effects on the body, 469—470, 481—482, 560—561, 624—625

EXCRETION: Training the sense of, 230—231; table of, 233; effects of alcohol on, 236; result of thorough mastication on, 329; aided by a heavy breakfast, 335; fatigue caused through disorders of, 382; theories respecting, 394

Exercise: Motives for, 14, 22; in cities, 39—50, 83—85; causation of fatigue by, 387; leisureliness in, 602; rules of Wallace system, 719

EXERCISES: Breathing and voice-production, 36, 92—97, 269, 274—277, 425, 450, 453—462, 697, 727; relaxing, 59; arm-raising, 65; for nerve-training, 159, 162—168; sense-training, 226—230; left-side training, 545—554; suggested method for, 606; floor exercise, 621; physical effects of, 626—627; extremities, for the, 668, 676, 678; for children, 674, 682—692, 731; balancing, 686; eye-rolling and face-contortions, 740; for liver, 736 (*see also Courses, Gymnastics and Drill, Plank, Systems, etc.*)

EXERCISES, PREPARATORY, FOR GAMES AND ATHLETICS: Cricket practice, 26, 28, 29, 57—58; "hundred up," 51—55, 436, 542, 575, 686; lawn-tennis service, 55—57, 408—409; foot-drill, 107—108; rowing, for, 149; fencing, for, 193—194, 401—402; swimming, 320, 321; boxing, 408; starting, 686

EXERCISES, REMEDIAL: For indigestion and constipation, 34—38; for deformities, 111—117; for obesity, 131—143, 736; for the young, 487—490

EXPRESSION: Regulation of, 159, 161—162, 600, 606—607; effect of, on the emotions, 452, 454; Delsarte's theories, 496—499, 506—507; importance of, 598; hints on, 654; facial contortions for the improvement of, 740

EYES: "Untensing" of, 493—494, 740; eye-rolling exercise, 740

FATIGUE, 371—387, 683, 731

FEET: Exercises, 7; deformed by wrong clothing, 112, 385—386; remedies for flat feet, 113, 480—481, 487, 488; training of, 183—184, 667—679; massage for cold feet, 702

FENCING: General instructions, 181—196, 199—205; value of, in training the muscular sense, 218; poise and repose cultivated by, 230; exercises for, 401—402

Fitzsimmons, Robert, Breathing exercises by, 94, 276—277, 462

FIVES: Left-hand stroke, 33; suggestions for adapting in cities, 103; good exercise for girls, 664, 665

Fletcher, Mr. Horace: Experiments in diet and mastication, 325, 327—334, 348, 401, 418, 470, 717—718; theories of fatigue, 378

Flexibility (*see Suppleness*)

Flynn, Lieut. T. A. W.: Gymnasium of, 43—44, 510—511; notes on boxing and fencing by, 181—205; notes on training of the senses by, 216—222; course for boys by, 350—370, 547, 550; suggestions for remedial work by, 478—491; "Parallel Bars" by, 515—520; hints on diet by, 528—529; vaulting horse and horizontal bar exercises by, 637—650; notes on apparatus by, 631—636; course for children by, 637—692; gymnastic exercises and instructions by, 704—714

Food (*see Diet and Food*)

Football: American methods, 23, 598; practice with left side recommended, 550; adaptation of, for girls, 661

France, Physical education in, 253

Frowning, 603—604, 678

GAMES AND PLAY: General notes on, 22—33; in cities, 39—50; British games and suggested changes, 98—110; value of, 662, 313, 676; children, for, 301—313, 473—479, 684; preparation for, 350; theories respecting origin and uses of, 465—467; Greek games, 586, 589; for girls, 656—665; musical games, 664 (*see also Athletic Sports, Racquets, Squash*)

Gardening, Value of, as exercise, 751

Gates, Professor Elmer, Researches of, 231, 283, 469—470, 481

German systems (*see Systems*)

Germany: Nature Cure methods in, 82, 144—156; characteristics of physical education in, 252

Girls, Games for, 656—665

Golf: Practice for body-swing, 72—73, 406; benefits of, as physical training, 101, 751

Graduation, Value of, 606

Grains and cereals, "Salts" contained in, 613

Greeks, Physical education of, 296, 509, 583—592

GRIPPING AND TENSION: Waste of energy by, 160; effect on the voice, 271—272; characteristic of Americans, 467; Delsartean instructions for remedying, 492—508

Guilick, Professor Luther: Remarks on play, 25—26, 465—467

- GYMNASIA:** Suggestions for, in cities, 41–50; value of open-air, 308; ventilation of, 393–394; arrangement and equipment of, 509–515
- GYMNASICS AND DRILL:** Suggestions for utilising a small space, 42–47; merits of, 80–81, 650, 660; rope-climbing, 167, 168, 283; squad-work on the Continent, 249–259; drills with special music, 344; need of educated teachers for, 411–420; general notes, 509, 629–637; parallel bars, 515–520; three "Model Courses" estimated, 530–544; in ancient times, 589; apparatus work, 687–694, 705–724; technical terms, 704–705; hygienic drill, 724–726; hints to teachers, 729–733 (*see also Exercises, Systems, Courses*)
- Habits, Formation of, 14–15, 595–607
- Hackenschmidt, Methods of, 264, 442
- Haig, Dr.: Theories respecting uric acid, 240, 243, 378, 381; diet of, 292, 294
- Hale, Dr. A. Creighton, on massage, 603–605, 606–607, 701
- Hall, Dr. Walker: Researches respecting Xanthins and Purins, 125–126; experiments with regard to diet, 300
- Hands, Training of, 667–673
- Hearing, Exercises for training, 228
- Heart: Effects of alcohol on, 236, 237; remedial exercises and suggestions for, 400, 699
- Hero-worship, Value of, 197, 467, 542
- Hindu Yoga system: Practice for repose, 158; diet, 295, 332; training of, 421–426, 585; breathing, 450, 455, 461, 462; physical feats of, 594
- Hirst, George, Positions of, 57
- Hockey, 72, 661
- Holbein, Montague: Training, 121–122, 441
- Horizontal bar: Instructions and exercises, 250, 488, 599, 645–650; technical terms, 704; dimensions, etc., of, 706
- Hurdling, American practice for, 567, 576–577
- IMAGINATION:** Practice by means of, 276; effects of, on the body, 625; hints for control of, 654; development of, 751–752
- Inclined plank (*see Plank*)
- Independent use of the two sides, xv, 4, 177, 212–213, 346, 667–669, 722–723 (*see also Left Side Training*)
- India (*see Hindu*)
- Indigestion, Remedies for, 34–38, 697
- Individuality, Importance of, in systems, 178–180, 252–253
- Insomnia (*see Sleeplessness*)
- Interest, Importance of, in physical education, 215, 227, 259, 267–268, 282
- James, Professor William: Theory respecting expression, 161, 454; remarks respecting over-intensity, 423; researches respecting influence of the breathing on the emotions, 459
- Japanese: Diet of, 295, 332; Jujitsu method of physical culture, 345, 426–431
- Judgment (*see Discrimination*)
- Jujitsu (*see Japanese*)
- Jumping: Art of jumping from a height, 166; correct gymnastic form of, 252; American methods, 467, 469, 472, 569–577
- Kellogg, Dr.: Massage movements for indigestion, 37; treatment for obesity, 142; researches with dynamometer, 470; experiments with regard to left-side training, 548–549
- Kneipp, Nature Cure methods of, 152
- Lagrange, Dr. Fernand, Indiscriminate gymnastics condemned by, 511–513, 514
- Lahmann, Herr, Nature Cure methods of, 155
- Lapps, Diet of, 295
- Laspée, de, Exercises by, xiv, 36, 60, 740
- Latham, Peter, Self-suggestion practised by, 158
- Lawn tennis: Back-hand drive, 30; suggestions for adapting in cities, 103–104; practice for service, 408–409, 557, 572
- LEFT SIDE TRAINING:** Macdonald Smith system, 212; American experiments as to results of, 473–474; Ambidextral Society, 544; general remarks respecting, 545–554; suggested exercises, 578; value of, 672; for children, 683
- Leisureliness, Cultivation of, 598–603, 652–653
- Leisurely eating (*see Mastication*)
- Light: Importance of, xvi, 399; cures by, 399
- Ling system: general account of, 163, 170–180, 252; changes introduced in England, 343, 344; independent control of the two sides neglected by, 547; Games introduced into, 661
- Liver: Effects of alcohol on, 237; exercises for, 246, 736; value of exercise for, 627; massage for, 697, 702
- Lungs: Exercises for, 135; anatomy of, 620 (*see also Breathing and Voice-production*)
- Macdonald Smith, Mr., account of, 206
- Macdonald Smith system: Independent control of two sides acquired by, xv, 346, 547–548; full movements of, 177, 535, 627, 698; general estimate, 206–215; for voice production, 276; freedom and variety of movements in, 285, 503
- Mann, Karl: Open-air gymnasium at Berlin, 47; diet of, 118, 293–294, 432
- MASSAGE:** Importance of, xviii, 573, 580; of abdomen, 3; for indigestion and constipation, 37; self-massage, 69, 410, 693–703, 749; for obesity, 131, 136; use of electricity for, 150; value for boxing and fencing, 188–189; Sandow's embrocation and chart of massage, 282–283; hints by Harry Andrews, 442; recommended by Delsarte, 504; teaching of, to children, 540, 685–686; Chinese methods, 585; in ancient times, 589; head-massage, 730–731
- MASTICATION:** Leisurely eating, general remarks respecting, 326–334, 595–596; advantages of, 348; complete chewing, 470, 544; teaching of, to children necessary, 479, 538, 623–624
- Memory, Training of, 222–225, 751–752
- Mirror, Value of, in exercise, 232, 472
- "Momentum Inertia" system, 728
- Mosso, Professor: Ergograph invented by, 371, 372–373; theories respecting fatigue, 373, 374, 683; on stimulants, 378, 379–380; experiments with respect to carbonic acid, 394; on gymnastic training, 513–514
- MUSCLES:** Value of full contractions for, 208, 209, 210–211; various functions of, 213, 286, 729, 737; training of muscular sense, 229, 230; culture of, 263–264; danger in over-development of, 287; effect of fatigue on, 373–374; illustrations of, 618, 619, 622; effect of emotions on, 626
- Music, Use of, for drill, 178–179, 206–207, 214, 342, 532
- Nature Cure methods:** Account of, 82, 144–156, 723–726; open-air gymnasia, 108–109, 149, 308; air-bath, 268; barefoot walking, 399; comparison of, with Jujitsu, 427
- Nerves, Training of, 157–169, 213–215, 341
- No-breakfast plan (*see Diet and Food*)
- Nostrils, Remedy of deformities in, 116
- Obesity: Exercises for, 117, 131–143, 496, 736; Sandow's course, 282, 283, 286
- Parallel bars, 515–520
- Pawlow, Experiments by, 15, 240, 335
- Persians, Physical training of, 584
- Physical culture systems (*see Systems*)
- Physical economy, 177–178, 729
- Physiology and anatomy, 616–628
- Plank, Inclined, 7–8, 61–62, 711, 749; for women, 73; remedial exercises on, 113, 114, 488; plank-walking in the roof, 167; swimming exercises on, 320; training of the feet by, 480–481, 676
- PLAY (*see Games and Play*)
- Poise (*see Balance and Poise*)
- Position: Importance of, 161, 484–487; "heels together," 464–465, 541–542; correct standing, 479, 495
- Practice for sports: American methods of, 569–582; bedroom practice, 597
- Priessnitz, Nature Cure methods of, 152
- Promptitude, xiv–xv, 163–167
- Proteid: Diagram of proteid values of various foods, 622; importance of, 127, 298
- Pulse-foods, "Salts" contained in, 613
- Punch-ball practice, 131, 187, 276–277
- Putting the shot, 469, 570, 578, 579
- Quarter-circle exercises, 367, 369
- Racing: Starting, 469; hundred yards sprint, 563–564; American methods, 570–576 (*see also Running*)
- Racquets, 40, 103, 553, 597
- RECIPES:** Drinks, for, 611, 612; various dishes, 292–293, 522–525
- RECREATION** (*see Games and Play*)
- RELAXATION AND REPOSE:** Value of, xiv, 158–162, 195–196, 213–214, 230, 231; exercises for, 12–13, 59, 76–77, 409–410, 651–652; effect on breathing and voice, 271–272; neglect of, 345–346, 573, 729; Delsarte system, 474–475, 492–508; necessity for teaching in schools, 544, 685, 731; acquirement of habit of, 596; methods of Dr. George Wilson for, 658; for the extremities, 668
- Remedial hints for the very busy, 651–655
- Rest (*see Relaxation and Repose*)
- Restraint, Importance of, 598
- Rhythm: Importance of, 214, 490–491, 683; gymnastics, in, 669, 705
- Rings (*see Apparatus*)

Romans: Dict of, 296; physical education of, 583—592
Rope-climbing, 167—168, 283, 692, 706—708
Rotch, Dr., Diet experiments by, 126
Round shoulders, 489—490
Rowing: Sadow exercise for, 283; general hints and practices for, 323—325, 474, 549—550
Running: Bent leg running, 383, 384—385; general remarks, 265, 383—385, 440—442 (see also Racing)

Salisbury treatment, 240, 292
"Salts": Uses of, 128—129, 357, 718; tables of, in various foods, 612—613
Sandoz, Eugene: Work in physical culture, 414
Sandoz system (see Systems)
Savate, 187
Savill, Dr. Thomas P.: Quotation from, respecting play, 302; recommendation respecting ventilation, 393
Seaver, Dr. Jay W.: Statistics by, respecting effects of tobacco, 239; on use of apparatus in gymnasias, 510
Sée, Dr. Germain: Treatment for obesity, 142
Self-control, Acquirement of, through slow eating, 332
SELF-SUGGESTION: Alteration of breathing by, 96; use of, in nerve training, 158; for busy people, 653; for sleeplessness, 695
Senses, Training of, 216—332
Shot (see Putting the Shot)
Singing: Production of the voice in, 272—275; Delsartean advice for, 495 (see also Breathing and Voice Production)
Skipping: Exercise for, 409—410; value of, 461, 662, 663; for weak ankles and flat feet, 488, 676; as practice for racing, 570
Sleeping: General recommendations, 392; in open air, 81, 155, 159—160, 392—393
SLEEPLESSNESS: Causes of, 392; cures for, 425, 490, 694—695
Slow eating (see Mastication)
Smell, Training of the sense of, 226, 228—229, 598
Smith, Macdonald (see Macdonald Smith)
Sneezing, Value of, 628
Speaking: Delsartean advice for, 495; acquirement of leisureliness in, 600
Spinal curvature: Remedial work for, 483—489, 491; caused by wrong positions, 677

Sports (*see Athletic Sports*)
Squad-work, 573, 578
Squash: Suggestions for, in cities, 39, 48, 101; good exercise for girls, 664
Starting: American practice for, 469, 574; exercise for, 686
Stebbins, Mrs.: System of reposc, 493, 494—495
STIMULANTS: Mental stimulants, 240—241; fallacies with regard to, 262—263; effects of, 380; fatigue caused by, 381—382 (see also ALCOHOL)
STRAIN: Excess of, in many courses, 285—286, 739; bad for the extremities, 669
Style: Hints for gymnasts, 705
Sully, Mr. E.: Bash-ball invented by, 397; drills with special music given by, 344
Suppleness, Cultivation of, by the Delsarte-system, 492—508
Swedish system (see Ling System)
Swimming: Exercises for breast stroke, 406—407; general notes, 314, 317, 320—323
Switzerland: Compulsory gymnastics in, 82—83; organised games in, 306, 500
Swoboda system, 602
Systems: "What to Demand from Systems," 51—66; Delsartean, 59, 492—508, 602, 668, 676; Nature Cure, 144—156; army, 170—171, 342—343, 345; Macdonald Smith, 206—215; German, 252, 340—341, 343—344; Sadow, 280; British, 339—349; Japanese, 426—431; importance of interest and attraction in, 266, 267; Yoga, 421—426; Swoboda, 602; "Various Systems Estimated," 715—728

TASTE: Effect of, on the digestion, 479—480; training of the sense of, 229
Tea: Percentage of water in, 233; bad effects of, 239; substitutes for, 609—610
Teachers, Hints to, 729—733
Team-work (see Squad-work)
Tennis, History of, 476
Tension (see Gripping and Tension)
Thinness, Remedial diet for, 134
Thoroughness (see Accuracy and Thoroughness)
THOUGHT: Training of, by Jujitsu system, 427—428; control of, 597, 606; turning of, into action, 654
Throwing and catching: Practice for, 404—405, 570, 746—747; value of, as exercise, 657, 671, 686
Tobacco, Effects of, 238—239
Touch, Training the sense of, 229

Track athletics, 574—575, 580
TRAINING: For boys, 359, 369—370; general hints, 441—442, 580—582; American methods, 566, 570, 573—582, 661; in ancient times, 583—592; for the extremities, 666—679; for gymnasts, 705—706
Uric acid: Presence in flesh foods, 248; fatigued caused by, 378
Vaulting: Instructions and exercises, 258, 634—645; American instructions for, 576—577; performance at Zürich, 629
Vegetables: Percentage of water in, 233; pure soft water obtained from, 233; "salts" contained in, 612, 613, 614; cooking of, 614
Ventilation and air, 393—399
Vigoro, 665
Voice-production (see Breathing and Voice-production)

Walking: Barefoot, 146—147, 160; general hints, 264, 432—440, 569; bent leg *versus* straight leg, 433—435; Delsarte's instructions, 505; practice for, 542; positions of, 576, 577; leisureliness in, 600; effects on the liver of, 627
Wands, Exercises with, 73—75, 134, 533
Washing, 539—540, 600—602
Water (see Baths and Water Treatments)
Water polo, 468
Weight-lifting, 570, 602
Wilke, Fräulein, 416, 541
WILL: Training of, 226, 557—562; use of, in correcting deformities, 491
Wilson, Dr. George, Quotation from, 493—494
Wolff, Dr., Analysis of foods by, 612—613
Wollowicz, Count: Experiments respecting effects of alcohol, 237
Worry, Prevention of, 159, 168—169
Wrestling: Competition at a Continental fête, 249, 597; in ancient times, 589—590
Wrinkles, Face contortions for, 740
Wylie, Sir James: Remarks respecting effects of light, 399

Xanthins and Purins: Researches of Dr. Hall, 125—126

Yeo, Dr. Burney: Statement respecting effects of tea and coffee, 239
Yoga system (see Systems)

Zürich Athletic and Gymnastic Festival, 100, 248—250, 412, 419

A Selection

from

Cassell & Company's

Publications.

Illustrated, Fine Art, and other Volumes.

- Aconcagua and Tierra del Fuego.** A Book of Climbing, Travel, and Exploration. By Sir MARTIN CONWAY. With numerous Illustrations from Photographs. 12s. 6d. net.
- Adventure Book, The Red.** Edited by A. T. QUILLER-COUCH. Containing a series of Stories from "The World of Adventure." Profusely Illustrated and printed on fine paper, 5s.
- Adventure Book, The Green.** Edited by A. T. QUILLER-COUCH. Containing a series of Stories from "The World of Adventure." Profusely Illustrated and printed on fine paper, 5s.
- Adventure, The World of.** With Stirring Pictures and 18 Coloured Plates. In Three Vols., 5s. each.
- Adventures of Cock Robin and His Mate, The.** By R. KEARTON, F.Z.S. With 120 Illustrations. 6s.
- Adventures of Harry Revel, The.** By A. T. QUILLER-COUCH. 6s.
- Æsop's Fables,** with about 100 New and Original Illustrations expressly designed by MAUD CLARKE. 7s. 6d.
- Aladdin O'Brien.** By GOUVERNEUR MORRIS. 6s.
- Aliens of the West.** By the Author of "The Rejuvenation of Miss Semaphore." 6s.
- Alternate Currents, Notes on, for Students.** By H. H. SIMMONS, A.M.I.E.E. Illustrated. 1s. 6d. net.
- America at Work.** By JOHN FOSTER FRASER. Popular Edition, 3s. 6d.
- Anarchism in Art.** By E. WAKE COOK. 1s. net.
- Angels, and Devils, and Man.** By WINIFRED GRAHAM. 6s.
- Animals, Popular History of.** By HENRY SCHERREN, F.Z.S. With 13 Coloured Plates, &c. 6s.
- Art, Sacred.** With nearly 200 Full-page Illustrations. 9s.
- Artistic Anatomy.** By Prof. M. DUVAL. Cheap Edition. 3s. 6d.
- Australian Goldfields, My Adventures on the.** By W. CRAIG. 6s.
- Australasia: the Britains of the South.** By PHILIP GIBBS. With 4 Coloured Plates and numerous Illustrations. 2s. 6d. School Ed., 1s. 8d.
- Automobile, The.** A Practical Treatise on the Construction of Modern Motor Cars: Steam, Petrol, Electricity, and Petrol Electric. Edited by PAUL N. HASLUCK. With 804 Illustrations. 21s. net.
- Avenger of Blood, The.** By J. MACLAREN COBBAN. 3s. 6d.
- Ballads and Songs of Spain.** By LEONARD WILLIAMS. 4s. net.
- Birds' Nests, British: How, Where, and When to Find and Identify Them.** By R. KEARTON, F.Z.S. Illustrated from Photographs direct from Nature by C. KEARTON. 21s.
- Birds' Nests, Eggs, and Egg-Collecting.** By R. KEARTON, F.Z.S. With 22 Coloured Plates. 5s.
- Birds, Our Rarer British Breeding: Their Nests, Eggs, and Breeding Haunts.** By R. KEARTON, F.Z.S. Illustrated from Photographs direct from Nature by C. KEARTON. Popular Edition, 3s. 6d.
- Black Arrow, The.** By R. L. STEVENSON. 6s. Popular Edition, 3s. 6d. Pocket Edition, cloth, 2s. net; leather, 3s. net.
- Black Watch, The.** The Record of an Historic Regiment. By ARCHIBALD FORBES, LL.D. With 8 Illustrations. Popular Edition. 3s. 6d.
- Black, William, Novelist.** By Sir WEMYSS REID. With 3 Portraits. 10s. 6d. net.
- Boer War, Cassell's Illustrated History of the.** Two Vols., 21s.
- Brethren, The, A Romance of the Crusades.** By RIDER HAGGARD. 6s.
- Britain at Work.** A Pictorial Description of our National Industries. By popular authors, and containing nearly 500 Illustrations. 12s.
- Britain's Sea-Kings and Sea-Fights.** Profusely Illustrated. 7s. 6d.
- "Britannia" Training Ship for Naval Cadets, The Story of.** With some account of Previous Methods of Naval Education, and of the New Scheme established in 1903. By Commander E. P. STATHAM, R.N. With numerous Illustrations. 12s. 6d. net.

- British Battles on Land and Sea.** By JAMES GRANT. With about 800 Illustrations. *Cheap Edition.* In Three Vols., 10s. 6d. the set.
- British Isles, The.** Depicted by Pen and Camera. With a Series of Coloured Plates reproduced from pictures by celebrated Artists; together with a profusion of Illustrations from Photographs expressly taken for the Work. Vol. I., containing about 400 Illustrations and 12 Coloured Plates, half Morocco, gilt top, 21s. net.
- British Nigeria.** By Lieut.-Col. MOCKLER-FERRYMAN. With Map and 27 Illustrations. 12s. 6d. net.
- British Sculpture and Sculptors of To-day.** By M. H. SPIELMANN. Illustrated. 5s. net; cloth, 7s. 6d. net.
- Building World.** Half-Yearly Vols., 4s. 6d. each.
- Bulb Growing, Pictorial Practical.** By WALTER P. WRIGHT. With numerous Illustrations. Paper Covers, 1s.; cloth, 1s. 6d.
- Butterflies and Moths of Europe, The.** By W. F. KIRBY, F.L.S., F.E.S. With 54 Coloured Plates and numerous Illustrations. 21s. net.
- Cairo and the Khedive.** Illustrated. 6d. net.
- Campaign Pictures of the War in South Africa (1899-1900).** Letters from the Front. By A.G. HALES. 6s.
- Canaries and Cage-Birds, The Illustrated Book of.** With 56 Coloured Plates, 35s.; half-morocco, £2 5s.
- Cassell's Cabinet Cyclopædia.** Concise and comprehensive. Illustrated with several hundred Illustrations and Diagrams specially prepared for the Work. 12s. 6d. net.
- Cassell's Magazine.** Half-Yearly Volume, 5s.; Yearly Volume, 8s.
- Cat, The Book of The.** By FRANCES SIMPSON. With 12 Full-page Plates in Colour and numerous Illustrations. 15s. net.
- Cathedrals, Abbeys, and Churches of England and Wales.** Descriptive, Historical, Pictorial. *Fine Art Edition.* Three Vols., £3 3s. the set.
- Catriona.** By R. L. STEVENSON. 6s. *Popular Edition,* 3s. 6d. *Pocket Edition,* cloth, 2s. net; leather, 3s. net.
- Chantrey and His Bequest.** With reproductions of all the works purchased under the Bequest. Paper covers, 1s. net; cloth, 1s. 6d. net.
- Chrysanthemum Culture, Pictorial Practical.** By WALTER P. WRIGHT. Paper covers, 1s.; cloth, 1s. 6d.
- Chums.** The Illustrated Paper for Boys. Yearly Volume, 8s.
- Clinical Manuals for Practitioners and Students of Medicine.** A List of Volumes forwarded post free on application to the Publishers.
- Clyde, Cassell's Pictorial Guide to the.** With Coloured Plate and 3 Maps. Cloth, 1s.
- Colour.** By Prof. A. H. CHURCH. With Coloured Plates. 3s. 6d.
- Conning Tower, In a; or, How I took H.M.S. "Majestic" into Action.** By the Rt. Hon. H. O. ARNOLD-FORSTER, M.A. Illustrated. 6d.; cloth, 1s.
- Conway, Moncure, Autobiography, Memories and Experiences.** With Maps. 30s. net.
- Cookery, a Year's.** By PHYLLIS BROWNE. *Cheap Edition.* 1s. net.
- Cookery Book, Cassell's Universal** By LIZZIE HERITAGE. *New Edition.* With 12 Coloured Plates. 6s.
- Cookery, Cassell's New Dictionary of.** With about 10,000 Recipes and a Series of Coloured Plates. 12s. 6d. net.
- Cookery, Cassell's Shilling.** 1s.
- Cookery for Common Ailments.** 1s.
- Cookery, Vegetarian.** By A. G. PAYNE. *Cheap Edition.* 1s.
- Cooking by Gas, The Art of.** By MARIE J. SUGG. Illustrated. 2s.
- Coronation Book of Edward VII., King of All the Britains and Emperor of India, The.** By W. J. LOFTIE, B.A., F.S.A. With 24 Coloured Plates and numerous Illustrations. Sumptuously Illuminated in Gold and Colours. 10s. 6d.
- Cupid's Garden.** By ELLEN THORNEYCROFT FOWLER. 3s. 6d. *People's Edition,* 6d.

- "Death or Glory Boys," The.** The Story of the 17th Lancers. By D. H. PARRY. With 8 Illustrations. *New and Enlarged Edition.* 5s.
- Dictionary of Practical Gardening,** Cassell's. Edited by WALTER P. WRIGHT. With 20 Coloured Plates and several hundreds of Illustrations from Photographs taken direct from Nature. Two Vols., half-leather, gilt top, 30s. net.
- Dominion of the Air, The: The Story of Aërial Navigation.** By the Rev. J. M. BACON. With numerous Illustrations from Photographs. *Popular Edition.* 3s. 6d.
- Doré Don Quixote, The.** With about 400 Illustrations by GUSTAVE DORÉ. *Cheap Edition.* Cloth, 10s. 6d.
- Doré Gallery, The.** With 250 Illustrations by GUSTAVE DORÉ. 42s.
- Doré's Dante's Inferno.** Illustrated by GUSTAVE DORÉ. Large 4to Edition, cloth gilt, 21s.
- Doré's Dante's Purgatory and Paradise.** Illustrated by GUSTAVE DORÉ. *New Fine Art Edition.* Two Vols., 16s. net each.
- Doré's Milton's Paradise Lost.** Illustrated by DORÉ. 4to, 21s. *Popular Edition.* Cloth or buckram, 7s. 6d. *Cheap Edition.* In One Vol., 12s. 6d.
- Earth's Beginning, The.** By SIR RÓBERT BALL, LL.D. Illustrated. 7s. 6d.
- Earth, Our, and its Story.** By Dr. ROBERT BROWN, F.L.S. With Coloured Plates and numerous Engravings. *Cheap Edition.* Three Vols., 5s. each.
- Electricity in the Service of Man.** A Popular and Practical Treatise on the Applications of Electricity in Modern Life. Revised and practically Rewritten by R. MULLINEUX WALMSLEY, D.Sc. With upwards of 1,200 Illustrations. 1,024 pages. 10s. 6d. net
- Electricity, Practical.** By Prof. W. E. AYRTON, F.R.S. New and Enlarged Edition, 7s. 6d.
- Empire, The.** Containing nearly 700 Splendid full-page Illustrations. Complete in Two Vols. 9s. each.
- Encyclopædic Dictionary, The. New Edition.** 8 Vols., 10s. 6d. each.
- England and Wales, Pictorial.** With upwards of 320 Illustrations from Photographs. 9s.
- England, A History of,** From the Landing of Julius Cæsar to the Present Day. By the Rt. Hon. H. O. ARNOLD-FORSTER, M.A. Fully Illustrated. 5s. Cloth gilt, gilt edges, 6s. 6d.
- English Dictionary, Cassell's.** Giving Definitions of more than 100,000 Words and Phrases. 3s. 6d.
- English Earthenware and Stoneware.** By WILLIAM BURTON. Containing 24 Plates in Colours, and 54 Black and White Plates, with numerous reproductions of the various marks. 30s. net. This Edition is limited to 1,450 copies.
- English History, The Dictionary of.** Edited by SIDNEY LOW, B.A., and Prof. F. S. PULLING, M.A. 7s. 6d.
- English Literature, The Story of.** Entirely revised and brought up to date. 3s. 6d.
- English Writers.** By Prof. HENRY MORLEY. Vols. I. to XI., 5s. each.
- Fact versus Fiction.** The Cobden Club's Reply to Mr. Chamberlain. 1s. net.
- Familiar Butterflies and Moths.** By W. F. KIRBY, F.L.S. With 18 Coloured Plates. 6s.
- Familiar Wild Birds.** By W. SWAYSLAND. With Coloured Pictures by A. THORBURN and others. *Cheap Edition.* Four Vols., 3s. 6d. each.
- Family Doctor, Cassell's.** By A MEDICAL MAN. Illustrated. 6s.
- Family Lawyer, Cassell's.** By A BARRISTER-AT-LAW. 10s. 6d.
- Far East, The New.** By ARTHUR DIÓSY, F.R.G.S. *Popular Edition.* Illustrated. 3s. 6d.
- Field Hospital, The Tale of a.** By Sir FREDERICK TREVES, Bart., K.C.V.O., C.B., F.R.C.S. With 14 Illustrations. 5s. Leather, 6s.
- Field Naturalist's Handbook, The.** By the Revs. J. G. WOOD and THEODORE WOOD. *Cheap Edition.* paper covers, 1s.; cloth, 1s. 6d. *Interleaved Edition for Notes,* 2s.

- Fifty Years in the Public Service.** By MAJOR ARTHUR GRIFFITHS. With Portrait Frontispiece. 18s. net.
- Flame of Fire, A.** By JOSEPH HOCKING. *New Illustrated Edition.* 3s. 6d.
- French Porcelain.** By E. S. AUSCHER, translated and edited by WILLIAM BURTON. Containing 24 Plates in Colours, and 48 Black and White Plates, with 11 reproductions of the various marks. Royal 8vo, cloth gilt, gilt top, price 30s. net. This Edition is limited to 1,200 Copies.
- Garden Flowers, Familiar.** By F. EDWARD HULME, F.L.S., F.S.A. With 200 Full-page Coloured Plates. In Five Vols., 3s. 6d. each.
- Garden of Swords, The.** By MAX PEMBERTON. 6s. *People's Edition,* 6d.
- Gardener, The.** Yearly Volume. Profusely Illustrated. 7s. 6d.
- Gardening, Pictorial Practical.** By W. P. WRIGHT. With upwards of 140 Illustrations. Paper covers, 1s.; cloth, 1s. 6d.
- Gazetteer of Great Britain and Ireland, Cassell's.** With numerous Illustrations and 60 Maps. Six Vols., 5s. each.
- George W. Joy, The Work of.** With an Autobiographical Sketch, a Technical Note, and Some Remarks on the Painting of the Nude. Profusely illustrated with 30 Rembrandt Photogravures, 20 Reproductions in Colour of Pictures and Drawings, and 9 Illustrations of Studies in Chalk, etc. Large Quarto, £2 2s. net.
- Giant's Gate, The.** By MAX PEMBERTON. 6s. *People's Edition,* 6d.
- Girl at Cobhurst, The.** By FRANK STOCKTON. 3s. 6d.
- Gladys Fane.** A Story of Two Lives. By Sir WEMYSS REID. 3s. 6d.
- Gleanings from Popular Authors.** Illustrated. *Cheap Edition.* 3s. 6d.
- Gold Island.** By NICHOLSON WEST. 6s.
- Golden Tips.** A Description of Ceylon and its Great Tea Industry. By HENRY W. CAVE, M.A., F.R.G.S. Illustrated from Photographs. 10s. 6d. net.
- Greenhouse Management, Pictorial.** By WALTER P. WRIGHT, Editor of "The Gardener," &c. With nearly 100 Illustrations. Paper covers, 1s.; cloth, 1s. 6d.
- Gulliver's Travels.** With upwards of 100 Illustrations. *New Fine Art Edition.* 7s. 6d.
- Gun and its Development, The.** By W. W. GREENER. With 500 Illustrations. *Entirely New Edition.* 10s. 6d.
- Handyman's Book, The, of Tools, Materials, and Processes employed in Woodworking.** Edited by PAUL N. HASLUCK. With about 2,500 Illustrations. 9s.
- Heavens, The Story of the.** By Sir ROBERT BALL, LL.D. With Coloured Plates. *Popular Edition.* 10s. 6d.
- Her Majesty's Tower.** By HEPWORTH DIXON. With an Introduction by W. J. LOFTIE, B.A., F.S.A., and containing 16 Coloured Plates specially prepared for this Edition by H. E. TIDMARSH. *Popular Edition.* Two Vols., 12s. the set.
- Heroes of Britain in Peace and War.** With 300 Original Illustrations. *Cheap Edition.* Complete in One Vol. 3s. 6d.
- Holbein's "Ambassadors" Unriddled.** The Counts Palatine Otto Henry and Philipp. A Key to other Holbeins. By WILLIAM FREDERICK DICKE. Illustrated. 10s. 6d. net.
- Houghton, Lord : The Life, Letters, and Friendships of Richard Monckton Milnes, First Lord Houghton.** By Sir WEMYSS REID. In Two Vols., with Two Portraits. 32s.
- Ia : A Love Story.** By A. T. QUILLER-COUCH (Q). 3s. 6d.
- Impregnable City, The.** By MAX PEMBERTON. 3s. 6d.
- India, Cassell's History of.** In One Vol. *Cheap Edition.* Illustrated. 7s. 6d.
- India : Our Eastern Empire.** By PHILIP GIBBS. With 4 Coloured Plates and numerous Illustrations. 2s. 6d. *School Edition,* 1s. 8d.
- In the Straits of Time.** By CHRISTOPHER HARE. 6s.

- Iron Pirate, The.** By MAX PEMBERTON. 3s. 6d. *People's Edition*, 6d.
- Japan: The Eastern Wonderland.** By D. C. ANGUS. With 48 Full-page Illustrations. 2s. 6d.
- John Gayther's Garden.** By FRANK STOCKTON. 6s.
- Joseph's Letters upon Egypt.** Nos. 1, 2 & 3. 6d. net each.
- Khedive's Country, The.** The Nile Valley and its Products. Edited by G. MANVILLE FENN. Illustrated. 5s.
- Kidnapped.** By R. L. STEVENSON. 3s. 6d. *People's Edition*, 6d. *Pocket Edition*, cloth, 2s. net; leather, 3s. net.
- Kilogram, The Coming of the; or, The Battle of the Standards.** By the Rt. Hon. H. O. ARNOLD-FORSTER, M.A. Illustrated. *Cheap Edition*. 6d.
- King Solomon's Mines.** By H. RIDER HAGGARD. Illustrated. 3s. 6d. *People's Edition*, 6d.
- Kiss of the Enemy, The.** By HEADON HILL. 6s.
- Koreans at Home.** By CONSTANCE J. D. TAYLER. With 6 Plates in Colour and 24 in Black and White. 3s. 6d.
- Kronstadt.** By MAX PEMBERTON. 6s.
- Ladies' Physician, The.** By A LONDON PHYSICIAN. 3s. 6d.
- Laird's Luck, The, and other Fireside Tales.** By A. T. QUILLER-COUCH (Q). 6s.
- Land of the Dons, The.** By LEONARD WILLIAMS, Author of "Ballads and Songs of Spain," &c. With about 42 Illustrations. 15s. net.
- Landscape Painting in Water-Colour.** By J. MACWHIRTER, R.A. With 23 Coloured Plates. 5s.
- Letts's Diaries and other Time-saving Publications published exclusively by CASSELL & COMPANY.** (*A list free on application.*)
- Li Hung-chang.** By Mrs. ARCHIBALD LITTLE. With Rembrandt Frontispiece and 3 Full-page Plates. 15s. net.
- Lieutenant of the King, A.** By MORICE GERARD. 6s.
- List, Ye Landsmen!** By W. CLARK RUSSELL. 3s. 6d.
- Little Huguenot, The.** By MAX PEMBERTON. *New Edition*. 1s. 6d.
- Little Minister, The.** By J. M. BARRIE. Illustrated. *Cheap Edition*. 3s. 6d.
- Little Novice, The.** By ALIX KING. 6s.
- Little Squire, The.** By Mrs. HENRY DE LA PASTURE. 3s. 6d.
- London, Cassell's Guide to.** Illustrated. *New Edition*, 6d.; cloth, 1s.
- London, Greater.** Two Vols. With about 400 Illustrations. *Cheap Edition*. 4s. 6d. each.
- London, Old and New.** Six Vols. With about 1,200 Illustrations and Maps. *Cheap Edition*. 4s. 6d. each.
- London, Rambles In and Near.** By W. J. LOFTIE, F.S.A. Illustrated. *Popular Edition*, 6s.
- Lord Protector, The.** By S. LEVETT-YEATS. 6s.
- Lovers of Lorraine, The.** By S. WALKEY. 6s.
- Man in Black, The.** By STANLEY WEYMAN. 3s. 6d.
- Marie-Eve.** By MARIAN BOWER. 6s.
- Marine Painting in Water-Colour.** By W. L. WYLLIE, A.R.A. With 24 Coloured Plates. 5s.
- Masque of Days, A.** With 40 pages of Designs in Colour by WALTER CRANE. 6s.
- Master of Ballantrae.** By R. L. STEVENSON. 6s. *Popular Edition*, 3s. 6d. *Pocket Edition*, limp cloth, 2s. net; leather, 3s. net.
- Mechanics, Cassell's Cyclopædia of.** Edited by PAUL N. HASLUCK. Profusely Illustrated. Series 1, 2, 3, and 4, each complete in itself. 7s. 6d. each.
- Medicine, Manuals for Students of.** (*A list forwarded post free.*)
- Metalworking: A Book of Tools, Materials, and Processes for the Handyman.** Edited by PAUL N. HASLUCK. With Numerous Illustrations and Working Drawings. 768 pages, 9s.
- Military Forces of the Crown. Their Organisation and Equipment.** By Colonel W. H. DANIEL. Illustrated. 5s.

- Music, Illustrated History of.** By EMIL NAUMANN. Edited by the Rev. Sir F. A. GORE OUSELEY, Bart. Illustrated. *Cheap Edition.* Two Vols. 18s.
- Musk of Roses.** By MARY L. PENDERED. 6s.
- Nat Harlowe, Mountebank.** By GEORGE R. SIMS. With 16 Illustrations. 3s. 6d.
- National Gallery of British Art (The Tate Gallery), The Catalogue of the.** Containing numerous Illustrations, and a List of all the Pictures exhibited. 6d. net.
- National Library, Cassell's.** 3d. and 6d. List post free on application. *New and Improved Issue,* in weekly volumes, 6d. net.
- National Portrait Gallery.** Edited by LIONEL CUST, M.A., F.S.A. Illustrating every Picture in the National Portrait Gallery. Two Vols. £6 6s. net.
- Nation's Pictures, The.** Complete in 4 Vols. Each containing 48 Beautiful Coloured Reproductions of some of the finest Modern Paintings in the Public Picture Galleries of Great Britain, with descriptive Text. Cloth, 12s.; half-leather, 15s. each.
- Natural History, Cassell's.** *Cheap Edition.* With about 2,000 Illustrations. In Three Double Vols. 6s. each.
- Natural History, Cassell's Concise.** By E. PERCEVAL WRIGHT, M.A., M.D., F.L.S. With several Hundred Illustrations. 7s. 6d.
- Nature and a Camera, With.** By RICHARD KEARTON, F.Z.S. With Frontispiece, and 180 Pictures from Photographs direct from Nature by C. KEARTON. *Cheap Edition.* 7s. 6d.
- Nature's Riddles.** By H. W. SHEPHEARD-WALWYN, M.A., &c. With numerous Illustrations. 6s.
- Nebo the Nailer.** By S. BARING-GOULD. 6s.
- O'Connell, Daniel, The Life of.** By MICHAEL MACDONAGH. With Rembrandt Frontispiece. 16s. net.
- Old Fires and Profitable Ghosts.** By A. T. QUILLER-COUCH (Q). 6s.
- Our Bird Friends.** By R. KEARTON, F.Z.S. With 100 Illustrations from Photographs direct from Nature by C. KEARTON. 5s.
- Our Own Country.** With 1,200 Illustrations. *Cheap Edition.* Three Double Vols. 5s. each.
- Oxford, Reminiscences of.** By the Rev. W. TUCKWELL, M.A. With 16 Full-page Illustrations. 9s.
- Painting, Practical Guides to.** With Coloured Plates:—
CHINA PAINTING, 5s.
NEUTRAL TINT, 5s.
FLOWERS, AND HOW TO PAINT THEM. 5s.
MANUAL OF OIL PAINTING. 2s. 6d.
MACWHIRTER'S LANDSCAPE PAINTING IN WATER-COLOUR, 5s.
WYLLIE'S MARINE PAINTING IN WATER-COLOUR, 5s.
- Paris, Cassell's Illustrated Guide to.** Paper, 6d.; cloth, 1s.
- Peel, Sir R.** By Lord ROSEBERY. 2s. 6d.
- Penny Magazine, The.** With about 650 Illustrations. In Quarterly Volumes. 2s. 6d. each.
- Peoples of the World, The.** By Dr. ROBERT BROWN. In Six Vols. Illustrated. 3s. 6d. each.
- Peril and Patriotism. True Tales of Heroic Deeds and Startling Adventures.** Two Vols. in One. 5s.
- Physical Educator, Cassell's.** Edited by EUSTACE MILES, M.A. With upwards of 1,000 Illustrations and Diagrams. 9s.
- Pictorial Scotland and Ireland.** With 320 Copyright Illustrations from Photographs. 9s.
- Pictures of Many Wars.** By FREDERIC VILLIERS. 6s.
- Picturesque America.** In Four Vols., with 48 Steel Plates and 800 Wood Engravings. £12 12s. the set. *Popular Edition.* 18s. each.
- Picturesque Canada.** With 600 Original Illustrations. Two Vols. £9 9s. the set.
- Picturesque Mediterranean, The.** With Magnificent Illustrations by leading Artists. Complete in Two Vols. £2 2s. each.

Pigeons, Fulton's Book of. Edited by LEWIS WRIGHT. Revised and Supplemented by the Rev. W. F. LUMLEY. With 50 Full-page Illustrations. *Popular Edition.* 10s. 6d. *Original Edition,* with 50 Coloured Plates and numerous Wood Engravings. 21s.

Planet, The Story of Our. By Prof. BONNEY, F.R.S. With Coloured Plates and Maps and about 100 Illustrations. *Cheap Edition.* 7s. 6d.

Playfair, Lyon, First Lord Playfair of St. Andrews, Memoirs and Correspondence of. By Sir WEMYSS REID. With Two Portraits. *Cheap Edition.* 7s. 6d.

Poultry, The Book of. By LEWIS WRIGHT. *Popular Edition.* 10s. 6d.

Poultry, The New Book of. By LEWIS WRIGHT. With 30 Coloured Plates by J. W. Ludlow, and other Illustrations. 21s.

Poultry Keeper, The Practical. By LEWIS WRIGHT. With Eight Coloured Plates and numerous Illustrations. 3s. 6d.

Postcards, Cassell's Art. 3 Series, each containing reproductions of six of Barnard's Character Sketches from Dickens. 6d. each Series. 4 Series Nation's Pictures, each containing six beautiful reproductions in colour of Standard Works of Art. 6d. each Series. The Tower of London series, six views reproduced in colour from drawings by H. E. Tidmarsh. Views of London series, six views reproduced in colour from the original drawings by Charles Wilkinson.

Profitable Home Farming, specially adapted to Occupants of Small Homesteads. By 'Yeoman.' 1s.; cloth, 1s. 6d.

Q's Works. 5s. each.

†DEAD MAN'S ROCK.

†THE SPLENDID SPUR.

†THE ASTONISHING HISTORY OF TROY TOWN.

"I SAW THREE SHIPS," and other Winter's Tales.

NOUGHTS AND CROSSES.

THE DELECTABLE DUCHY.

WANDERING HEATH.

*Also at 5s. 6d. † Also *People's Editions* at 6d.

Queen's London, The. Containing about 450 Exquisite Views of London and its Environs. 9s.

Queen Victoria, A Personal Sketch. By Mrs. OLIPHANT. With Three Rembrandt Plates and other Illustrations. 3s. 6d.

Railway Guides, Official. With Illustrations, Maps, &c. Price 1s. each; or in Cloth, 1s. 6d. each.
LONDON AND NORTH WESTERN RAILWAY.
GREAT WESTERN RAILWAY.
MIDLAND RAILWAY.
GREAT NORTHERN RAILWAY.
GREAT EASTERN RAILWAY.
LONDON AND SOUTH WESTERN RAILWAY.
LONDON, BRIGHTON AND SOUTH COAST RAILWAY.
SOUTH EASTERN AND CHATHAM RAILWAY.

Red Morn. By MAX PEMBERTON. With 8 Illustrations. 6s.

Rivers of Great Britain: Descriptive, Historical, Pictorial.
RIVERS OF THE SOUTH AND WEST COASTS.
Popular Edition, 16s.
RIVERS OF THE EAST COAST. *Popular Edition, 16s.*

Rogue's March, The. By E. W. HORNUNG. 3s. 6d.

Royal Academy Pictures. Annual Volume. 7s. 6d.

Ruskin, John: A Sketch of His Life, His Work, and His Opinions, with Personal Reminiscences. By M. H. SPIELMANN. 5s.

Russia: The Land of the Great White Czar. By E. C. PHILLIPS. With 48 Full-page Illustrations. 2s. 6d.

Saturday Journal, Cassell's. Yearly Volume, cloth, 7s. 6d.

Scales of Heaven, The. Narrative, Legendary and Meditative. With a few Sonnets. By the Rev. FREDERICK LANGBRIDGE. 5s.

Science Series, The Century. Consisting of Biographies of Eminent Scientific Men of the present Century. Edited by Sir HENRY ROSCOE, D.C.L., F.R.S. Crown 8vo. *New Edition.* 9 Vols. 2s. 6d. each.

Scientific Truth, The Criterion of. By GEORGE SHANN. 1s. 6d.

Sea, The Story of the. Edited by Q. Illustrated. In Two Vols. 9s. each. *Cheap Edition.* 5s. each.

Sea Wolves, The. By MAX PEMBERTON. 3s. 6d. *People's Edition, 6d.*

Sentimental Tommy. By J. M. BARRIE. Illustrated. 6s.

- Shaftesbury, The Seventh Earl of, K.G., The Life and Work of.** By EDWIN HODDER. *Cheap Edition.* 3s. 6d.
- Shakespeare, The Plays of.** Edited by Professor HENRY MORLEY. Complete in Thirteen Vols., cloth, 21s. ; also 39 Vols., cloth, in box, 21s.
- Shakespeare, The England of. New Edition.** By E. GOADBY. With Full page Illustrations. 2s. 6d.
- Shakspere, The Leopold.** With 400 Illustrations. *Cheap Edition.* 3s. 6d. Cloth gilt, gilt edges, 5s. ; half-persian, 5s. 6d. net.
- Shakspere, The Royal.** With 50 Full-page Illustrations. Complete in Three Vols. 15s. the set.
- Ship of Stars, The.** By A. T. QUILLER-COUCH (Q). 6s.
- Siberia, The Real.** By J. FOSTER FRASER. With numerous Illustrations from Photographs. *Popular Edition,* 3s. 6d.
- Sights and Scenes in Oxford City and University.** Described by THOMAS WHITTAKER, B.A. With 100 Illustrations after Original Photographs. *Popular Edition,* 10s. 6d. net.
- Social England.** A Record of the Progress of the People. By various Writers. Edited by H. D. TRAILL, D.C.L., and J. S. MANN, M.A. *New Illustrated Edition.* Six Vols., 14s. net each.
- Sports and Pastimes, Cassell's Book of.** With numerous Illustrations. *New Edition.* 3s. 6d.
- Sports of the World.** Edited by F. G. AFLATO, F.R.G.S., F.Z.S. With several hundreds of New and Original Illustrations. 12s.
- Standard Library, Cassell's.** 1s. net each. (List free on application.)
- Star-Land.** By Sir ROBERT BALL, LL.D. Illustrated. *New and Enlarged Edition.* 7s. 6d.
- Sun, The Story of the.** By Sir ROBERT BALL, LL.D. With Eight Coloured Plates and other Illustrations. *Cheap Edition.* 10s. 6d.
- Swiss Family Robinson.** In words of one syllable. 6d.
- Technical Instruction.** A Series of Practical Volumes. Edited by P. N. HASLUCK. Illustrated. 2s. each.
PRACTICAL STAIRCASE JOINERY.
PRACTICAL METAL PLATE WORK.
PRACTICAL GAS FITTING.
PRACTICAL DRAUGHTSMEN'S WORK.
PRACTICAL GRAINING AND MARBLING.
- Toledo and Madrid: Their Records and Romances.** By LEONARD WILLIAMS. With 55 Illustrations. 12s. 6d. net.
- Tidal Thames, The.** By GRANT ALLEN. With India Proof Impressions of 20 magnificent Full-page Photogravure Plates, and with many other Illustrations in the Text after Original Drawings by W. L. WYLLIE, A.R.A. 42s. net.
- Tommy and Grizel.** By J. M. BARRIE. 6s.
- Tomorrow's Tangle.** By GERALDINE BONNER. 6s.
- Treasure Island.** By R. L. STEVENSON. *Cheap Illustrated Edition.* 3s. 6d. *Pocket Edition.* Cloth, 2s. net ; leather, 3s. net.
- Turner, J. M. W., R.A., The Water-Colour Sketches of, in the National Gallery.** With 58 Facsimile Reproductions in Colour, comprising the rivers of France—the Seine—the rivers of England, the ports of England. The descriptive text written by THEODORE A. COOK, M.A., F.S.A. £3 3s. net.
- "Unicode": The Universal Telegraphic Phrase Book.** *Desk or Pocket Edition.* 2s. 6d.
- Westminster Abbey, Annals of.** By E. T. BRADLEY (Mrs. A. MURRAY SMITH). Illustrated. *Cheap Edition.* 21s.
- Wild Flowers, Familiar.** By F. EDWARD HULME, F.L.S., F.S.A. With 240 beautiful Coloured Plates. *Cheap Edition.* In Seven Volumes. 3s. 6d. each.
- Wild Nature's Ways.** By R. KEARTON, F.Z.S. With 200 Illustrations from Photographs by the Author and C. KEARTON. 10s. 6d.
- "Work" Handbooks.** Edited by PAUL N. HASLUCK, Editor of *Work*. Illustrated. 1s. each.
- Wrecker, The.** By R. L. STEVENSON. 6s. *Popular Edition,* 3s. 6d. *Pocket Edition.* Cloth, 2s. net ; leather, 3s. net.

Bibles and Religious Works.

Aids to Practical Religion. Selections from the Writings and Addresses of W. Boyd Carpenter, Lord Bishop of Ripon. By the Rev. J. H. BURN, B.D., F.R.S.E. 3s. 6d.

Atonement, The. By WILLIAM CONNOR MAGEE, D.D., late Archbishop of York.

Bible Biographies. Illus. 1s. 6d. each.
THE STORY OF MOSES AND JOSHUA. By the Rev. J. Telford.
THE STORY OF THE JUDGES. By the Rev. J. Wycliffe Gedge.
THE STORY OF SAMUEL AND SAUL. By the Rev. D. C. Tovey.
THE STORY OF DAVID. By the Rev. J. Wild.
THE STORY OF JOSEPH. Its Lessons for To-day. By the Rev. George Bainton.

THE STORY OF JESUS. In Verse. By J. R. Macduff, D.D.

Bible Commentary for English Readers. Edited by Bishop ELLIOTT. With Contributions by eminent Scholars and Divines:—

NEW TESTAMENT. *Popular Edition.* Unabridged. Three Vols. 6s. each.
OLD TESTAMENT. *Popular Edition.* Unabridged. Five Vols. 6s. each.
SPECIAL POCKET EDITIONS. 2s. each.

Bible Dictionary, Cassell's Concise. By the Rev. ROBERT HUNTER, LL.D. Illustrated. *Cheap Edition.* 3s. 6d.

Bible Student in the British Museum, The. By the Rev. J. G. KITCHIN, M.A. *New and Revised Edition.* 1s. 4d.

Child's Bible, The. With 100 Illustrations and Coloured Plates. *New Edition.* 1os. 6d.

Child "Wonderful," The. A Series of 9 Pictures in colours by W. S. STACEY, illustrating incidents in the Life of Christ. 2s. 6d.

Church of England, The. A History for the People. By the Very Rev. H. D. M. SPENCE, D.D., Dean of Gloucester. Illustrated. Complete in Four Vols. 6s. each.

Church Reform in Spain and Portugal. By the Rev. H. E. NOYES, D.D. Illustrated. 2s. 6d.

Early Christianity and Paganism: By the Very Rev. H. D. SPENCE, D.D. Illustrated. *Cheap Edition.* 7s. 6d.

Early Days of Christianity, The. By the Very Rev. Dean FARRAR, D.D., F.R.S. *Library Edition.* Two Vols., 24s.; morocco, £2 2s. *Popular Edition.* Complete in One Volume. Cloth, gilt edges, 7s. 6d. *Cheap Edition.* Cloth gilt, 3s. 6d.; paste grain, 5s. net.

Family Prayer-Book, The. Edited by the Rev. Canon GARRETT, M.A., and Rev. S. MARTIN. With Full-page Illustrations. 7s. 6d.

Gleanings after Harvest. Studies and Sketches by the Rev. JOHN R. VERNON, M.A. Illustrated. *Cheap Edition.* 3s. 6d.

"Graven in the Rock." By the Rev. Dr. SAMUEL KINNS, F.R.A.S. Illustrated. *Library Edition.* Two Vols. 15s.

"Heart Chords." A Series of Works by Eminent Divines. 1s. each.

MY COMFORT IN SORROW. By Hugh Macmillan, D.D.

MY BIBLE. By the Right Rev. W. Boyd Carpenter, Bishop of Ripon.

MY FATHER. By the Right Rev. Ashton Oxenden, late Bishop of Montreal.

MY WORK FOR GOD. By the Right Rev. Bishop Cotterill.

MY EMOTIONAL LIFE. By the Rev. Preb. Chadwick, D.D.

MY GROWTH IN DIVINE LIFE. By the Rev. Preb. Reynolds, M.A.

MY SOUL. By the Rev. P. B. Power, M.A.

MY HEREAFTER. By the Very Rev. Dean Bickersteth.

MY AID TO THE DIVINE LIFE. By the Very Rev. Dean Boyle.

MY SOURCES OF STRENGTH. By the Rev. E. E. Jenkins, M.A.

MY WALK WITH GOD. By the Very Rev. Dean Montgomery.

Holy Land and the Bible. A Book of Scripture Illustrations gathered in Palestine. By the Rev. CUNNINGHAM GEIKIE, D.D. *Cheap Edition.* 7s. 6d. *Superior Edition.* With 24 Plates. Cloth gilt, gilt edges, 10s. 6d. *"Quiver" Edition.* Abridged by the Author. With 8 Full-page Illustrations, 2s. 6d. net.

A Selection from Cassell & Company's Publications. 11

Life of Christ, The. By the Very Rev. Dean FARRAR. *Cheap Edition.* With 16 Full-page Plates. 3s. 6d.; paste grain, 5s. net. *Illustrated Quarto Edition.* *Biographical Edition,* 10s. 6d. net. *Original Illustrated Edition,* 21s.

Life of Lives, The: Further Studies in the Life of Christ. By Dean FARRAR. 15s. *Popular Edition,* 7s. 6d.

Life and Work of the Redeemer. Illustrated. "Quiver". *Edition.* With 8 Full-page Illustrations. 2s. 6d. net.

Limits of Episcopal Authority, The. By "LEX." Price 6d.

Matin and Vesper Bells. Earlier and Later Collected Poems (Chiefly Sacred). By J. R. MACDUFF, D.D. Two Vols. 7s. 6d. the set.

Methodism, Side Lights on the Conflicts of. During the Second Quarter of the Nineteenth Century, 1827-1852. From the Notes of the late Rev. JOSEPH FOWLER of the Debates of the Wesleyan Conference. Cloth, 8s. *Popular Edition.* Unabridged. Cloth, 3s. 6d.

Miracles. By the Rev. BROWNLOW MAITLAND, M.A. 1s.

Moses and Geology; or, The Harmony of the Bible with Science. By the Rev. SAMUEL KINNS, Ph.D., F.R.A.S. Illustrated. 10s. 6d. net.

Pilgrim's Progress, The. By JOHN BUNYAN. *Superior Edition.* With Notes by the Rev. ROBERT MAGUIRE, M.A., and containing numerous Illustrations by H. C. SELOUS and M. PAOLO PRIOLI. 3s. 6d.

Plain Introductions to the Books of the Old Testament. Edited by Bishop ELLICOTT. 3s. 6d.

Protestantism, The History of. By the Rev. J. A. WYLIE, LL.D. Containing upwards of 600 Original Illustrations. *Cheap Edition.* Three Vols. 5s. each.

Quiver Postcards. Set of 15 Pictures entitled "Fair Flowers of British Womanhood." 6d.

Quiver Yearly Volume, The. With about 900 Original Illustrations. 7s. 6d.

St. Paul, The Life and Work of. By the Very Rev. Dean FARRAR. *Cheap Edition.* With 16 Full-page Plates, 3s. 6d.; paste grain, 5s. net; *Popular Edition,* 7s. 6d.; *New Illustrated 4to Edition,* 10s. 6d. net; *Original Illustrated Edition,* £2 2s.

"Six Hundred Years"; or, Historical Sketches of Eminent Men and Women who have more or less come into contact with the Abbey and Church of Holy Trinity, Minories, from 1293 to 1893. With 65 Illustrations. By the Vicar, the Rev. Dr. SAMUEL KINNS. 10s. 6d. net.

"Sunday," Its Origin, History, and Present Obligation. By the Ven. Archdeacon HESSEY, D.C.L. *Fifth Edition.* 7s. 6d.

Educational Works and Students' Manuals.

- Æsop's Fables.** In words of one syllable. With 4 Coloured Plates and numerous illustrations. 6d.
- Alphabet, Cassell's Pictorial.** 2s. and 2s. 6d.
- Architectural Drawing.** R. PHENÉ SPIERS. With 26 Plates. *New Edition.* 7s. 6d. net.
- Atlas, Cassell's Popular.** Containing 24 Coloured Maps. 1s. 6d.
- Blackboard Drawing.** By W. E. SPARKES. Illustrated. 3s. 6d.
- Brushwork Series, Cassell's.** Series I.—WILD FLOWERS. Series II.—PICTURES WANTING WORDS. Series III.—ENTERTAINING PICTURES. 3d. per Set, each containing 12 Sheets. Each Sheet includes a Set of Six Water Colours.
- Book-keeping.** By THEODORE JONES. For Schools, 2s.; cloth, 3s. For the Million, 2s.; cloth, 3s. Books for Jones's System, 2s.
- Chemistry, The Public School.** By J. H. ANDERSON, M.A. 2s. 6d.
- Dulce Domum.** Rhymes and Songs for Children. Edited by JOHN FARMER. 5s.
- England, A History of.** By the Rt. Hon. H. O. ARNOLD-FORSTER, M.A. Illustrated. 5s.
- Euclid, Cassell's.** Edited by Prof. WALLACE M.A. 1s.
- "Eyes and No Eyes" Series (Cassell's). By ARABELLA BUCKLEY. With Coloured Plates and other Illustrations. Six Books. 4d. and 6d. each. Complete Volume, 3s. 6d.
- Founders of the Empire.** By PHILIP GIBBS. Illustrated. 1s. 8d.; cloth, 2s. 6d.
- French Cassell's Lessons in. Cheap Edition.** In Two Parts. Cloth, 1s. 6d. each. Complete in One Vol., 2s. 6d. Key, 1s. 6d.
- French-English and English-French Dictionary.** 1,150 pages. Cloth or buckram, 3s. 6d.; half-morocco, 5s.
- French-English and English-French Dictionary, Cassell's New.** Edited by JAMES BOËLLE, B.A. 7s. 6d.
- Gaudeamus.** Songs for Colleges and Schools. Edited by JOHN FARMER. 5s. Words only, paper covers, 6d.; cloth, 9d.
- Geography: A Practical Method of Teaching.** Book I., England and Wales, in Two Parts, 6d. each. Book II., Europe. By J. H. OVERTON, F.G.S. 6d. Tracing Book, containing 22 leaves, 2d.
- German Dictionary, Cassell's.** (German - English, English - German.) *Cheap Edition.* Cloth, 3s. 6d.; half-morocco, 5s.
- Greek Heroes.** New Supplementary Reader. With 4 Coloured Plates, &c. 6d.; cloth, 1s.
- Hand and Eye Training.** By G. RICKS, B.Sc. Two Vols., with 16 Coloured Plates in each. 6s. each.
- Hand and Eye Training.** By GEORGE RICKS, B.Sc., and Jos. VAUGHAN. Illustrated. Vol. I., Cardboard Work, 2s. Vol. II., Colour Work and Design, 3s.
- Historical Cartoons, Cassell's Coloured.** Size 45 in. x 35 in. 2s. each. Mounted on Canvas and varnished, with Rollers, 5s. each.
- In Danger's Hour; or, Stout Hearts and Stirring Deeds.** A Book for School and Home. With Coloured Plates and other Illustrations. Cloth, 1s. 8d.; bevelled boards, 2s. 6d.
- King Solomon's Mines. Abridged Edition,** for Schools. 1s. 3d.
- Latin-English and English-Latin Dictionary.** 3s. 6d. and 5s.
- Latin Primer, The First.** By Prof. POSTGATE. 1s.
- Latin Primer, The New.** By Prof. J. P. POSTGATE. Crown 8vo. 2s. 6d.
- Latin Prose for Lower Forms.** By M. A. BAYFIELD, M.A. 2s. 6d.
- Laws of Every-day Life.** By the Rt. Hon. H. O. ARNOLD-FORSTER, M.A. 1s. 6d.
- Magna Carta.** A Facsimile of the Original Document, mounted on cardboard, together with a Translation. 1s. 6d.
- Marlborough Books:—Arithmetic Examples, Revised,** 3s. French Exercises, 3s. 6d. French Grammar, 2s. 6d. German Grammar, 3s. 6d.
- Mechanics and Machine Design, Numerical Examples in Practical Mechanics' Manuals.** Edited by R. G. BLAINE, M.E. *Revised and Enlarged.* Illustrated. 2s. 6d.
- Mechanics' Manuals.** Edited by PAUL N. HASLUCK. 6d. net each.

- Mechanics, Applied. By J. PERRY, M.E., D.Sc., &c. Illustrated. 7s. 6d.
- Mechanics, Cassell's Cyclopaedia of. Edited by P. N. HASLUCK. Series I., II., III. and IV. 7s. 6d. each. (Each Series is complete in itself.)
- Models and Common Objects, How to Draw from. By W. E. SPARKES. Illustrated. 3s.
- Models, Common Objects, and Casts of Ornament, How to Shade from. By W. E. SPARKES. With 25 Plates by the Author. 3s.
- Object Lessons from Nature. By Prof. L. C. MIALL, F.L.S. Fully Illustrated. New and Enlarged Edition. Two Vols., 1s. 6d. each.
- Physiology for Schools. By A. T. SCHOFIELD, M.D., &c. Illustrated. Cloth, 1s. 9d.; Three Parts, paper, 5d. each; or cloth limp, 6d. each.
- Poetry for Children, Cassell's. 6 Books, 1d. each; in One Vol., 6d.
- Popular Educator, Cassell's. With Coloured Plates and Maps, and other Illustrations. 8 Vols., 5s. each.
- Reader, The Citizen. By the Rt. Hon. H. O. ARNOLD-FORSTER, M.A. Revised, Re-set, and Re-illustrated. 1s. 6d. Also a *Scottish Edition*, cloth, 1s. 6d.
- Reader, The Temperance. By J. DENNIS HIRD. 1s. or 1s. 6d.
- Readers, Cassell's "Belle Sauvage." An entirely New Series. Fully Illustrated. Strongly bound in cloth. (*List on application.*)
- Readers, Cassell's Classical, for School and Home. Illustrated. Vol. I. (for young children), 1s. 8d.; Vol. II. (boys and girls), 2s. 6d.
- Readers, Cassell's "Higher Class." (*List on application.*)
- Readers, Cassell's Readable. Illustrated. (*List on application.*)
- Readers, Cassell's Union Jack Series. With Coloured Plates and numerous Illustrations. 6 Books. From 8d. each.
- Readers for Infant Schools, Coloured. Three Books. 4d. each.
- Readers, Geographical, Cassell's New Illustrated. (*List on application.*)
- Readers, The "Modern School." Illustrated. (*List on application.*)
- Readers, The "Modern School" Geographical. (*List on application.*)
- Round the Empire. By G. R. PARKIN. Fully Illustrated. 1s. 6d.
- R. H. S. Curves. By Prof. R. H. SMITH. A Set of 23 Scaled Templates, with Panoplylet, 10s. 6d.
- Scholar's Companion to "Things New and Old." Five Books. 32 pages, extra crown 8vo. 2d. each.
- Shakspeare's Plays for School Use. 7 Books. Illustrated. 6d. each.
- Spelling, A Complete Manual of. By J. D. MORELL, LL.D. Cloth, 1s. *Cheap Edition*, 6d.
- Spending and Saving: A Primer of Thrift. By ALFRED PINHORN. 1s.
- Swiss Family Robinson. In words of one syllable. With 4 Coloured Plates, 6d.
- Technical Educator, Cassell's. With Coloured Plates and Engravings. Complete in Six Vols. 3s. 6d. each.
- Technical Manuals, Cassell's. Illustrated throughout. 16 Books, from 2s. to 4s. 6d. (*List on application.*)
- Technology, Manuals of. Edited by Prof. AYRTON, F.R.S., & RICHARD WORMELL, D.Sc., M.A. Illustrated throughout. 7 Books from 3s. 6d. to 5s. each. (*List on application.*)
- Things New and Old; or, Stories from English History. By the Rt. Hon. H. O. ARNOLD-FORSTER, M.A. Illustrated. 7 Books from 9d. to 1s. 8d.
- Things New and Old, Scholar's Companion to. 5 Books. 2d. each.
- This World of Ours. By the Rt. Hon. H. O. ARNOLD-FORSTER, M.A. Illustrated. *Cheap Edition*. 2s. 6d.
- Troubadour, The. Selections from English Verse. Edited and Annotated by PHILIP GIBBS. 1s. 6d.
- "Wild Flowers" Sheets, Cassell's. 12 Sheets, each containing 10 examples of familiar wild flowers, beautifully reproduced in colours and varnished. 1s. 6d. each.

CASSELL & COMPANY, LIMITED, Ludgate Hill, London.

Books for the Little Ones.

- The Little Folks Adventure Book.** By S. H. HAMER. With Coloured Plate and Illustrations. 3s. 6d.
- The Little Folks Picture Album in Colours.** By S. H. HAMER. With 48 Illustrations in Colours. 5s.
- The Little Folks Animal Book.** By S. H. HAMER. With Coloured Plate and Illustrations. 3s. 6d.
- The Little Folks History of England.** By ISA CRAIG-KNOX. With 30 Illustrations. 1s. 6d.
- Cheepy the Chicken: Being an Account of some of his most Wonderful Doings.** By HARRY ROUNTREE and S. H. HAMER. With Four Coloured Plates and numerous Illustrations. 1s. 6d.; cloth, 2s.
- Animal Land for Little People.** By S. H. HAMER. Illustrated. 1s. 6d.
- Birds, Beasts and Fishes.** With Four Coloured Plates and numerous Illustrations. 1s. 6d.
- Bo-Peep.** A Book for the Little Ones. With Original Stories and Verses, Illustrated with Full-page Coloured Plates, and numerous Pictures in Colour. Yearly Volume. Picture boards, 2s. 6d.; cloth, 3s. 6d.
- "Little Folks" Half-Yearly Volume.** Containing 480 pages, with Six Full-page Coloured Plates, and numerous other Illustrations. Picture boards, 3s. 6d. Cloth gilt, gilt edges, 5s. each.
- "Little Folks" Plays.** Each containing 2 Coloured Plates and numerous Illustrations. 6d. net each:—
 CINDERELLA. By Miranda Hill.
 RUMPELSTILTZKIN AND DUMMLING. Two Plays. By Miranda Hill.
 HOW TO GET UP A CHILDREN'S PLAY. By Maggie Browne.
- "Little Folks" Song Book.** With Four Coloured Plates. 2s. 6d.
- Little Folks' Sunday Book.** By CHRISTIAN REDFORD. Illustrated. 2s.
- Master Charlie.** By C. S. HARRISON and S. H. HAMER. Illustrated. Coloured Boards, 1s. 6d.
- Micky Magee's Menagerie; or, Strange Animals and their Doings.** By S. H. HAMER. With Eight Coloured Plates and other Illustrations by HARRY B. NEILSON. 1s. 6d.; cloth, 2s.
- Peter Piper's Peepshow.** By S. H. HAMER. With Illustrations by H. B. NEILSON and LEWIS BAUMER. 1s. 6d.; cloth, 2s.
- Pleasant Work for Busy Fingers.** By MAGGIE BROWNE. 2s. 6d.
- Quackles, Junior:** Being the Extraordinary Adventures of a Duckling. With Four Coloured Plates and other Illustrations by HARRY ROUNTREE. Written by S. H. HAMER. 1s. 6d.; cloth, 2s.
- The Foolish Fox, and Other Tales in Prose and Verse.** Edited by S. H. HAMER. With Four Coloured Plates and numerous Illustrations. 1s. 6d.; cloth, 2s.
- The Ten Travellers.** By S. H. HAMER. With Four Coloured Plates and numerous Illustrations by HARRY B. NEILSON. 1s. 6d.; cloth, 2s.
- The Jungle School; or, Dr. Jibber-Jabber Burchall's Academy.** By S. H. HAMER. With Illustrations by H. B. NEILSON. 1s. 6d.; cloth, 2s.
- The Old Fairy Tales.** With Original Illustrations. Cloth. 1s.
- "Tiny Tots" Annual Volume.** Boards, 1s. 4d. Cloth, 1s. 6d.
- Topsy Turvy Tales.** By S. H. HAMER. With Illustrations by HARRY B. NEILSON. 1s. 6d.; cloth, 2s.
- Whys and Other Whys; or, Curious Creatures and Their Tales.** By S. H. HAMER and HARRY B. NEILSON. Paper boards, 2s. 6d. Cloth, 3s. 6d.

CASSELL'S SHILLING STORY BOOKS. All Illustrated, and containing Interesting Stories.

A PAIR OF PRIMROSES.
ALL IN A CASTLE FAIR.
CLARE LINTON'S FRIEND.
DOLLY'S GOLDEN SLIPPERS.
FRANK'S LIFE BATTLE.
ELLA'S GOLDEN YEAR.
HER WILFUL WAY.
IN THE DAYS OF KING GEORGE.

LITTLE QUEEN MAB.
RHODA'S REWARD.
THE HEIRESS OF WYVERN COURT.
THEIR ROAD TO FORTUNE.
THE BRAVEST OF THE BRAVE.
TO SCHOOL AND AWAY.
WON BY GENTLENESS.

SHILLING STORY BOOKS BY EDWARD S. ELLIS. Illustrated.

ASTRAY IN THE FOREST.
BEAR CAVERN.
RED FEATHER. A Tale of the American Frontier.

CAPTURED BY INDIANS.
THE BOY HUNTERS OF KENTUCKY.
THE DAUGHTER OF THE CHIEFTAIN.
WOLF EAR THE INDIAN.

CASSELL'S EIGHTEENPENNY STORY BOOKS. Illustrated.

A SELF-WILLED FAMILY.
AIM AT A SURE END.
BEAR AND FORBEAR.
BY LAND AND SEA.
DAISY'S DILEMMAS.
FLUFFY AND JACK.

HONOUR IS MY GUIDE.
ON BOARD THE *ESMERALDA*.
THE MYSTERY OF MASTER MAX;
AND THE SHRIMPS OF SHRIMPTON.
UNCLE SILVIO'S SECRET.
WRONG FROM THE FIRST.

CASSELL'S TWO-SHILLING STORY BOOKS. Illustrated.

ADAM HEPBURN'S VOW.
FAIRWAY ISLAND.
THE LOST VESTAL.

LOST ON DU CORRIG.
TO THE DEATH.
WITH REDSKINS ON THE WARPATH.

TWO-SHILLING STORY BOOKS BY EDWARD S. ELLIS. Illustrated. Cloth.

TAD.
LOST IN SAMOA.
BLAZING ARROW.
CHIEFTAIN AND SCOUT.
KLONDIKE NUGGETS.
NED IN THE BLOCK HOUSE.
NED IN THE WOODS.
NED ON THE RIVER.

THE PATH IN THE RAVINE.
THE RUBBER HUNTERS.
THE YOUNG RANCHERS.
COWMEN AND RUSTLERS.
DOWN THE MISSISSIPPI.
LOST IN THE WILDS.
PONTIAC, CHIEF OF THE OTTAWAS.
THE GREAT CATTLE TRAIL.

HALF-CROWN STORY BOOKS BY EDWARD S. ELLIS. Illustrated. Cloth, gilt edges.

A STRANGE CRAFT AND ITS WONDERFUL VOYAGES.
CAMP-FIRE AND WIGWAM.
FOOTPRINTS IN THE FOREST.
IN RED INDIAN TRAILS.
IN THE DAYS OF THE PIONEERS.
IRON HEART, WAR CHIEF OF THE IROQUOIS.
RED JACKET: THE LAST OF THE SENECA.

SCOUTS AND COMRADES.
SHOD WITH SILENCE.
THE CAMP IN THE MOUNTAINS.
THE HUNTERS OF THE OZARK.
THE LAST WAR TRAIL.
THE LOST TRAIL.
THE PHANTOM OF THE RIVER.
TWO BOYS IN WYOMING.
UNCROWNING A KING.

HALF-CROWN STORY BOOKS FOR GIRLS.

A GIRL WITHOUT AMBITION.
MRS. PEDERSON'S NIECE.

SISTERS THREE.
TOM AND SOME OTHER GIRLS.

HALF-CROWN STORY BOOKS FOR BOYS.

AN OLD BOY'S YARNS.
AT THE SOUTH POLE.
BY FIRE AND SWORD.
COST OF A MISTAKE.

FREEDOM'S SWORD.
HEROES OF THE INDIAN EMPIRE.
LOST AMONG WHITE AFRICANS.

HALF-CROWN STORY BOOKS FOR BOYS (continued):—

- | | | | |
|--|---|---|--|
| MASTER OF THE STRONG HEARTS:
A STORY OF CUSTER'S LAST
RALLY. | PICTURES OF SCHOOL LIFE AND
BOYHOOD. | ROGUES OF THE FIERY CROSS.
STRONG TO SUFFER. | THE QUEEN'S SCARLET.
THE WHITE HOUSE AT INCH GOW.
TOLD OUT OF SCHOOL.
TO PUNISH THE CZAR.
WANTED—A KING; OR, HOW MERLE
SET THE NURSERY RHYMES TO
RIGHTS. |
|--|---|---|--|

BOOKS FOR BOYS AND GIRLS. Fully Illustrated.

- | | |
|--|--|
| GULLIVER'S TRAVELS. With upwards of 100 Illustrations from New Plates. Fine Art Edition, 7s. 6d. | STRANGE ADVENTURES IN DICKY-BIRD LAND. Stories told by Mother Birds to amuse their Chicks, and overheard by R. KEARTON, F.Z.S. With Illustrations from Photographs taken direct from Nature by C. KEARTON. Cloth, 3s. 6d.; cloth gilt, gilt edges, 5s. |
| CASSELL'S ROBINSON CRUSOE. With 100 Illustrations. Cloth, 3s. 6d.; gilt edges, 5s. | MERRY GIRLS OF ENGLAND. |
| THREE AND SIXPENNY STORY BOOKS FOR GIRLS. Illustrated. With 8 Coloured Plates in each. By L. T. MEADE. | POLLY: A NEW-FASHIONED GIRL. |
| A SWEET GIRL GRADUATE. | RED ROSE AND TIGER LILY. |
| A WORLD OF GIRLS: THE STORY OF A SCHOOL. | THE PALACE BEAUTIFUL. |
| BASHFUL FIFTEEN. | THE REBELLION OF LIL CARRINGTON |
| BEYOND THE BLUE MOUNTAINS. | With 8 Illustrations. 3s. 6d. |
| A MADCAP. By L. T. Meade. With 8 Illustrations. 3s. 6d. | FOUND BY A SPELL. By the Hon. Mrs. Greene. |
| FIVE STARS IN A LITTLE POOL. By Edith Carrington. | THE KING'S COMMAND: A STORY FOR GIRLS. By Maggie Symington. |

THREE AND SIXPENNY STORY BOOKS FOR BOYS. Illustrated. Cloth gilt.

- | | |
|--|---|
| "FOLLOW MY LEADER." By Talbot Baines Reed. | THE RED TERROR: A STORY OF THE PARIS COMMUNE. By Edward King. |
| FOR FORTUNE AND GLORY: A STORY OF THE SOUDAN WAR. By Lewis Hough. | THE THREE HOMES. By the Very Rev. Dean Farrar. |
| FOR GLORY AND RENOWN. By D. H. Parry. | UNDER THE GREAT BEAR. By Kirk Munroe. |
| THE CAPTURE OF THE "ESTRELLA": A TALE OF THE SLAVE TRADE. By Commander Claud Harding, R.N. | WITH CLAYMORE AND BAYONET. By Colonel Percy Groves. |

Illustrated Magazines and Practical Journals.

- | | |
|---|--|
| THE QUIVER. Monthly, 6d. | CHUMS. The Paper for Boys. Weekly, 1d.; Monthly, 6d. |
| CASSELL'S MAGAZINE. Monthly, 6d. | TINY TOTS. For the Very Little Ones. Monthly, 1d. |
| LITTLE FOLKS. Monthly, 6d. | WORK. Weekly, 1d.; Monthly, 6d. |
| THE PENNY MAGAZINE. Weekly, 1d.; Monthly, 6d. | BUILDING WORLD. Weekly, 1d.; Monthly, 6d. |
| CASSELL'S SATURDAY JOURNAL. Weekly, 1d.; Monthly, 6d. | THE GARDENER. Weekly, 1d. |

CASSELL & COMPANY'S COMPLETE CATALOGUE WILL BE SENT POST FREE ON APPLICATION TO
CASSELL & COMPANY, LIMITED, *La Belle Sauvage, Ludgate Hill, London.*

110

