

# Health and Longevity



N. Ramakrishna

Keep happy and healthy.

# HEALTH AND LONGEVITY

A treatise in popular language on the cause, prevention,  
and treatment of the commonest diseases

By

A. C. SELMON, M.D.

(Revised)

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## Foreword

MEDICAL science never stands still, though the fundamental facts on which it is based never change. It was in 1924 that the first edition of "Health and Longevity" came from the press. Since then thirteen other editions have been issued in English and the work has been translated into thirteen Indian languages—Bengali, Burmese, Gujarati, Hindi, Kanarese, Khasi, Lushai, Malayalam, Marathi, Singhalese, Tamil, Telugu, and Urdu. Much that was timely when "Health and Longevity" was first published is as timely now as then, but in the intervening years there have been many new discoveries in the field of medicine. The penicillin and the sulpha drugs have revolutionized the treatment of certain diseases and infections.

This edition of "Health and Longevity" incorporates the latest discoveries in the field of drugs, vitamins, and nutrition, as they apply to the particular diseases discussed in this volume. Some chapters have been completely re-written to bring them into harmony with current medical practice.

Thousands of homes in India, Pakistan, Burma, and Ceylon have received untold help from former editions. We issue this edition in the confidence that it will be a real contribution to the health and well-being of the peoples of Southern Asia.

It is not intended that "Health and Longevity" should take the place of a physician, but by imparting information about the symptoms of disease and the causes of ill-health, and advising the reader, when necessary, to seek the help that only a qualified doctor can give, it will lead the layman to place a higher value upon the work of doctors, dispensaries, and hospitals.

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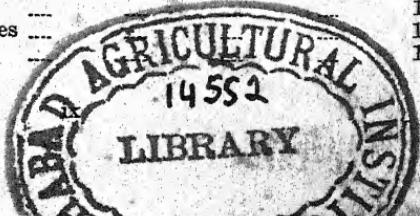
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## KEY TO MANIKIN

1. The Trachea or Windpipe
2. The Lungs
3. The Diaphragm
4. The Liver
5. The Gall-Bladder is located back of Colon at this point
6. The Small Intestine
7. The Large Intestine or Colon
8. The Caecum, to which is attached the Appendix
9. The Sigmoid Colon
10. The Rectum
11. The Stomach (The figure "6" to left of stomach represents the Duodenum)
12. The Pancreas
13. The Spleen
14. The Ribs
15. The Intercostal Spaces (Spaces between Ribs)
16. The Heart
17. The Pulmonary Artery. Marked blue because it carries impure blood
18. The Aorta
19. The Superior Vena Cava
20. The Inferior Vena Cava
21. The Abdominal Aorta
22. The Kidneys. With renal artery in red and renal vein in blue attached
23. The Pelvic Bone
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## *Chapter One*

# Man's Most Valuable Possession

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IFE is man's most valuable possession, and next in order of value is health. Without health, life is deprived not only of much, if not all, of its usefulness, but also of its joys and pleasures. For if the body is not in good health, one cannot go about at will; he cannot do what he would enjoy doing; he cannot eat the food he would enjoy eating.

A sick man not only suffers pain and discomfort himself, and is unable to supply his own needs, but he requires one or more persons to stop doing their ordinary work and spend their time in caring for him. In this way he becomes a burden to others because they must nurse him and supply his food and clothing.

### **The Menace of Sick Persons**

In addition to all this the sick person is often a menace to everyone in his immediate neighbourhood, because most diseases are easily carried from one person to another. Have we not all seen instances where one member of a family became sick, and in a very short time other members of the family contracted the disease from him and were stricken down? Very often the disease spreads abroad from that family to other families in the community, resulting in large financial loss through the afflicted persons not being able to work or conduct their business, and in that greatest of all losses, the loss of human life.

Furthermore, when health is impaired it cannot be restored in a day. It is a grievous error to look upon dis-

ease as a matter of small importance because it is thought a cure can be effected by taking a few doses of some medicine. Most diseases require many days and the expenditure of much effort to effect a cure. Looked at from this viewpoint it is evident that the community as a whole, as well as every individual in the community, should place a very high valuation on health.

It is the first duty of everyone to take care of his own body and keep it in health. This is a duty he owes to himself, to his family, to his neighbours and to his country; and, above all, it is a duty that he owes to his Creator. It is a mistake to think that sickness is inflicted by the gods, or by evil spirits, or by climatic conditions, and so is unavoidable. Neither is life and death decided by fate.

### Cause of Sickness

Sickness is brought on by a violation of the laws of health. By observing the laws of health and caring well for the body, it is possible to avoid at least eight-tenths of the sickness with which the majority of the people are afflicted. Observance of the laws of health brings that blessing which all men desire, namely, long life. Disregard of the laws of health brings upon one those calamities which all men fear, namely, sickness and early death.

### Little Care Given to Bodies

As a rule, when people are in health they give little thought to the care of their bodies; but when they become weak and diseased and death draws nigh, then they begin to study how to care for their bodies; but alas, it is often too late. This is like waiting until after the thief has gone before locking the door. The time to begin caring for the body is while one is yet young. Indeed it has been said that, in order to ensure the child's having a healthy body and a strong constitution, it is necessary to begin before the child is born. The father and mother must care well for their own health because weak, sickly parents cannot beget strong, healthy children.

It is probable that the majority of the readers of this book have already reached maturity. Perhaps many already have weak bodies, and some may be afflicted with disease. In that case it is all the more important that readers of this book study the laws of health and learn not only how to care for the body when it is in health, but also how to restore it to health if it becomes diseased. The aim of this book is to give the reader information that will enable him to avoid disease and to preserve his own health and that of his family. It gives such instruction in the treatment of common diseases as can be carried out in the home by one who is not a physician. Needless to say, in every case of serious illness the help of a competent physician should be secured, if possible; for no book can take the place of a skilled physician.

### The Causes of Disease

Many people erroneously think that disease is an unavoidable calamity. Physicians and scientists have now demonstrated that diseases are due to specific causes. Some diseases are due to the body not being supplied with the proper kinds of nourishment; beri-beri is such a disease. There are diseases that are caused by poisons entering the body; such a disease is phosphorus poisoning, which is often contracted by those who work in match-making factories. Disease may be brought on by wrong habits; for example, wrong habits of eating may cause dyspepsia. The above-mentioned causes do not account for more than one-tenth of the sickness in the world; the other nine-tenths are caused by disease-producing germs.

### The Greatest Enemies of Mankind

Disease-producing germs are the greatest enemies of mankind. Every day they kill tens of thousands of people. Disease germs are the cause of colds, tuberculosis, pneumonia, diarrhoea, dysentery, typhoid fever, cholera, tetanus (lock-jaw), whooping cough, malaria, leprosy, bubonic plague and a multitude of other diseases. From reading this list it will be seen that most of the deaths in the world are caused by disease germs.

Disease germs are of two kinds. One kind belongs to the plant kingdom and one kind to the animal kingdom. These disease germs are so very, very small that the eye cannot see them. Most of them are so small that when they are magnified one thousand times by a microscope, they appear only as large as a mustard seed.

Disease germs multiply very fast. Under favourable conditions a single one of the germs that produce cholera or typhoid fever can, in ten hours' time, give rise to a million others. Since they are so small and multiply so fast, they are widely distributed. They are found in the water of wells, rivers and ponds, in the dust of the street and in the dust on the floors and walls of houses, and even in the foods we eat and the liquids we drink. It may be said that in thickly populated places disease-producing germs are found everywhere. Since this is so, everyone should learn how to keep these germs out of the body, and how to destroy them should they gain entrance into the body. These subjects will be discussed in other chapters of this book.

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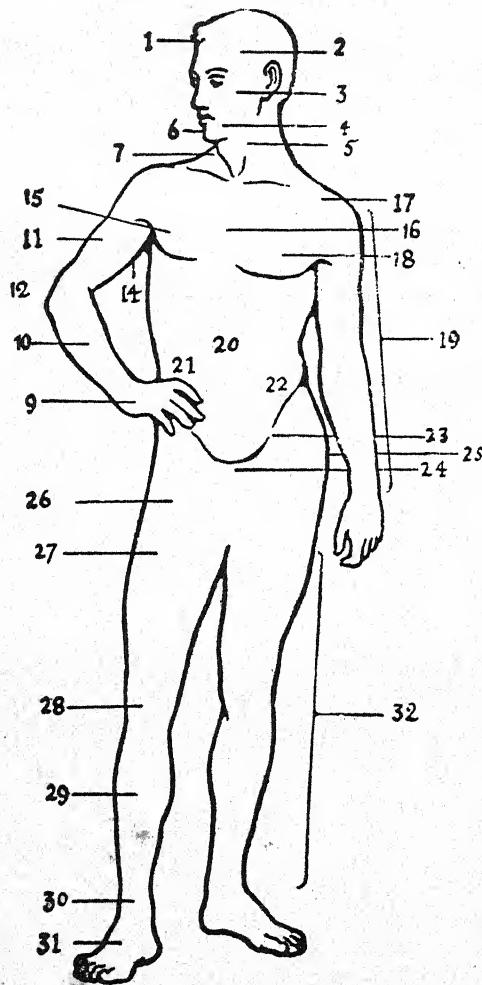
## *Chapter Two*

# The Construction of the Body

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THE body has three main divisions, namely, the head, the trunk, the upper and lower limbs. In the trunk there is a large cavity wherein are almost all of the important organs. This cavity is divided into an upper and a lower portion by a thin wall called the diaphragm (see Manikin). The upper portion is called the chest. Within it are the heart and lungs, and in the back part of it are the trachea and gullet, or oesophagus. The cavity below the diaphragm is called the abdominal cavity. Within it are the liver, the stomach, the spleen, the pancreas, the small and the large intestines. The kidneys are situated just outside it, at the back.

Each member of the body has its own use and is called an organ. Several organs may work together. For example, the mouth, teeth, gullet, stomach, small and large intestines and pancreas all work together in the digestion of the food; these are collectively called the digestive organs. The nose, pharynx, trachea and lungs work together in getting fresh air into the body, and getting rid of the carbon dioxide (see Chapter 5); and for this reason they are called the respiratory organs. The heart and all the large and small blood-vessels work together in causing the blood to circulate through the body; and so they are called the circulatory organs. The kidneys, skin, lungs, liver and large intestine all work together in getting the waste matters out of the body; for this reason they are called the excretory organs. The brain, the spinal cord and all the large and small nerves work together in directing and con-



1. Forehead.
2. Temple.
3. Cheek.
4. Jaw.
5. Neck.
6. Chin.
7. Trachea.
9. Hand.
10. Forearm.
11. Upper arm, also called "arm."
12. Elbow.
14. Armpit.
15. Right breast.
16. Chest.
17. Shoulder.
18. Left breast.
19. Arm.
20. Abdomen.
21. Liver.
22. Spleen.
23. Groin.
24. Pelvis.
- 25 and 26. Hips.
27. Upper leg, or "thigh."
28. Knee.
29. Calf.
30. Ankle.
31. Foot.
32. Leg.

trolling all the other organs of the body; these comprise the nervous system. In addition to the above-mentioned organs there are the bones, which serve as the framework and give shape to the body, and the muscles, which move all the parts of the body.

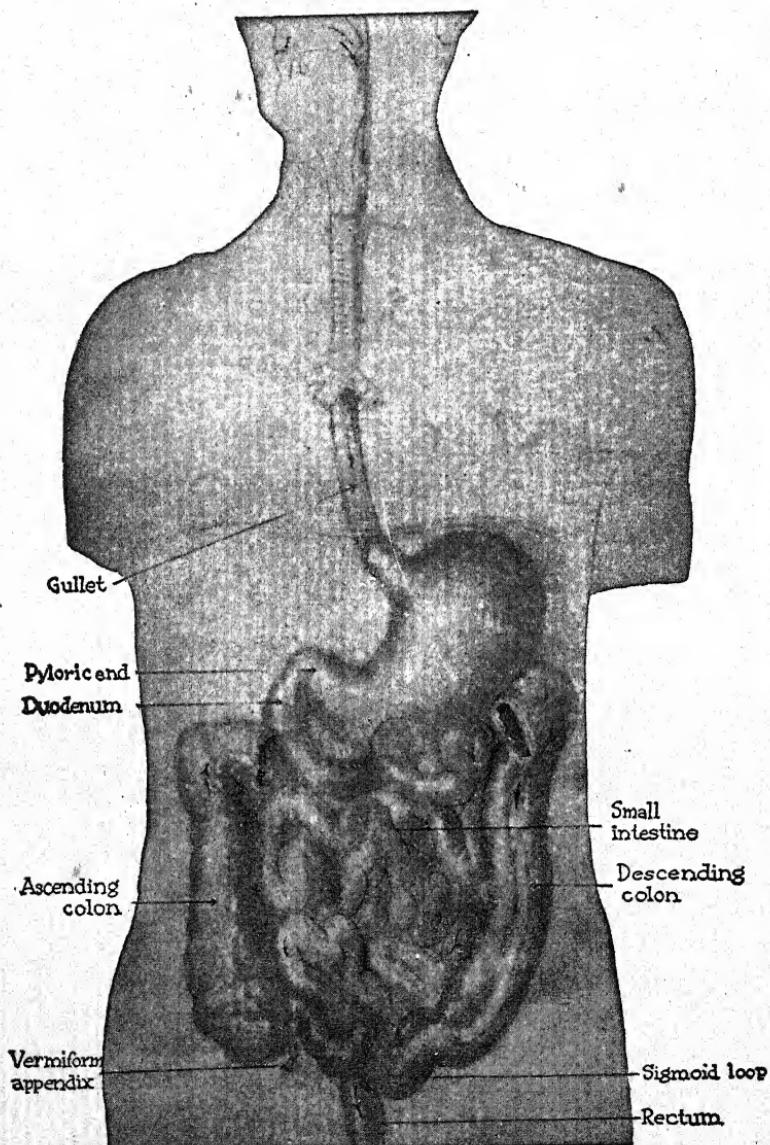
If all the parts of the body are protected and their needs supplied, one will have perfect health.

#### THE SIX RULES OF HEALTH

Those things that are necessary in caring for the body and keeping it in health are summarized in the following six general rules:

1. The body must have proper food and drink.
2. The body must have an abundance of sunlight and fresh air.
3. The body must constantly get rid of its waste matter.
4. The body must be protected so that it will not be injured by cold or heat.
5. The body must have proper exercise and proper rest daily.
6. The body must be constantly protected against the entrance of poisons and disease-producing germs.

By observing these six rules, disease can be avoided and long life ensured; but failure to observe any one of them will sooner or later bring illness.



The digestive system of the body consists of the mouth, the oesophagus, the stomach, the intestines and several glands connected with these organs.

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### *Chapter Three*

## How the Body Is Nourished

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OUR bodies are composed of many kinds of material. There is one kind of material in the bones, another kind in the skin and another kind in the nerves. Whether awake or asleep, some parts of the body are always moving and are continually wearing out. Material is needed to repair this wear and waste. This repair material is found in the food we eat. Our bodies get from the food we eat the energy that enables the heart to beat, and the arms and legs to move, and each organ to do its appointed work. No matter whether the weather be hot or cold, our bodies are always warm. This heat that keeps the body warm also comes from the food we eat. From this we see that the food we eat serves two important purposes: First, it supplies the body with heat and energy. Second, it supplies the material for the repair and growth of the body.

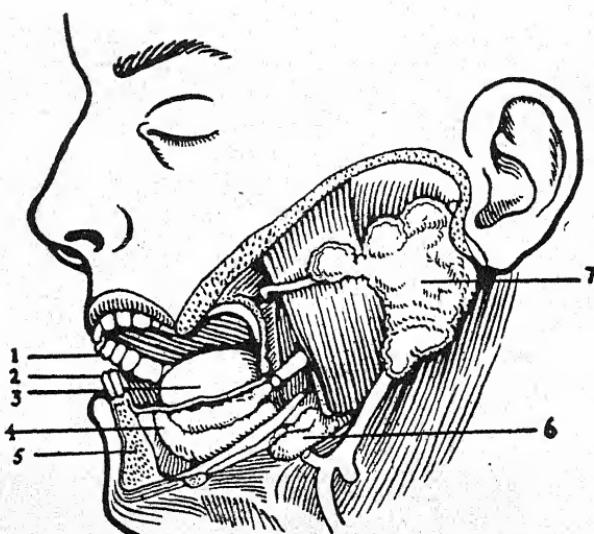
### **Food Must Be Digested**

Before it can supply building material or heat or energy, food must be eaten and digested. Digestion is the series of changes through which the food passes that prepares it for the use of the body as heat and energy-producing material and as material for repair and growth.

### **The Alimentary Canal**

The part of the body that has to do with digesting the food is called the alimentary canal. The alimentary canal

is a long tube that reaches from the mouth to the lower end of the large intestine. The middle portion of it is coiled up. In an adult this tube is about thirty feet long. The names of the different sections of the alimentary canal are the mouth, oesophagus, stomach, small intestine and large intestine.



1. Upper teeth. 2. Lower teeth. 3. Tongue. 5. Lower jaw.  
4, 6, 7. Salivary glands.

The food first enters the body through the mouth. In the mouth it should be chewed into very fine particles by the teeth. As it is chewed it is mixed with the saliva, a fluid which comes to the mouth from three pairs of glands called the salivary glands. The location of these glands is shown in the accompanying illustration. The saliva helps in the work of digestion; therefore food should not be swallowed quickly, but time should be given, by thoroughly masticating the food, for it to be well mixed with this digestive juice before it leaves the mouth. When the food is swallowed, it passes down the oesophagus into the stomach.

### The Stomach

The stomach is a pouch-like enlargement at the lower end of the œsophagus. A glance at the Manikin on page 8 will show its shape and location. The stomach of an adult will hold only from one and a half to two quarts. The inner lining of the stomach looks like the inside lining of the mouth. This inner lining produces a fluid called the gastric juice. This gastric juice is acid and, like the saliva in the mouth, helps in digesting and preparing the food for the use of the body.

Could we see the inside lining of the stomach when it is secreting gastric juice, it would look somewhat like the skin when perspiring; for the gastric juice appears to ooze out of the stomach lining just as the perspiration appears to ooze out of the skin.

In order for the stomach to do its work well, the food it receives should have been well cooked and thoroughly masticated.

When any kind of wine or alcohol is drunk, the inside of the stomach is injured. The drinking of tea and the use of tobacco also injure the stomach. Pepper, ginger, chillies, and betel nut injure the inside lining of the stomach. If pepper, ginger, or chillies are held in the mouth, they burn it, but we do not notice this burning very much because the mouth can become accustomed to hot things, just as the blacksmith with calloused hands can grasp very hot articles without feeling pain. And, moreover, such hot things are not held in the mouth long. These hot spices burn the lining of the stomach much worse than they burn the mouth; and the stomach cannot get rid of them as quickly as the mouth does, but must be burned by them all the time the food remains in the stomach, whether it be one hour or several hours. These spices are of absolutely no use in the body. They do only harm, and for this reason they should never be eaten.

### The Small Intestine

After the food has remained in the stomach from thirty minutes to several hours, depending on the kind of

food eaten and on how well it was cooked and chewed, most of it passes on into the small intestine. The small intestine is a tube about twenty feet long coiled up in the abdominal cavity.

A small tube that runs from the liver and gall bladder opens into the upper end of the small intestine. The bile, which is formed in the liver, flows through this tube into the small intestine. This bile helps in preparing the food for the use of the body. Another small tube that runs from the pancreas also opens into the upper end of the small intestine. The fluid formed in the pancreas flows through this tube into the small intestine and acts a very important part in digesting the food.

### The Large Intestine

By the time the contents of the small intestine have reached the lower end, and are ready to pass into the large intestine, almost all of the food material that is useful to the body has already been absorbed into the blood. What is left over to enter the large intestine is chiefly the indigestible parts of the food. Changes take place in this mass of material as it passes down the large intestine; more or less foul-smelling materials and poisons are produced. It is very important that the bowels move daily; otherwise these poisons enter the blood and are carried to all parts of the body, causing foul breath, and headache and various other ills. The foul breath of those who are constipated has an odour similar to faecal matter. This proves that when an individual is constipated the poisonous material in the faecal matter of the large intestine spreads throughout the body. It is needless to say that these foul poisons do great harm.

### Absorption of the Digested Food

When the food is completely digested, it becomes a fluid, like water. This fluid is absorbed into the blood vessels that are found in the walls of the stomach and small intestine—somewhat as water in which sugar has been dis-

solved would slowly pass through a bag made of several layers of thick cloth.

After the digested food passes into the blood, it is carried by the blood to every part of the body and produces heat and energy. As the blood passes through those parts that need repairing, it supplies to them repair material from the digested food it contains.

From this it is seen that our bodies are composed of the food we eat; and so, in order to have clean, healthy bodies, we should eat only clean, pure food. It is a wonderful fact that the wheat and rice and other articles of food we consume can be changed into muscle, bone and nerves; but this is what really occurs. This is clear evidence that man's body was planned and created by the God in heaven who has all wisdom and all power; for a method so wonderful and perfect of supplying our bodies with material for repair and heat and energy, could never have come by chance, nor could man have devised it.

### Importance of Water Drinking

As it arrives in the colon, the food residue is in a semi-fluid state. The small intestine has removed from it all that it requires and it is now ready for elimination from the system as far as the small intestine is concerned. The colon now proceeds to abstract the water part of the food residue by absorption, the absorbed fluid being carried away to be eliminated from the body by means of the kidneys, the final result of the absorptive process being the transforming of the contents of the colon into a more or less solid substance. By a process of contraction and relaxation of the colon, in front of and behind the faecal material, it is gradually carried along until it reaches the lower portion of the colon known as the pelvic colon. Here it remains for a variable length of time until it is finally evacuated from the system.

The pelvic colon thus acts as a reservoir in which faecal matter is stored until such a time as the body sees fit to get rid of it. In certain individuals who drink but little water, the food residue upon reaching the large intestine has become quite depleted of its water supply, and

consequently the colon has little upon which to work. Such persons are liable to suffer from constipation, by which we mean a delay in the normal evacuation time of the bowels. A liberal supply of water is essential to the proper functioning of the colon. Drink plenty of water.

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## *Chapter Four*

# The Teeth

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THE teeth begin to appear when a child is six or seven months old, and at two and a half years it should have all twenty temporary teeth. When the child reaches the age of six, the permanent teeth begin to appear.

The teeth of small children should be cared for and kept clean. They should last until the time comes for the permanent teeth to take their place.

The permanent teeth are thirty-two in number. The four large back teeth do not make their appearance until after the age of seventeen or eighteen. These permanent teeth should all last to the very end of life.

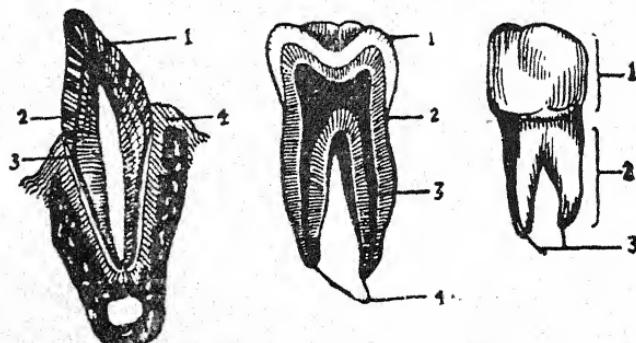
### **Use of the Teeth**

The work of the teeth is to masticate food; that is, grind it into fine particles, mix it with saliva and so begin its digestion. The teeth also aid in speaking; for when they are lost certain syllables cannot be pronounced clearly. The use of the teeth is important and their condition has such an important bearing upon health.

### **Decaying Teeth**

Decaying teeth harbour germs which cause disease in many parts of the body. If one wishes to keep in good health he will keep his teeth in good condition.

Particles of food lodge along the edges of the gums in the spaces between the teeth and in the crevices of the



- 1. Enamel
- 2. Dentine
- 3. Cement
- 4. Dental periosteum

- 1. Enamel
- 2. Neck of tooth
- 3. Dentine
- 4. Nerves

- 1. Crown
- 2. Root
- 3. Nerves

grinding surfaces of the teeth. As soon as germs begin to grow along the edges of the gums, the gums become loosened, and expose part of the roots of the teeth. As the crevices between the gums and the teeth enlarge, these crevices make an excellent place for the germs, and so many grow there that the crevices become filled with foul pus. The teeth pain whenever anything hot or cold is eaten. They finally become so loose that they are useless and must be extracted.

The chewing of betel nut is very harmful to the gums. The lime used with the betel nut causes the gums to retract and the teeth then become loose and eventually fall out. Both betel nut and tobacco discolour the teeth, giving the mouth a very dirty appearance.

To produce and maintain good teeth the diet should include milk, fresh fruits and vegetables, and whole grain cereals.

### How to Care for the Teeth

When a tooth begins to decay, it should be filled by a dentist at once. The sooner this is done the better, for it costs less to fill a small cavity than a large one and it causes

less pain. If the tooth is not filled while the cavity is small, not only this tooth, but the next two, will probably decay and be lost. Brush the teeth at least twice daily and have them repaired by a dentist as soon as they begin to decay, rather than to suffer with toothache and be compelled to have them pulled out and later spend a lot of money for false teeth, which at best only partly serve the purpose of the natural teeth.

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### *Chapter Five*

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## The Organs of Respiration

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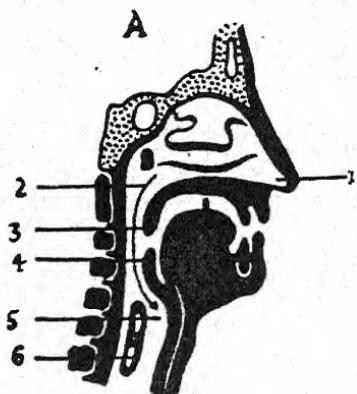
A PERSON may live several weeks without food and several days without drinking, but death occurs in a few minutes when the supply of air is cut off as in drowning or suffocation. This shows how important it is that the body constantly secure a supply of air.

We breathe the air into our lungs to secure the oxygen that the air contains. Oxygen is a gas which cannot be seen. When air is breathed into the lungs, the oxygen passes into the blood and is carried to all parts of the body. Oxygen is the essential part of the air that the body must have in order to maintain life and produce heat and energy. The air which we breathe into the lungs contains an abundance of oxygen, but that which we breathe out contains very little and is not fit to be breathed again.

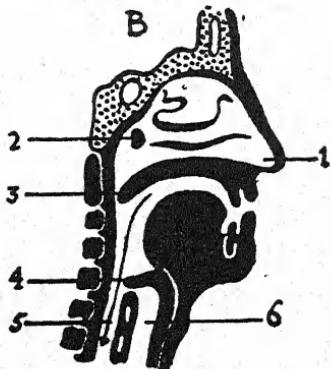
The air that is breathed out from the lungs not only is deficient in oxygen, but it also contains poisonous matter that has come from the blood. This poisonous matter cannot be seen, but it is known that if a large number of persons are in a tightly closed room for a short time, one who comes in from the outside can notice at once that the air has a bad odour. Many of those in the room, also, will have a headache and feel dizzy. The bad odour, the headache and the dizziness are all caused by air that comes from the lungs.

In every room in the house there should be one or more windows. These windows should be large enough so that the room will get a large amount of sunlight and

fresh air. Clothes and curtains should not be hung in front of the windows, thus shutting out the light and the air.



(A) Section showing position of air passages during inspiration.  
1. Nostrils. 2. Arrow indicating course of inspired air. 3. Uvula.  
4. Epiglottis raised to allow air to entire larynx. 5. Larynx, air tube leading to lungs. 6. Cartilage.

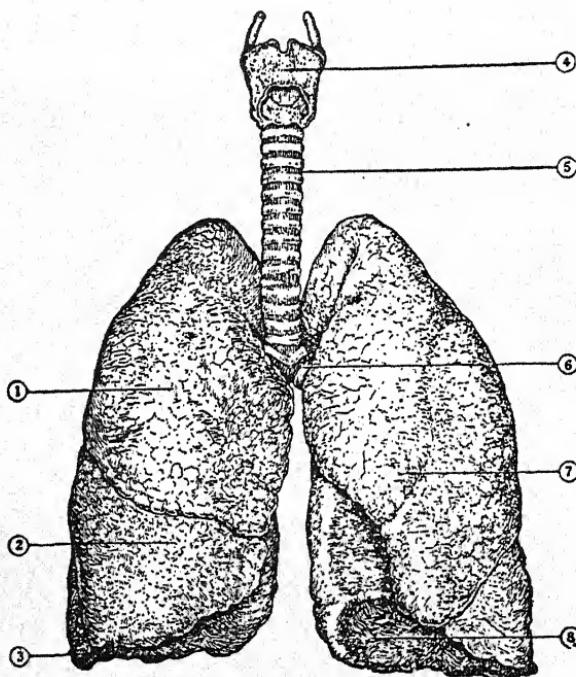


(B) Section showing position of passages during act of swallowing of food.  
1. Nostrils. 2. Eustachian tube. 3. Uvula directing food downward. 4. Epiglottis closing entrance to larynx. 5. Arrow pointing down œsophagus. 6. Larynx.

### Organs of Respiration

The air we breathe passes in through the nostrils and then on back through the pharynx. At the lower end of the pharynx it enters the trachea. This is a stiff tube that can be felt in the front part of the neck. The trachea

divides into two branches at its lower end. One branch goes to the right lung and one branch to the left lung. The lungs are made of a countless number of small air sacs (see illustration below). Breathing is simply the alternate filling and emptying of these air sacs.



1. Right lung, upper lobe. 2. Middle lobe. 3. Lower lobe. 4. Cartilages of the larynx. 5. Trachea. 6. Left bronchus entering lung. 7. Left lung upper lobe. 8. Lower lobe.

### Breathing

We breathe about sixteen or eighteen times a minute. The heart beats four times to each breath. Exercise and fever increase the rate of breathing.

Everything that has life, whether animal or plant, breathes. In the account of man's creation, as recorded in the second chapter of Genesis, it is stated that "the Lord God formed man of the dust of the ground, and breathed

into his nostrils the breath of life; and man became a living soul." The Holy Scriptures state that God "giveth to all life and breath," and that "the breath of all mankind" is in His hand. The evidence that the all-powerful God in heaven controls our breath is seen in that when we are asleep our lungs continue to draw in the fresh air and to expel the poisonous air. While asleep, we are entirely unconscious; and if we had to oversee our breathing, we would die the very instant we went to sleep. Breathing and



Correct sitting posture.

Incorrect sitting posture.

the pulsating of the heart are both called involuntary movements. They are under the control of a part of the nervous system. But to say that breathing is an involuntary and automatic action, does not explain it; for the question remains unanswered as to how a part of the nervous system can keep the heart beating and the breathing going, and as to how the breathing and heart action started in the first place. Careful inquiry into the original control and wonderful adaptability of the act of breathing, leads to but one conclusion, that there is a power outside of man and

superior to man that controls the breath which keeps life in the body. This is the power of God. A God who exercises such a kind watchcare over our life is surely worthy of our sincere reverence.



Correct and incorrect standing posture.

### Good Posture

It is important that we sit and stand erect in order that the lungs may have plenty of room to expand each time the breath is drawn in. Thus the body secures a larger supply of fresh air. To stand or sit with a hunched back is not only ill-looking, but makes it impossible for the lungs to expand fully; the body does not secure a sufficient supply of air and, as a result, becomes weak and colds and tuberculosis are easily contracted.

Those who are working indoors, and especially those who sit down to do their work, should make it a practice

to stand erect several times a day and take several deep breaths, in order to completely fill the lungs with fresh air and to completely rid the lungs of the poisonous carbon dioxide. (See illustrations showing the correct sitting and standing posture.) Carbon dioxide is the name of a poisonous gas that is in the exhaled air.

### Incorrect Breathing

The nose is the natural entrance way for the air. The nose is lined with numerous small hairs that help to strain out the dust and germs that are in the air we breathe. As the air passes in through the nose, it is also warmed and moistened. When one breathes through the mouth, the air is not warmed and moistened before it enters the pharynx, and so it makes the pharynx dry and causes it to produce much mucus. This leads to coughing and colds. A child who breathes through the mouth should be taken to a physician in order that the physician may examine the nose and throat and remove any adenoids that may be found. (The cause, prevention and treatment of mouth-breathing [adenoids] is discussed in Chapter 27.)

### Alcohol and Tobacco Injure the Respiratory Organs

Tobacco smoke injures every part of the respiratory organs. It inflames the lining membrane of the nose, throat, trachea and lungs. It produces coughing. It so injures the lining of the lungs that tuberculosis and other diseases are more likely to be contracted.

What is said of tobacco is also true of all kinds of alcohol. When a man drinks alcohol, it can be smelled on his breath in just a short time after it has been drunk. This is due to the fact that as soon as the alcohol has entered the blood and has been carried to the lungs, the lungs try to get rid of the poison as quickly as possible. Physicians know that alcohol drinkers easily contract pneumonia and tuberculosis and, moreover, when they contract one of these diseases they have less chance of re-

covery than do those who do not use alcohol. This is conclusive proof that alcohol injures the lungs.

### Summary

1. See to it that your house is well ventilated, day and night.
2. In the day time be out in the fresh air as much as possible, and at night open the sleeping-room windows wide to allow the fresh air to enter freely.
3. Fill the lungs full of air each time you inspire (breathe in). To do this, you must sit and stand erect.
4. Avoid breathing dusty air.
5. Do not use tobacco in any form.
6. Do not drink any kind of alcohol.
7. Always breathe through the nose.
8. Do not wear a tight belt about the waist.
9. Practise deep breathing several times daily.
10. Never cover the face with the bed covers.

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## *Chapter Six*

# The Stream of Life

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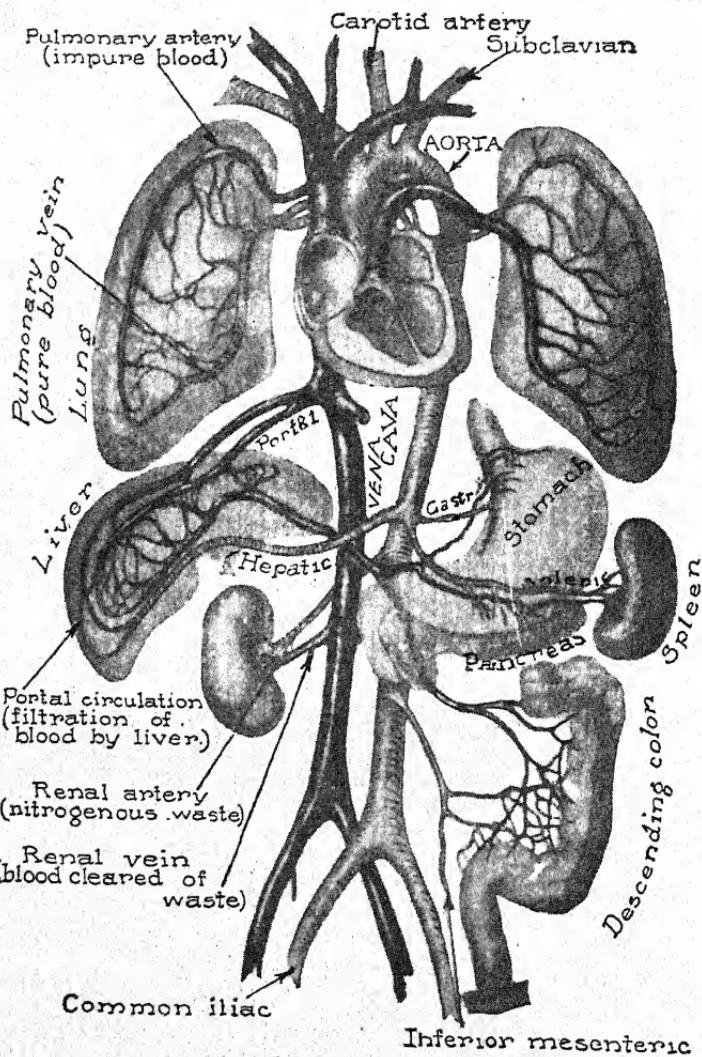
WHEN a small drop of blood is examined with a microscope, a large number of small, round, red bodies will be seen within it. These are called red blood corpuscles. In addition to these there are also many small white bodies in this drop of blood. These are called white blood corpuscles. These red and white blood corpuscles float in the blood stream very much like so many small, round fish in a river.

The digested food is also carried in the blood. The blood transports the oxygen that is brought into the body by the lungs and the digested food that has been prepared by the stomach and intestines, to every part of the body, to supply the needs of each part. It also collects from every part of the body the harmful waste matter and carbon dioxide, and transports these back to the lungs, kidneys and skin, where they are eliminated from the body in the air we exhale and in the perspiration and the urine.

### **The Heart and the Blood Vessels**

The blood is kept constantly flowing in the vessels by the contractions of the heart. The heart, which is just about the size of one's closed fist and hollow inside, is like a powerful pump that keeps the blood circulating in every part of the body.

The heart of a full-grown person beats about seventy times a minute. Exercise causes it to beat faster. Fever also greatly increases the number of times it beats in a minute.



### THE CIRCULATORY SYSTEM

The blood carries nourishment to the organs and takes the wastes away from them. This system also provides for an exchange of carbon dioxide for oxygen in the lungs.

The blood is pumped by the heart into the lungs where it receives fresh supplies of oxygen and gives off its poisonous gases. There the fresh blood returns to the heart where it is pumped to all parts of the body. As it again returns to the heart it is laden with poisons and must again be sent to the lungs. Thus the circuit is completed and life continues.

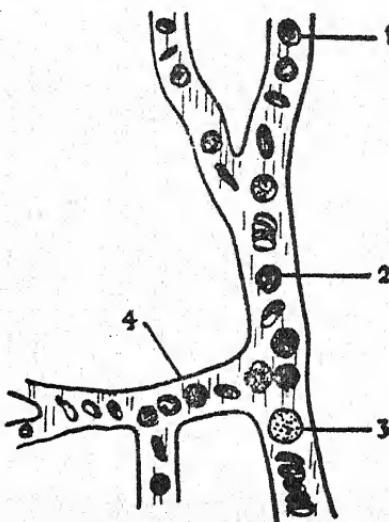
Whenever the supply of blood of any part of the body is cut off, that part of the body dies. From this it is evident that the life of every part of the body depends upon the blood. Thousands of years ago, man's Creator, the God in heaven, said, "The life of all flesh is in the blood thereof."

In the blood and in the heart we see wonderful evidences of God's power. The heart begins to pulsate while the child is yet in its mother's womb, and continues at the rate of not less than seventy times a minute for a life-time of eighty or ninety years. Even while we sleep the heart continues its work of pumping the life-sustaining blood to all parts of the body. It does not rest with us to keep it beating. It is the God in heaven who created man who sets the heart to beating, and makes it continue to do so whether we wake or sleep.

When any part of the body is injured, it is the blood that heals the injured part. When disease germs secure entrance into the body, the white blood cells, of which mention has been made, act the part of a guard of fearless soldiers, and seize upon the germs and destroy them. It is only when the disease germs are too numerous or too poisonous, or when the white blood cells are enfeebled through the use of alcohol or tobacco, or some other harmful thing, that these white blood cells are not powerful enough to destroy the germs.

Since life is in the blood, and since it is the blood that heals, it is important that we have good blood. The blood is made from the food we eat. If the food is good and pure, the blood will be pure. If the food is poor in quality or quantity, the blood cells are starved, and as a result every part of the body suffers. By drinking an abundance of pure water, the blood is cleansed from waste

and poisonous matter. Exercise is essential in order to have good blood. The use of such things as liquor, tobacco and betel nut injures both the red and the white blood cells, and destroys some of the life-sustaining and the healing properties of the blood.



1, 2. Red corpuscles. 3. White corpuscle. 4. Blood-vessel wall.

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## *Chapter Seven*

# How the Body Disposes of Wastes

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### The Kidneys

EVERY day we take food and drink into the body. This food burns in our bodies and eventually leaves a certain amount of ash, or waste, that must be cleaned out of the body. The body or some of its parts are constantly in motion, and when anything moves, this must result in a wearing-out process that gives rise to waste materials. This worn-out material must be cast out; for if not cleaned out, the waste materials act as poisons to injure the body and cause sickness. It is the work of the kidneys to remove waste matter from the body.

The kidneys are two bean-shaped organs. They are fastened outside the back wall of the abdominal cavity, one on either side of the spinal column. (See Manikin, page 8.) While the blood is flowing through the kidneys, they strain out some of the poisonous waste matters. The waste matters, together with the water that the kidneys take out of the blood, make up the urine. The urine passes from the kidneys through a tube that leads from each kidney down to the urinary bladder, and it is voided from the bladder at the time of urination.

An adult will void from one to three pounds of urine in a day. When a person is in good health and drinking as much water as he should, the urine will be a very light yellow colour; oftentimes it will be almost as clear as water. If the urine voided is of a red or brown colour, it shows that too little water is drunk.

In every case of illness in which there is a fever, the work of the kidneys is greatly increased, and it is very



#### THE KIDNEYS AND THE BLADDER

The kidneys are two organs lying in the back of the abdominal cavity, and are separated by the aorta and the inferior vena cava. Urine is carried from the kidneys to the bladder through the ureters.

important that the sick person drink large quantities of pure water. It is always well to have water conveniently near so that the sick person can drink frequently.

Alcohol, tobacco, pepper, chillies, betel nut and ginger, all do serious harm to the kidneys. It is a part of the work of the kidneys to cast out of the body anything in the blood that is harmful such as the articles mentioned here. In casting these harmful things out of the blood, the kidneys are themselves injured.

### The Skin

The skin forms the outer covering of the body and protects the parts beneath it. It may be compared to a lined garment, for it is composed of an outer and inner layer. When the skin is accidentally blistered by boiling water, the fluid in the blister is between these two layers.

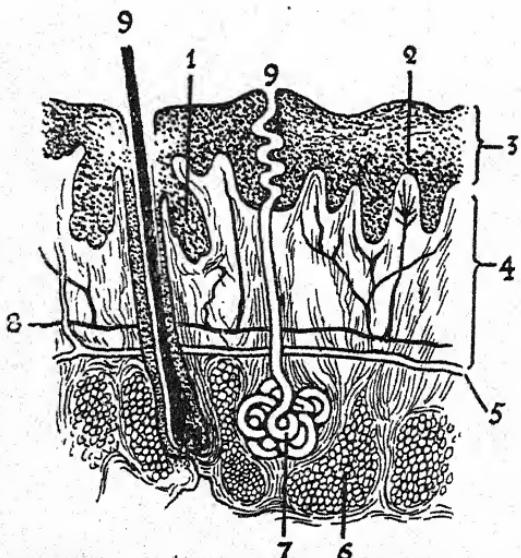
There are large numbers of very small sweat glands in the inner layer of the skin. Each one of these has a little tube that leads out to the surface of the skin. The sweat contains salt and waste matters similar to those in the urine.

If the kidneys and the skin did not eliminate these waste matters, self-poisoning would result very quickly. Perspiration is continually issuing from all the sweat glands of the body. Warmth and exercise increase the amount of perspiration. It is well for every one to take sufficient exercise daily to cause free perspiration, for this not only keeps the skin active and healthy, but also helps to keep the blood clean and pure.

For purposes of cleanliness it is best to use warm water and soap. A bath in cool or cold water, followed by vigorous friction with a towel, is an excellent tonic to invigorate the body and strengthen it so that colds and other diseases will not be contracted easily. The best time to take a cool bath is in the morning.

People who are in good health bathe frequently in order to ward off disease, and those who are sick should be bathed daily to clean off the waste matter that accumulates on the skin during sickness. Most sick people would recover much more quickly if they were bathed

daily. There is no danger of the sick person catching cold if bathed in a proper way. The water should be warm. First bathe the right arm, and dry and cover it; then bathe the left arm, and dry and cover it; then bathe the front of the chest, and dry and cover it; and so on for the whole body.



Section through the skin.

- 1, 2. Two types of nerve endings. 3. Dead epidermis. 4. Derma or true skin. 5. Artery. 6. Fat cells. 7. Sweat gland. 8. Nerve. 9. Sweat pores passing through the skin.

Since the skin has so many functions and has so much to do with the health and appearance of the individual, it should be kept in good condition. It not only should be kept clean outside by frequent bathing, but it should also be kept clean inside by avoiding the use of tobacco and other harmful articles that have to be excreted by the skin.

### The Hair and Oil Glands of the Skin

By the side of the root of each hair there is a small gland that produces oil. This oil comes out on the surface of the skin and keeps the skin from becoming dry and cracked. This oil also oils the hair. One of the very best ways to keep the hair of the head looking nice and to make it grow fast, is to brush it vigorously daily. The hair should be washed occasionally with warm water and good soap to remove the dust and oil.

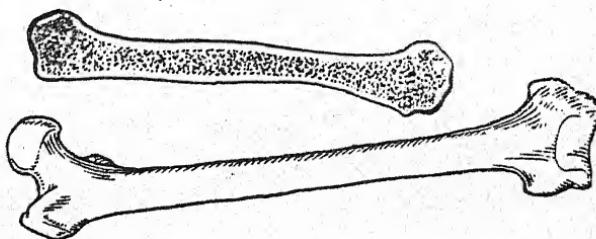
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## *Chapter Eight*

# How the Body Moves

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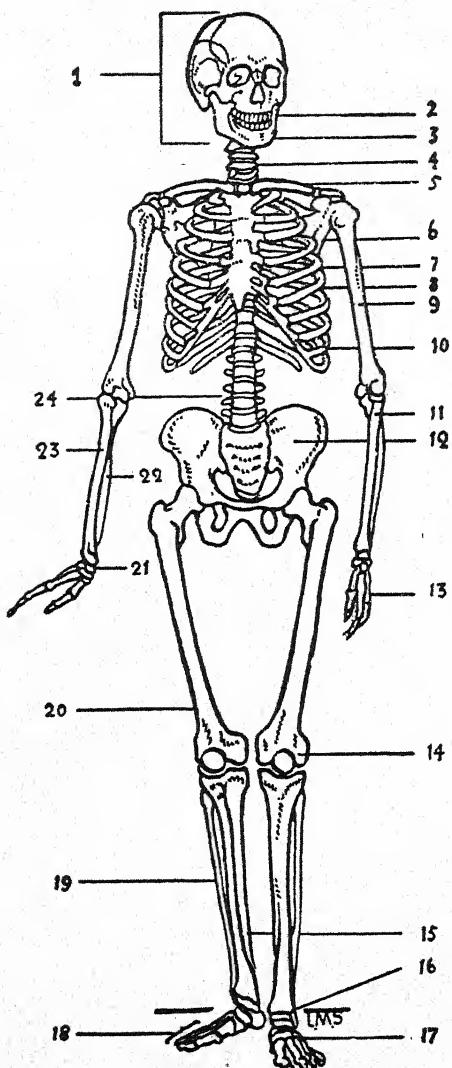
THE illustration shown on page 44 is the human skeleton. The skeleton is made up of two hundred and six bones. The bones of the small child are very soft and for this reason care should be taken that they be not deformed. If a new-born infant is allowed to lie on one side all of the time, the head will be deformed; one side of



Femur or long bone of the upper leg.

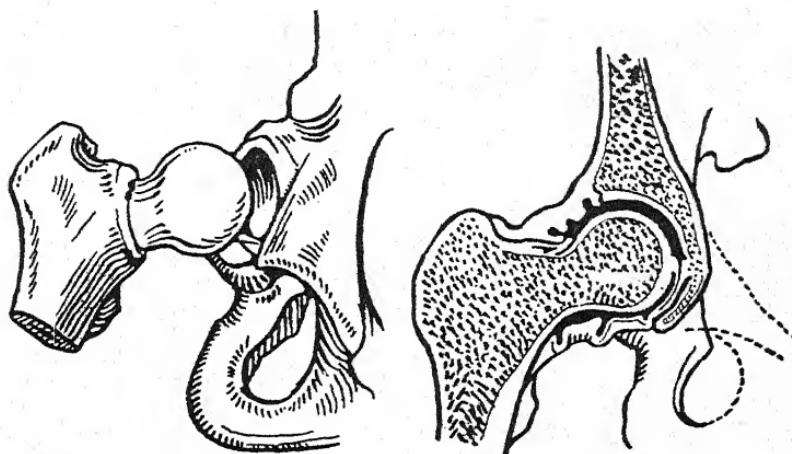
the forehead will bulge forward and the other side will be flattened. The infant should be laid on one side for a few hours and then turned over on the other side. The seats in school-rooms provided for children should be properly made so that there will be a back rest. The seats should be low enough so that the children's feet can rest on the floor. Many children have humped backs because seats in the school-room are too high and have no back rests.

When children grow slowly and their bones are noticeably small and weak, it is because they are not getting the



1. Skull or cranium.
2. Jaw bones.
3. Axis and atlas.
4. Clavicle.
5. Scapula.
6. Ribs.
7. Humerus.
8. Radius.
9. Hip bone.
10. Phalanges or finger bones.
11. Patella or kneecap.
12. Tibia or shinbone.
13. Tarsals.
14. Metatarsals.
15. Phalanges.
16. Fibula.
17. Femur.
18. Ulna.
19. Radius.
20. Spinal vertebra.

proper food. They should have those kinds of foods that will build bone, such as foods made from wheat, peas and beans, lentils, dahl and millets, together with a good supply of goat's or cow's milk.



Ball and socket joint at hip:  
femur and pelvis.

Femur in place in pelvis:  
marrow of bones also shown.

At the place where two bones come together to form a joint, they are fastened together with strong ligaments. Sometimes when a joint is moved too forcibly, these ligaments are torn loose. This produces what is called a sprain.

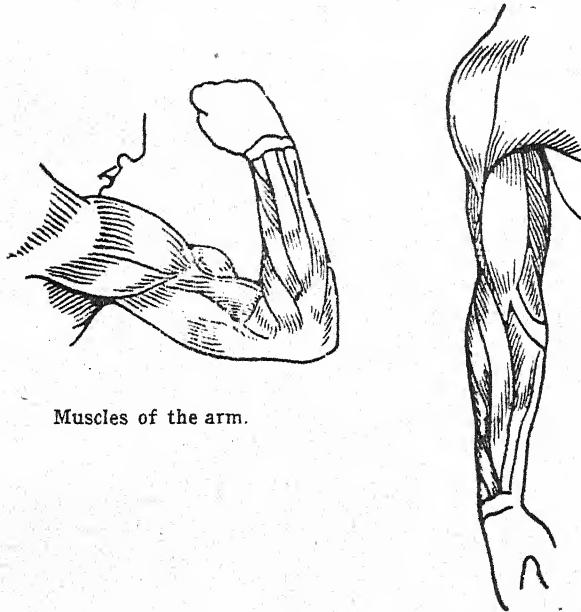
Bones are sometimes broken. If a broken bone is properly cared for, it will repair itself very much the same as the broken branch of a tree will repair itself.

The treatment of sprains and fractures is given in Chapter 17.

### The Muscles

If the skin and fat under the skin were removed, the body would present the appearance shown in the illustration of the muscles in this chapter. Living muscle is red. The red meat of beef or mutton is muscle. There are over five hundred muscles in the body. The muscles are of many different sizes and shapes. In the picture of the muscles it may be seen that some are round, some are long, some are short, some are large and some are small.

The work of the muscles is to move limbs or other parts of the body. It is not only when we move about that the muscles have work to do, even when standing still it requires the constant contraction of many muscles to keep the body erect. Many people while standing or sitting, al-



Muscles of the arm.

low the muscles of the back to relax, the result is that the back becomes humped and the shoulders droop forward. This not only is unsightly, but also causes the walls of the chest to press in on the lungs so that deep breathing is interfered with. When sitting on a chair or at a study desk, the body should be erect. When standing, stand as tall as possible. The front wall of the abdomen should not be allowed to protrude, but should be drawn in toward the back.

The importance of sitting and standing erect cannot be too strongly emphasized. We may make our blood ever so pure by supplying it with proper food, but if habitual

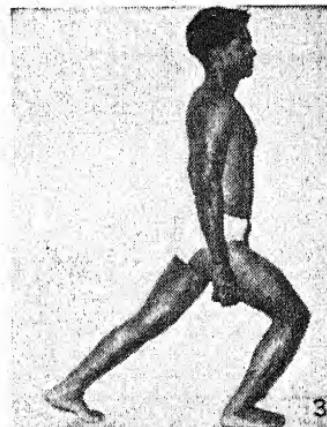
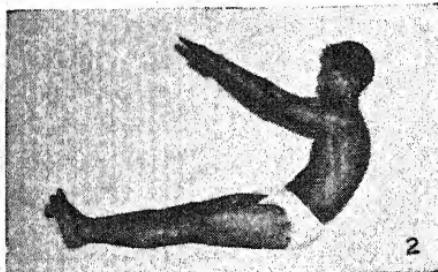
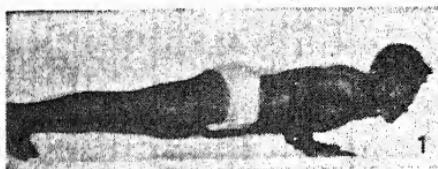
incorrect posture cramps the blood vessels so that the life-giving fluid cannot circulate in all parts of the body, ill-health is sure to result. Parents and teachers must, therefore, see that children sit and stand erect. A well nourished child usually has good posture.

Muscles of head  
and neck.



### Exercise Develops the Muscles

It is absolutely necessary that a person exercise in order to keep the body strong and healthy. During exercise the heart beats faster, and in this way every part of the body gets a better supply of blood. During exercise one breathes oftener, and in this way every part of the body gets a more abundant supply of oxygen. The mind becomes dull if the muscles of the body are not exercised. If one desires to have a good memory and to be able to study diligently and learn rapidly, one must exercise the muscles of the body daily.



#### EXERCISES WHICH DEVELOP GOOD POSTURE

Fig. 1. The floor dip, which should be done with a stiff back. Do not sag at the hips. Lower the body until the chest touches the floor, and then press upward to arm's length again.

Fig. 2. The sit-up. Start by lying flat on your back with arms extended. Then sit up by contracting the abdominal muscles, and try to touch your finger tips to your toes. Keep legs straight at all times.

Fig. 3. Leg muscle exercise. With arms at side, shift weight to left foot and lunge forward, planting right foot ahead of you on floor. Return to standing position, and complete exercise by lunging forward with left foot.

Fig. 4. Shoulder exercise. Straddle legs and bend at the waist, directing arms toward the floor. Then lift right arm out to the side as you maintain this position. See that your arm is at right angles to your spine, your elbow straight, and keep bent at the waist. Complete exercise with left arm.

The arm of the blacksmith is large and strong because he constantly uses it. The legs of the hill coolies are large and powerful because they walk so much. On the contrary, the arms and legs and the whole body of many students and business men are small and weak because they sit much and do not exercise their arms and legs. Many people think that those who are educated should not work; that it is only the coolie class that should work with the hands. This is a great mistake. Muscular work is dignified and honourable. Muscular exercise is as essential for girls and women as it is for boys and men; for every one should feel ashamed to have soft, weak muscles.

When God created man's body, He knew just what the body required to keep it strong and healthy; and so He not only provided food to nourish the body, but He also made provision that man must work and exercise his body in order to secure food.

There are many forms of exercise, but the very best forms are found in doing ordinary work such as gardening, and carpentry. Walking, running and swimming are all good forms of exercise.

After children have been sitting quietly at their study desks for some time, the breathing becomes very slow and very little air is taken into the lungs at each inspiration. The heart beats slowly and the mind becomes dull so that the child cannot study well. For this reason teachers should give the children recesses in order that they may get out of doors to run and play. In addition to the regular recesses for play and recreation, the children should be given stretching and breathing exercises for three or four minutes, once or twice during the forenoon and once or twice during the afternoon. These exercises make the heart beat faster and cause the children to breathe deeper and faster, and thus their minds become more active.

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Fig. 5. Chest muscle exercise. Lie flat on floor with back flat. Extend arms above chest, and let them move out perpendicular to your spine. Inhale deeply as arms move outward. Hold breath until arms have almost returned to starting position. Complete exercise by repeating exercise.

### Exercises to Develop Strength

Each exercise starts from the position of attention: heels together, feet turned out at an angle of sixty degrees to each other; body erect on hips and inclined a little forward; shoulders square and even, arms hanging naturally. Each movement should be slow and measured; guard against a tendency to hurry or to be careless. The three preliminary exercises are very simple: First, raise the arms to a horizontal position, then straight above the head; slowly lower them again. Second, raise the arms and, forcing the elbows back, place the hands on the hips; then lower them again to the sides. Third, raise the arms once more and, again forcing back the elbows, touch the finger tips at the back of the neck. Repeat each of these movements several times.

Proceed with the other exercises as follows:

**First Exercise:** Raise arms sideways to horizontal position; turn the palms upward and force the arms back as far as possible; while in this position, count slowly from one to ten, and at each count describe a complete circle about twelve inches in diameter, the arms remaining stiff and pivoting from the shoulders. Then reverse the direction and do another ten of them. (See Fig. 1.)

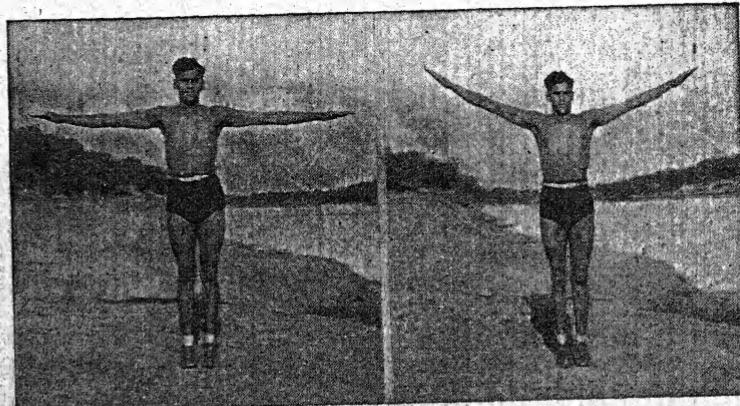


Fig. 1

Fig. 2

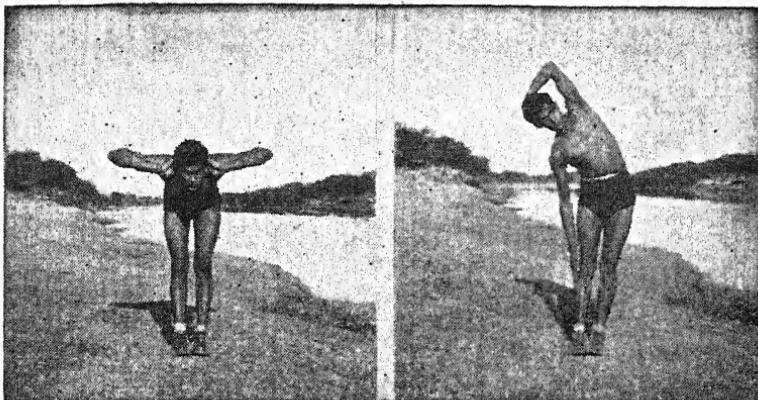


Fig. 3

Fig. 4

**Second Exercise:** Raise arms as before to horizontal. Then, while taking a deep breath, raise the arms to an angle of forty-five degrees, and also raise the heels until you are resting on the balls of the feet. Then, while you slowly let out the breath, come back to the original position, feet flat on the floor, arms horizontal. Be careful not to raise the arms more than forty-five degrees, or return them to below horizontal. Do this ten times. (See Fig. 2.)

**Third Exercise:** Raise arms as before to horizontal. Place hands behind the neck, index fingers touching, elbows forced back. While in this position, bend the body slowly forward from the waist as far as possible. Return to upright position and bend backward. Do not make these movements jerky and do not hurry through them. Repeat the whole movement, bending forward, then straightening up, then bending backward, five times. (See Fig. 3.)

**Fourth Exercise:** Raise arms as before to horizontal. Turn the left palm upward; then raise the left arm and lower the right until the right is down close to the side and the left is straight up overhead. Then slowly bend the body sideways from the waist, the right arm slipping down the right leg to or below the knee, and the left arm bending in half a circle downward over the head, until the fingers touch the right ear. Return to original position and go down



Fig. 5

Fig. 6

the other way, the left arm slipping along the left leg, the right arm bending downward in half a circle over the left ear. Do this five times. (See Fig. 4.)

**Fifth Exercise:** (A) Raise arms as before to horizontal. Move the left foot twelve inches from the right. Slowly bend the fists and lower arms downward from the elbows. Then curl the fists upward into the armpits, bending the head backward meanwhile until you look upward at the ceiling. Take a deep breath as you bend the head back and let it out as you come back to the original position, head erect, arms at horizontal. (See Fig. 5.)

(B) Then, without resting, extend the arms straight forward from the shoulders, palms down; let the arms begin to fall and the body to bend forward from the waist, head up, eyes to the front, until the body has reached the limit of motion, and the arms have passed the sides and been forced back and up as far as possible. A deep breath should be taken as you go down and exhaled as you straighten up. Do the whole exercise (A and B) five times. (See Fig. 6.)

**Sixth Exercise:** Move the right foot until the heels are about twelve inches apart. Raise arms to horizontal. Bend knees and, with the weight on the toes, lower the body almost to the heels, keeping the trunk as nearly erect as possible. Do this ten times. (See Fig. 7.)

**Seventh Exercise:** Raise arms as before to horizontal. Stretch the arms straight above the head, fingers interlocked, arms touching ears. Then, with the fingers still interlocked, describe a complete circle about twenty-four inches in diameter, the body bending only at the waist. Do this five times. Then repeat the movement five times, but in the opposite direction. Go through the entire movement slowly and steadily, bending the body in its rotation as far as possible from the hips. (See Fig. 8.)

**Eighth Exercise:** (A) Move the right foot until heels are twelve inches apart. Raise arms to horizontal and turn the body to the left from the hips, the arms remaining horizontal until the face is to the left, the right arm pointing straight forward, and the left arm straight backward. (See Fig. 9.)

(B) While in this position, bend the body from the waist, so that the right arm goes down until the right fingers touch the floor midway between the feet, and the left arm goes up. The right knee must be slightly bent to accomplish this. Reverse the movement, moving the left foot until the heels are twelve inches apart, and turning the body to the right this time, until the left hand points straight forward.



Fig. 7

Fig. 8



Fig. 9

Fig. 10

then bending downward until the fingers of the left hand touch the floor. Return each time to the original position, body erect, arms horizontal. After you have mastered this exercise, you can go through it (A and B) in one continuous motion.

Repeat the whole (A and B), first to the right, then to the left, ten times. (See Fig. 10.)

**Ninth Exercise:** Raise arms to horizontal; then upward until they are straight overhead; then let them fall forward and downward, while the body bends forward from the waist, and the arms have passed the sides and been forced upward and backward as far as possible, just as in Exercise 5, Fig. 6. Remember, as you bend forward, to keep the head up, and the eyes to the front. Straighten the body to upright, with the arms overhead. Then lower the arms to the horizontal position, with the palms turned upward, and the arms and shoulders forced hard back. Then raise arms upward and begin the movement again. Repeat this entire movement slowly five times, forcing the air out of the lungs as the body bends forward, and filling the lungs again as the body straightens.

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## *Chapter Nine*

# The Control System of the Body

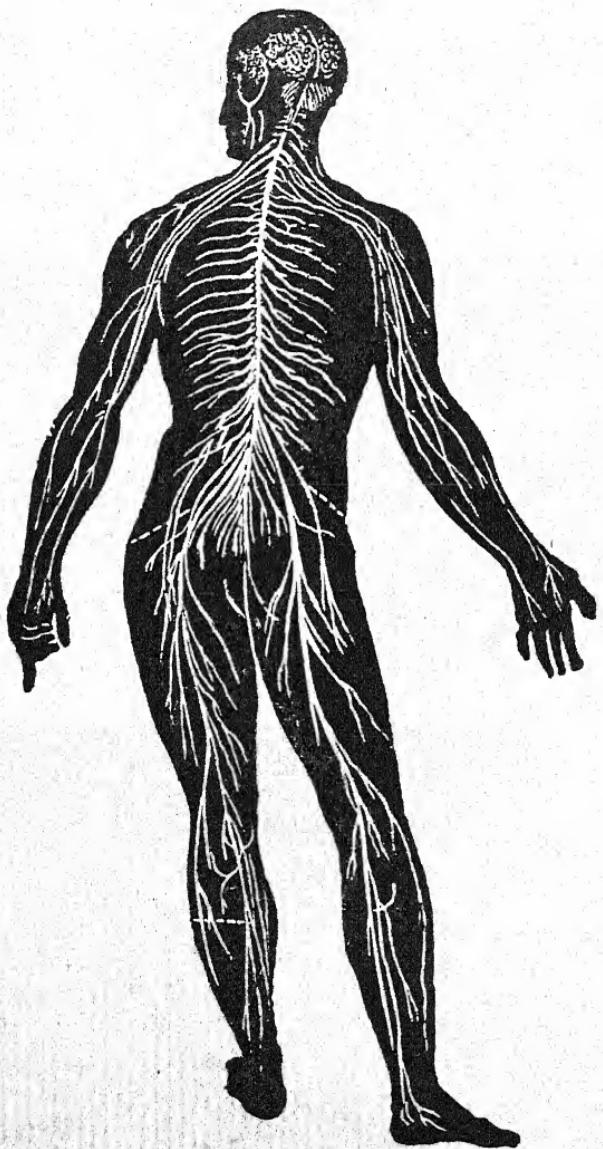
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THE body has many organs. Every organ has a work to do. For example, the stomach helps digest food, the kidneys help excrete poisonous waste matter, the skin regulates the heat of the body, the heart causes the blood to circulate. Each organ must do its proper amount of work at the proper time, and all the organs must work together in harmony, or the body will become sick. The work of the nervous system is to make all parts of the body work at the right time, in the right way, and do the right amount.

### **The Brain and the Spinal Cord**

The two main divisions of the nervous system are the brain and the spinal cord. The brain is protected by a bony box, the skull.

The spinal cord is really an extension of the brain in the form of a long cord. The cord is about as thick through as the little finger. It is attached to the under part of the brain, and passes out of the skull through a large opening. The spinal cord is protected from injury in a wonderful way. Each of the twenty-four vertebræ (the twenty-four bones of the backbone) that are piled one upon another to form the vertebral column, has a large hole in its centre. As these bones are piled one upon another, the holes come one above another, and make a bony walled tube for the spinal cord. The spinal cord extends down into the backbone as far as the small of the back.



General nervous system.

From the brain and spinal cord, many small nerves, some of them smaller than the smallest filament of silk, go out to all parts of the body. The nerves are so numerous and distributed so thickly that the smallest needle cannot be thrust into any part of the body without touching one, and causing pain.

### Functions of the Brain and Spinal Cord

The brain and the spinal cord are like the governor of a province, who resides in his office in the capital. The nerves that extend out to every part of the body are like the telegraph wires that connect the governor's office with every important city in the province. Messages come in over the telegraph wire from a city to the governor, telling him what has happened. He at once sends back a message over the wire commanding the local official what to do.

The brain not only receives the messages from the different parts of the body, but it sends out messages and causes the muscles to move, or makes the heart beat faster or slower. If we wish to walk, the brain orders the muscles of the legs to move the legs. If the message that comes from the eye to the brain tells it that there is a snake close to the body, the brain will send a message to the muscles and cause them to move the body very quickly. If the nerve from the finger carries a message to the brain and spinal cord, announcing that the finger is touching something hot, the brain and spinal cord instantly command the muscles of the arm to move the finger away. If we had no nerves we could not know that the finger was being burned, and we might not move the finger away before it was burned up.

The brain thinks and feels and remembers. It loves and hates. It decides what we shall do and say. It governs every member of the body. When the nerve fibres that connect the brain with any part of the body are cut in two or injured, that part is paralyzed; that is, it cannot move, and does not have any feeling in it. People who drink alcohol, or who are immoral and contract syphilis, sometimes have half of the body paralyzed, because the poison of alcohol and the poison of syphilis both destroy the nerve fibres.

### Hygiene of the Nervous System

The whole body must be well and strong in order for the nervous system to be healthy. Good food, clear air, sleep and proper exercise of the mind and body, are necessary in order to keep the nervous system in good condition.

### Habits

Almost everything we do, whether good or bad, becomes a habit. One can train the mind so that only good habits will be formed, and he can, by thinking over and over again evil thoughts, and saying and doing over and over again evil things, form bad habits. Most of our habits are fixed before we reach the age of twenty-five. How important then it is that children and youth should be properly trained! They should be taught to think of things that are true, and honest, and just, and pure and of good report. In this way a noble character will be developed. If good mental and physical habits are formed, disease will the more easily be avoided, and a long, useful life will be more certain of attainment.

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## *Chapter Ten*

# Sight and Hearing

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THE eye is a wonderful organ. It makes a picture of everything it sees, and the nerves from the eye tell the brain about these pictures. The eyes are very easily injured, and for this reason they are well protected by their location in two cavities in the front of the skull, and by the eyelids, eyelashes and eyebrows.

### Hygiene of the Eye

The eyes of the infant should be well cared for. (See instructions in Chapter 18.) When the infant is asleep, use a piece of mosquito net to cover it so that flies cannot alight on the eyes and infect them.

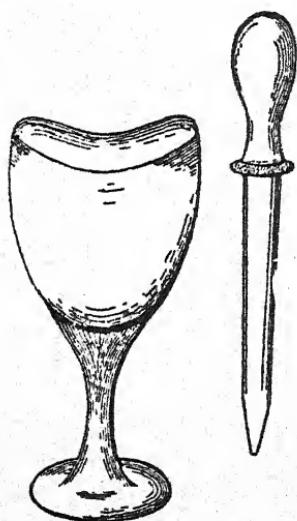
The schoolroom where the children study should be well lighted. The children should be provided with seats low enough so that their feet will rest on the floor; and the desk or table should be low, so that when the book is lying on the table and the child is sitting erect, the print will be a foot from the eyes. The child should be provided with study books that have large, clear type. After a child has recovered from measles, scarlet fever or smallpox, it should not be allowed to go to school for several weeks, because these diseases injure and weaken the eyes.

In order to protect the eyes from injury and disease, it is necessary, in addition to what has already been mentioned, to give heed to the following:

1. Never read or do any close work such as embroidery in a poorly lighted place.

2. When reading, do not sit facing the light; it is better to sit so that the light will shine on the book from behind, over the shoulder.

3. When reading or doing any work that requires close attention, it is well to rest the eyes occasionally, either by closing them for a few seconds, or else by looking out of the window at the distant sky, or the green trees, or the grass for a few minutes.

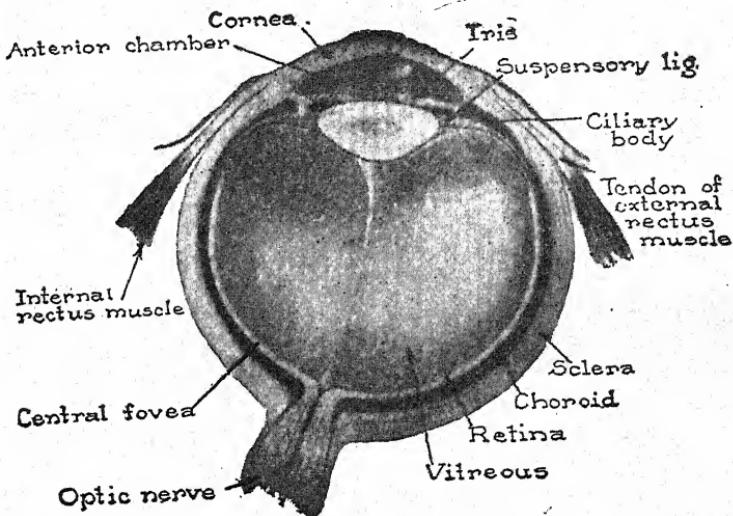


Cup for eye-bath.  
Eye-dropper.

4. When a particle of dust or any foreign particle gets into the eye, do not rub the eye, but remove the substance by washing the eye with boric acid solution. If there is no boric acid solution at hand, clean boiled water may be used.

5. Avoid using towels, soap, washpans or wash cloths that are being used by other people in public places. Those who have used these articles may have had "sore eyes," and by using them you may contract some eye disease.

6. Smoke is very injurious to the eyes. If the stove where the food is being prepared is not fitted with a flue, the house becomes filled with the irritating smoke. When this is repeated three times a day, day after day, it injures



#### THE STRUCTURE OF THE EYEBALL

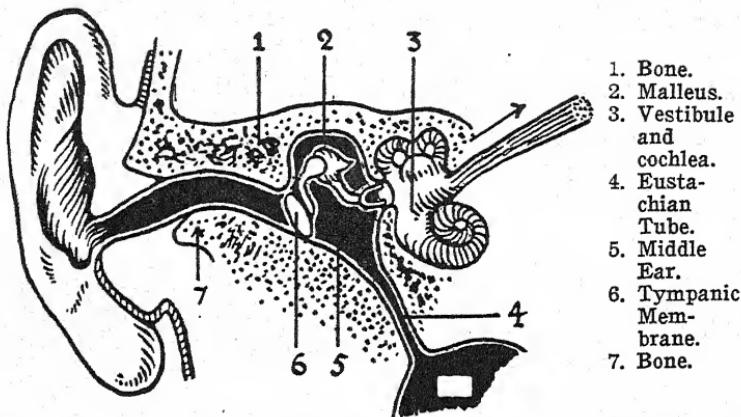
The wall of the eyeball is composed of three layers of membrane. The outer one is called the sclera. The middle coat, or choroid, is black and contains many blood vessels; and the inner coat, or retina, is a thin membrane formed of sensitive structures which are endings of optic nerve fibres.

the eyes of every member of the family. At a very small cost flues can be built that will conduct the smoke out of the room and prevent this discomfort and injury.

7. Avoid the use of tobacco and alcohol.

#### Hygiene of the Ear

By examining the picture of the ear shown in this chapter, it will be seen that the ear is divided into three parts. The part that we see on the outside of the head simply forms a funnel-like arrangement to pass the sound on into the middle and internal ear. The middle ear is connected with the throat by a small tube (eustachian tube). When one has a cold, and there is mucus in the nose and throat, the lining of the throat and of the eustachian tube



becomes swollen and stops up the tube. This is one of the causes of deafness.

When the eustachian tube becomes infected, the middle ear also becomes infected. When pus is formed and fills the middle ear, it causes the ear to ache. So much pus may be formed that it presses on the ear drum (tympanic membrane) and tears an opening in it; then the pus can be seen coming out of the ear. The treatment for this is given in Chapter 32.

The following are the important points to be observed in the care of the ear:

1. The wax in the ear serves an important purpose. This wax is very bitter, and on account of this no insect will enter the ear unless it is one that accidentally flies in. This wax should not be scraped or dug out. If the ear wax should become hardened and interfere with the hearing, then remove it in the manner mentioned in Chapter 32. The hairs that grow in the ear also serve the useful purpose of keeping out insects and dust. Do not allow the barber to remove these hairs.

2. If a small insect gets into the ear, the best way to get rid of it is to drop into the ear a few drops of warm sesame oil or some other clean oil. This will cause the insect to come out or will kill it, and then one can remove it by syringing with warm water.

3. Avoid violent blowing of the nose; this may cause the germs in the nose and throat to be forced through the eustachian tube into the middle ear, and cause deafness.

4. Never strike a child on the ears. By so doing one may injure the ear and cause deafness.

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## *Chapter Eleven*

# How the Body Reproduces Itself

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### The Male Organs

THE reason that reproduction and sexual hygiene are discussed in this book, is because ignorance of these subjects lies at the root of some of the most serious diseases and the most degrading vices to which human beings are subject.

When a boy reaches the age of fifteen or sixteen, changes take place in his body. He has arrived at puberty. When he has reached this age, he has not yet really reached manhood; for, as a rule, it requires at least another eight years to develop the young man to the full stature of manhood; so it is not before a man is twenty-four or twenty-five years old that he has the physical and mental powers that fit him to marry and become a parent.

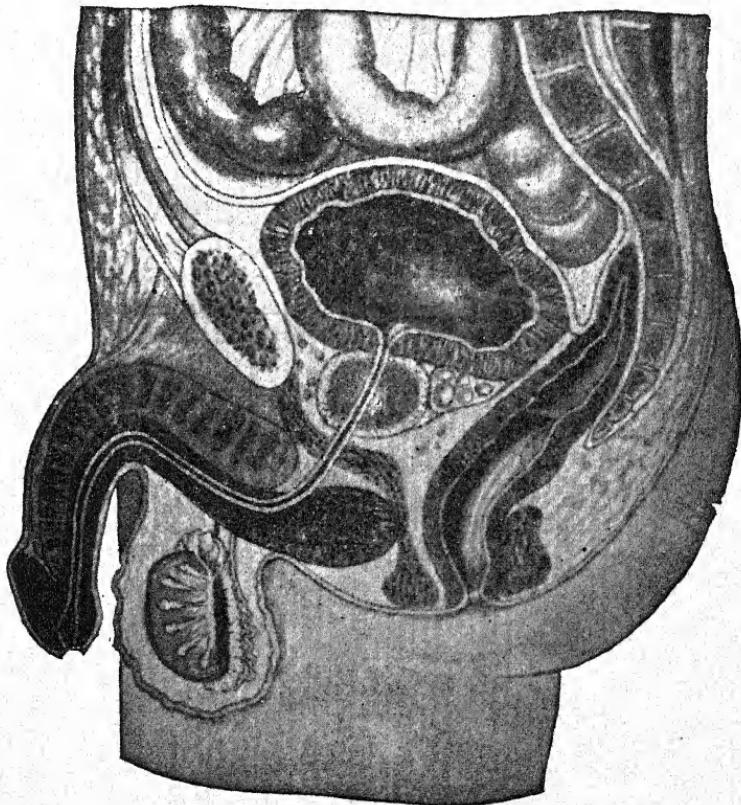
### Anatomy and Physiology of the Male Genital Organs

The external genitals of the human male consist of the penis and scrotum. Within the scrotum are the two testicles.

About one inch of the end of the penis is blunt-shaped, and is called the glans. The skin that covers this blunt end is loose, and can be retracted. This skin is called the prepuce, or foreskin. If the prepuce cannot be drawn back to expose the glans, it is abnormal, and should be cared for by a competent physician. Under the prepuce a thick white secretion collects, and if this is not washed off frequently, it becomes foul-smelling and causes itching.

This itching, caused by not keeping the end of the penis clean, is a very common cause of masturbation in boys.

The two testicles are inside the sac called the scrotum. They produce the spermatozoa. These spermatozoa are so small that they cannot be seen without the use of a microscope. At the time of a seminal emission, these spermatozoa pass along a duct until they reach the urethra, and from there they pass on out of the penis. It is these spermatozoa that are deposited in the vagina of the female at the time of sexual intercourse. One of them joins the ovum that has been produced in the female. As soon as a spermatozoa unites with the ovum, the ovum begins to grow, and in



Male Genital Organs.

two hundred and eighty days becomes a fully developed child.

### Seminal Emissions

There are two glands (prostate and Cowper's gland) that are connected with the urethra. After puberty, these glands continually produce more or less of a thick, whitish fluid. In a young man who is healthy and unmarried, and is not an adulterer, there is normally an emission of the fluid from these glands every ten or fifteen days. In some young men it may be only once a month or once every two or three months. The emissions most often occur at night when the young man is asleep, and may be accompanied by erotic dreams. These emissions are not abnormal, and the young man should not be frightened by them. By no means pay any attention to the patent medicine advertisements telling you that these emissions cause a loss of sexual power, and so on. If they occur oftener than once in ten days, and if there is headache and lassitude on the day following, it is abnormal, and a competent physician should be consulted. The emissions that have just been mentioned occur in the case of young men who live clean lives, and who do not read erotic books or look at lewd pictures or think lewd thoughts. Masturbation and reading lewd books cause "nocturnal emissions" that lead to loss of strength and do great harm.

### Continence

Continence, in the case of an unmarried man, means to abstain entirely from having sexual intercourse. Continence, in the case of a married man, means to be temperate in the indulgence of his sexual desires. Every young man should lead a continent life. Every healthy young man will experience strong sexual desire at times before he is married; but if he wishes to keep strong and healthy, and wishes to become a useful happy man, and to have sometime a good wife and healthy children, he must live a continent life. To do so requires an exercise of the will power. Many a young man allows his sexual passions to control

him; and he either masturbates or has illicit intercourse with women. In either case, he is debasing himself.

### Masturbation

Masturbation (self-abuse) is a vicious habit. It is often learned while the child is young. Sometimes the one who is caring for a boy baby will amuse the child by handling its external genital organ. Later, the child will learn to handle this part of his body, and he will thus become a masturbator. The custom of carrying children astride the hip, produces a constant rubbing of the child's genital organs, and by keeping these organs constantly irritated, the child may be led to masturbate. Boys often learn this habit from their playmates at school. In other cases, there is a long or adherent foreskin. This irritates the end of the penis, and causes it to itch. The child rubs the organ, and in this way may learn to be a masturbator. For this reason, whenever a child is noticed rubbing or scratching about the region of the external genitals, it will generally be found that he should be taken to a physician and should be circumcised. If the habit of masturbation is carried on into young manhood the young man becomes debased morally. He does not respect himself and will never become a useful man, unless he ceases to masturbate. Every effort should be made to prevent and check the habit in childhood.

### Illicit Intercourse with Women

Illicit sexual intercourse is one of the vilest and most harmful things that men can do. In the first place, it is one of the lowest moral crimes. It debases both the man and the woman, so that they lower themselves to the standard of the beasts. Illicit sexual intercourse is such a vile crime that it merits the severest punishment; and a part of this punishment is the venereal diseases that are often contracted by those who have illicit intercourse. One indulgence in illicit sexual intercourse may result in contracting a venereal disease that will cause years of suffering. These diseases are chancroid, gonorrhœa and syphilis. They will be discussed in Chapter 29.

### How to Live Continently

Sexual intercourse should not be indulged in during menstruation, and only moderately during the first seven months of pregnancy. It should not be indulged in at all during the last two months of pregnancy as it may cause a miscarriage.

The man who wishes to keep his sexual desires under control, whether he be married or unmarried, should observe the following:

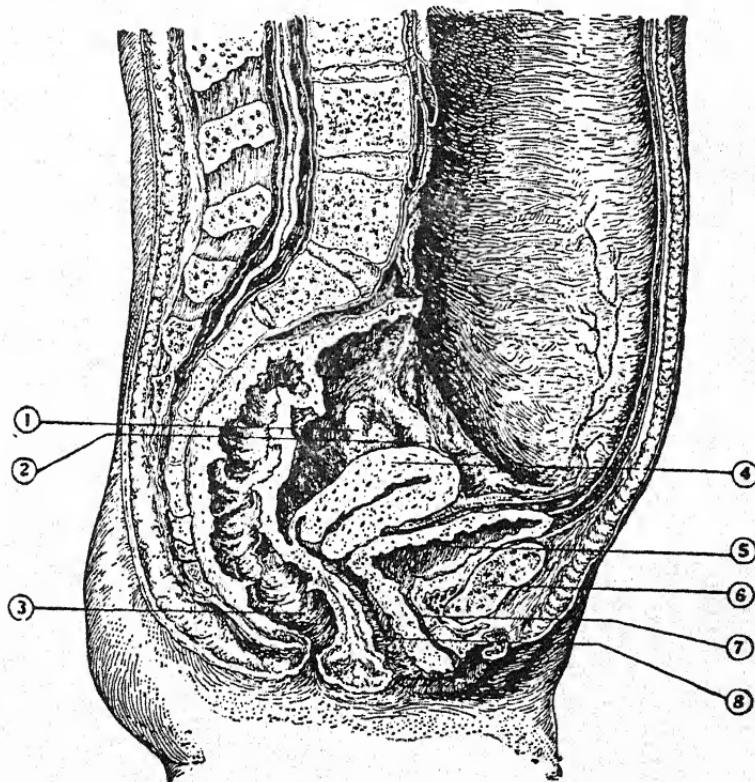
1. Get exercise in the open air daily.
2. Eat plenty of fresh green foods, avoiding chillies and meat.
3. Avoid use of alcoholic drinks. One authority says: "The strongest indictment against alcohol is that it excites the passions and at the same time diminishes the will power."
4. Drink plenty of water so that elimination will be aided.
5. Bathe frequently. Sexual desire may be repressed by a cold bath.
6. Train the mind to think pure thoughts by reading only good books and indulging only in uplifting conversation.

Sexual excess is a sin that is increasing to an alarming extent, and is blasting the usefulness of many men. Perversion of the natural use of the reproductive organs shortens life. It is like burning a candle at both ends.

### The Female Organs

While the male and the female both share in the wonderful work of reproducing their kind, yet by far the greater part of the burden falls to the woman. It is in the mother's body, protected as well as it possibly can be, that the life of every child begins; and it is in the mother's womb that the child is nourished for the first two hundred and eighty days of its existence. Not only for the first two hundred and eighty days of its existence, but for the first year and a half after its birth, the child is generally en-

tirely dependent upon its mother for nourishment and care. The child, even after it has ceased to secure nourishment from its mother's breast, is still under her constant care for a number of years.



Female Genital Organs.

- |                          |                    |
|--------------------------|--------------------|
| 1. Ovary                 | 5. Urinary bladder |
| 2. Fallopian tube        | 6. Pelvic bone     |
| 3. Rectum or lower bowel | 7. Urethra         |
| 4. Womb or Uterus        | 8. Vagina          |

Thus it is evident that the mother, as a rule, has much more to do with shaping the future of the child than has its father. Since the greater share of the work of bearing the child, of nourishing and caring for it, is hers, should this not lead men to look upon women with high regard?

And since she has so large a part in the moulding of the child, physically, mentally and morally, should it not be a subject of the first importance to see that she has every opportunity to secure a good education that will fit her for this most important work, and that her life be not made bitter with drudgery, and that the burden of motherhood shall by no means be laid upon her until she has grown to the full stature of womanhood?

### Anatomy and Physiology of the Female Sexual Organs

The ovaries and the uterus are the important sexual organs of the female. The ovaries are two small, round bodies. They are located in the lower part of the abdomen. Their position is shown in the Manikin on page 8. The ovaries produce the ova. The ova are so small that if one hundred and twenty-five of them were placed side by side, they would barely cover a space an inch wide.

The oviduct is a tube four or five inches long that is attached to the uterus at one end; the other end reaches to the ovary. The ovum passes along this tube from the ovary to the uterus.

The uterus is of the shape shown in the Manikin. The uterus of a virgin is about two and three-quarter inches long by one and three-quarter inches wide. The lower end of it projects down into the vagina.

The external opening of the vagina is almost closed by a thin membrane, the hymen. The hymen is usually ruptured at the time of the first sexual intercourse. There may be no opening in the hymen or some diseased condition may close the opening. In such a case mucus will collect within the vagina and cause pain and swelling. The child so afflicted should be taken to a physician for treatment.

### Puberty and Menstruation

A girl reaches the age of puberty when she is from nine to fifteen years old. At this time changes take place in her body which are to fit her to bear children. Hair

begins to grow in her axilla (arm-pits) and about the pubis; the breasts begin to develop, the whole body takes on a more rapid growth, and the girl begins to menstruate.

Menstruation occurs usually every twenty-eight days and lasts ordinarily for five days. At the time of menstruation there is a partial sloughing or throwing off of the lining of the uterus. The menstrual discharge is composed chiefly of blood and mucus. Women as a rule do not menstruate during pregnancy and during the time the child is nursing. Menstruation ceases about the forty-fifth year of life. After it ceases, a woman can no longer bear children.

Because upon beginning to menstruate a girl can become impregnated and bear a child, this does not mean that this should happen. Every girl is entitled to a normal childhood and youth. She should be given time to develop physically and mentally before taking on the burdens of motherhood. The best age for a young woman to marry is between eighteen and twenty-three.

### Hygiene of Sex

Every mother should be intelligent with reference to the function and care of the reproductive organs. She should, in a proper way, instruct her daughters about sexual matters as far as they can understand. By teaching the daughter these things, the child's health and morals will be safeguarded.

The external genitals of female children, even the very youngest, should be kept clean by frequent bathing, lest they become foul, and the itching that results lead to rubbing of the parts. This rubbing may cause the child to learn to masturbate.

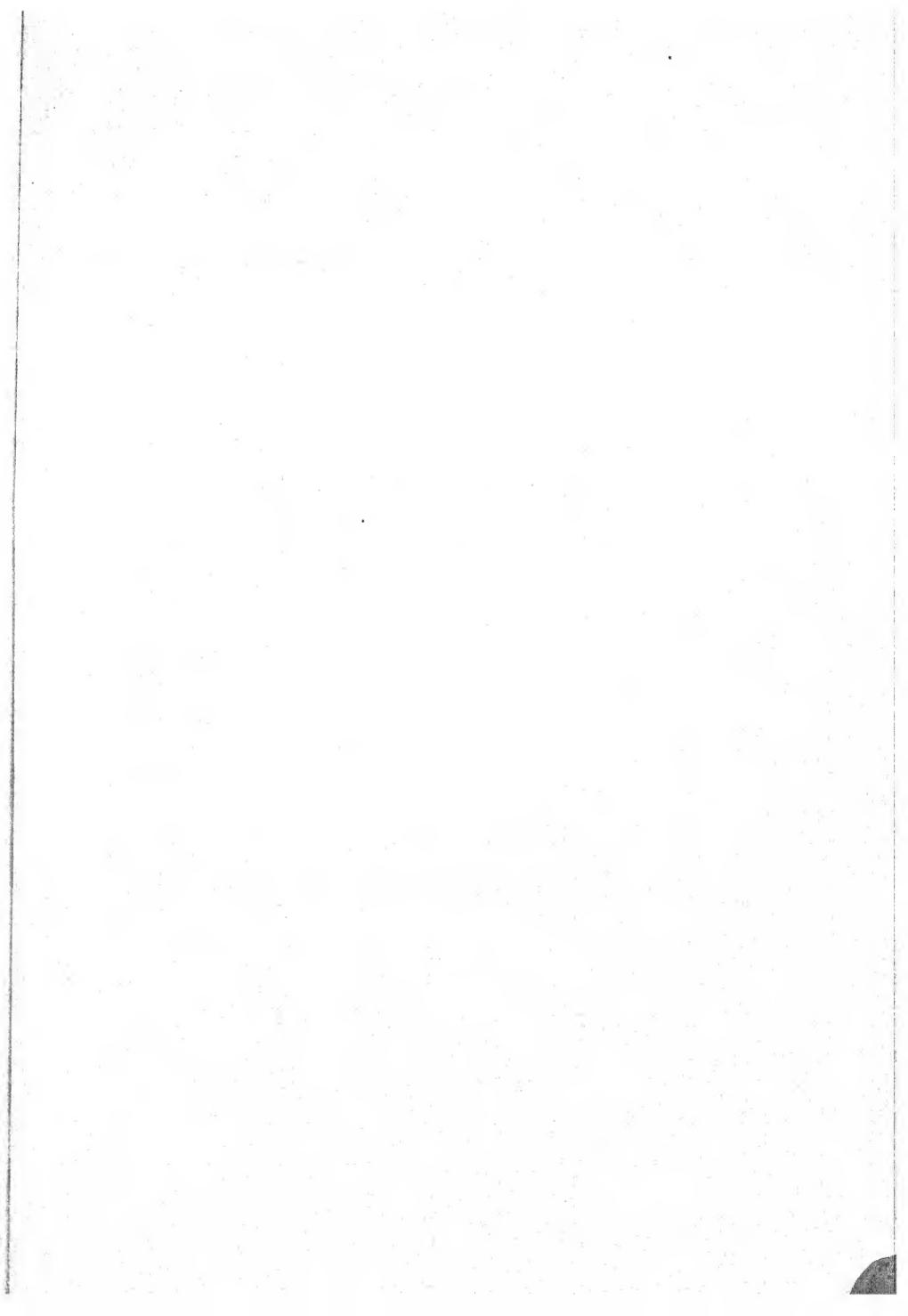
The child should not be allowed to go about with the external genitals exposed. Male and female children should not be allowed to sleep together in the same bed. Even children a few years old quickly learn evil habits if the two sexes sleep in the same bed.

When a girl reaches the age of puberty and begins to menstruate, her mother should explain to her that at the

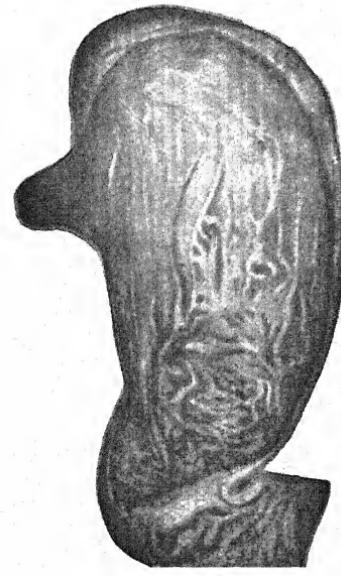
time of menstruation colds are easily contracted, and for this reason she should be careful of her health. A girl at about this age should not be made to work too hard, and should be allowed nine or ten hours of sleep every night.

At the time of menstruation pieces of clean cloth, or clean cotton, wrapped in a piece of gauze, should be used to absorb the menstrual discharge.

During the few days of menstruation frequent bathing is necessary. If the skin is thoroughly dried by brisk rubbing with a towel, there is no danger of taking cold. No woman should neglect to keep her body clean during menstruation.



This plate shows the interior of a healthy stomach. The lining membrane lies in folds and depressions, and is uniform in appearance and of a healthy colour.



In this plate are shown the local patches of congestion and erosion caused by alcohol. Note the general unhealthy tinge of the whole interior as compared with the other plate.



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## *Chapter Twelve*

# Alcohol and Tobacco

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**A**LCOHOL is not a product found in nature. It is a product of decomposition. It can be made from wheat, corn, oats, barley, rice, grapes and palm juice. The yeast used in fermenting wine, changes the starch and sugar of the grains and fruits into alcohol. Every class and kind of wine, whether it be called wine, whisky, brandy, gin, beer, or toddy, all contain alcohol.

Alcohol is a powerful poison which in man's body is destructive to both mental and physical processes. The central nervous system is the first to feel its effects. Long before the drinker begins to stagger and feel uncertain on his feet, his brain processes are slowed down. Memory and mental concentration are impaired. Activities involving speed and accuracy are carried on with reduced efficiency. Even a small amount of alcohol lowers reaction time, that is, the ability of muscles and nerves to react quickly. This is the reason why it is so dangerous for drivers of motor vehicles or aeroplanes to indulge even in a small amount of alcoholic liquor. Even one bottle of beer impairs the sense of distance, slows reactions, and lessens judgment. When large amounts are taken drivers become reckless, because although alcohol reduces efficiency it gives the individual confidence and he feels that he is very alert mentally and physically, well able to accomplish his task.

When alcohol is drunk the skin becomes flushed because of an increased amount of blood flowing through it, for alcohol dilates the blood vessels near the skin. This causes a feeling of warmth. Many dhoobies standing in the

cold water to wash clothes, drink liquor to keep warm. Actually liquor chills the body, for the blood is rushed to the skin surface where it is cooled and the body loses heat and the internal temperature falls.

Alcohol impairs judgment and reduces mental restraint and self-control. Many criminals drink liquor before doing their wicked deeds. It dulls their sense of right and wrong. Many youth are led into sin while under the influence of alcohol. Those who wish to have full control over their behaviour should surely abstain from the use of all intoxicating beverages.

Alcohol may do serious damage to the stomach, liver, blood vessels, kidneys and nervous system. It lowers the resistance of the body to disease, especially those affecting the lungs such as pneumonia and tuberculosis.

The statistics of Insurance Companies show that those who drink alcohol do not on an average live as long as the abstainers.

Note the picture of the drunkard given by Solomon, the wise man: "Who hath woe? who hath sorrow? who hath contentions? who hath babbling? who hath wounds without cause? who hath redness of eyes? They that tarry long at the wine." Then he gives this admonition and warning, "Look not thou upon the wine when it is red, when it giveth his colour in the cup, when it moveth itself aright. At the last it biteth like a serpent, and stingeth like an adder."

### How to Break Off the Use of Alcohol

The chief thing that is necessary is that there be first a firm resolve to overcome the evil habit. If a man is willing to seek help from the God in heaven, He can impart strength that will enable him to overcome the craving for alcohol.

It is now known that diet has much to do with creating a desire for intoxicating drinks. For this reason, one who is trying to overcome the liquor habit, should abstain from the use of all kinds of meat and spiced foods. It is absolutely necessary, in order to overcome the appetite for wine, or alcohol, that one cease using tobacco; for the use

of tobacco increases the desire for alcohol. Eat an abundance of fresh fruit, and drink an abundance of pure water. Do not drink tea or coffee. Take a hot bath daily; and after getting out of the hot water, at once dash cold water over the whole body, and dry the skin quickly. Spend as much time as possible out in the open air. Exercise daily to the point of perspiring freely. Do not keep any alcohol in the house and do not enter a liquor shop. If one is really desirous of stopping the use of alcohol, following the above-mentioned methods will surely enable him to do so.

### Tobacco

No evil habit has so enslaved the peoples of all nations as that of using tobacco. Whether it is used as smoking tobacco, snuff, chewing tobacco, or the drinking of nicotine water, its effects are only harmful. There is NOTHING good which can be said about the use of this poisonous weed by man. Why then is it so universally used? People like its pleasing narcotic effect. By benumbing the brain and nerves it gives temporary relief from worry, fatigue, hunger, and irritability. After one has used it long enough to realize its deceitfulness he finds himself a slave to the habit with not enough will power to even desire to break it.

### Tobacco a Poison

Nicotine, the main poison found in tobacco, is one of the most powerful poisons known to man. One half drop of pure nicotine is a lethal dose and for it there is no antidote. The first use of tobacco brings on these symptoms of poisoning: nausea, dizziness, and vomiting. As the body becomes accustomed to the poison these symptoms disappear but the poisoning of the body continues. The desirable narcotic effect is felt. The user of tobacco must, like the user of any narcotic drug, continually increase the amount he uses if he is to continue to get the pleasant feeling he desires. And what is worse, he finds he is un-

able to live comfortably without it. He becomes a slave to it.

### Effects of Tobacco

Briefly put, what the tobacco user pays for his "pleasant feelings" is summarized in the following sentence: "As his money goes up in smoke, along with it goes his keen sense of physical and mental efficiency, and he is left with a weak heart, an impaired respiration, a raw throat, a slowed brain, nerves on edge, a poor sense of taste, smell and sight, a lowered resistance to disease and a shortened life." Statistics bear out the truth of this statement.

### Effects on the Young

While the effects mentioned above may come on slowly in the one who began the use of tobacco as an adult, yet for the one who begins its use in childhood and early youth, the effects are rapid, devastating, and permanent. All medical, educational, religious, and judicial authorities agree that the use of tobacco, especially cigarettes, by the young, stunts them physically, mentally, and morally. By beginning the use of cigarettes a young student who is mentally keen, morally pure, physically fit and alert, will in a short time become mentally dull, morally untrustworthy, given to lying, cheating or stealing; physically slow and stunted, a fit subject for disease. The younger the habit is acquired the more rapid, disastrous and permanent the damage and the greater the enslavement. The very will to achieve, to conquer, to do right, is destroyed. The juvenile judges say that most youthful criminals are cigarette addicts.

Even when the habit is begun in young manhood or womanhood, the slackening of mental and physical processes is felt. In one great university where a large number of students use tobacco, no tobacco user has ever stood at the head of his class. The tobacco users cannot excel in athletic activities which demand physical endurance. A far

greater number of them also succumb to disease, especially those of the respiratory tract. The smoker more easily falls victim to the use of alcoholic liquors or other narcotics.

### Smoking among Women

While it is deplorable that men should ever take up such a filthy, health-destroying, expensive and ungodly habit as tobacco using, yet it is far worse for women to do so. The reason this is true is because on women depend to a large degree the health and the stability of the children. Medical men agree that the infant born of a mother who is a habitual user of tobacco, especially cigarettes, is a sick baby. It is poisoned. The water which surrounds the unborn child in the womb of the tobacco-using mother, contains nicotine. After the infant is born it has little chance of becoming strong because of its weakened condition, and because the mother's milk is also tainted with nicotine. Sixty per cent of all such babies die before they are two years of age. The young women who want strong, healthy children with good brains, will not use tobacco. It is a proven fact that excessive use of tobacco is a common cause of sterility among women.

### How to Break Off Using Tobacco

Those who do not use tobacco should never begin its use. And in view of the harm that tobacco causes, every one who uses it and yet who desires to live a long, useful, happy life, will cease using it. The best method to stop is not to decrease gradually the amount used, but to stop abruptly. This requires strong will power and a firm resolution. The methods outlined in this book for the help of those who desire to stop the use of alcohol are all of great value in helping to overcome the craving for tobacco. Another excellent method is to produce a free perspiration daily in order to rid the body quickly of the tobacco poison.

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## *Chapter Thirteen*

# Foods for Health

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EVERY living thing must have food; food for growth, food for energy, food to regulate the body processes, and food to replace worn-out tissues; food adequate in amount and in composition. The foods needed for the body are divided by the chemist into the following groups: water, proteins, carbohydrates, fats, vitamins and minerals.

Except for water and certain minerals, the ultimate source of man's food supply is the plant kingdom. Plants utilize the energy of the sun, the oxygen, carbon dioxide, and nitrogen of the air, and the water and mineral salts of the soil, to manufacture the carbohydrates, fats, proteins, and vitamins which serve as foods for man.

This is in harmony with the sacred record which states that the all-wise Creator who made man provided him with a diet consisting entirely of fruits, grains, vegetables and nuts. It is evident that He who created man's body knew exactly the kind of food best suited for man.

The carbohydrates produce heat and energy for the body. They are found in fruits and vegetables but are most abundant in such foods as rice, spaghetti, potatoes, sweets and bread.

The fats also yield heat and energy. Those of animal sources are butter, cream, egg yolk and lard; and of vegetable sources, coconut, olives, peanuts, cottonseed, mustard and soya bean oils.

The proteins yield some energy but their main function is to keep up the continuous body processes of growth and repair of tissues. Almost all foods contain some pro-

teins but the greatest sources are lean meats, fish, eggs, milk, cheese, nuts, cereals—such as unpolished rice and wheat—and the legumes, peas, soya beans, beans, peanuts and dahl.

#### DAILY DIETARY REQUIREMENTS AT VARIOUS AGES

Age	Total Calories	Protein Grammes Per Lb. of Body Weight	Calcium Grammes	Phosphorus Grammes	Iron Milligrammes	Vit. A I. Units	Vit. B I. Units	Vit. C Milligrammes	Vit. D I. Units
Under 1 year	500-	1.0-	1.0	1.0	3-6	6,000-	80	40-	800-
1-2	1,000-	1.5				10,000		50	1,200
	1,000-	1.0-	1.0	1.0	6-7	6,000-	200-	40-	800
	1,200	1.5				10,000	300	50	
3-5	1,000-	1.0-	1.0	1.0	6-8	6,000-	220-	40-	300-
	1,500	1.5				10,000	600	50	400
6-9	1,500	1.0-	1.0	1.0-	7-12	6,000-	300-	40-	300-
	2,500	1.3		1.1		10,000	600	80	400
10-13	2,100-								
Boys	3,300	0.7-	1.0	1.0-	10-15	8,000-	400-	40-	300-
Girls	1,800-	1.0		1.5		10,000	600	80	675
	3,000								
14-18	2,600-								
Boys	4,000	0.7-	1.0-	1.0-	12-20	8,000-	400-	40-	300-
Girls	2,400-	1.0	1.5	1.8		10,000	800	80	675
	2,800								
Adults	2,000-	0.5	0.68	1.3	12-15	3,000-	300-	40-	?
	3,000					8,000	600	80	

The recommended vitamin values in the above table cover the range from those needed for average nutrition to those considered ample for the best nutrition. In most cases, considerably smaller amounts would be enough to prevent noticeable signs of vitamin deficiency.

Weights in the table are given in metric system units, since this system is now universally used in scientific articles and books. Weights of iron and of vitamin C are stated in milligrammes to avoid the use of long decimal fractions. It takes 1,000 milligrammes to make 1 gramme, and about 28 grammes to make 1 ounce. Vitamin C has been purified sufficiently to enable quantities to be stated by weight, and that is the usual practice at present. Chemically, it is known as ascorbic acid or cevitamic acid. In older publications vitamin quantities may be found given in International Units. To give amount of vitamins in such units is not very satisfactory, because the units of one vitamin are not comparable with the units of another; but it is the best available way at the time these words are being written. Scores of scientists in various parts of the world are at work trying to purify the vitamins already known, as well as to discover new vitamins. When a vitamin has been purified, its chemical composition can be determined and quantities of it can be expressed as weights rather than as units. It will doubtless soon be possible to measure all the common vitamins in this more accurate way.

The minerals are needed by the body to help maintain the growth and repair of cells. All minerals are essential and are found in abundance in fresh fruits and vegetables. Calcium and phosphorus are found in the body in

larger amounts than other minerals. Children need twice as much of these two minerals as adults. If the diet contains eggs, cheese, curd, vegetables and milk, sufficient amount of these minerals will be obtained. One must take care that the diet contains sufficient iron. This mineral is found in all green, leafy vegetables, in raisins, grapes and bananas, in liver, lean meat, egg yolk; and in molasses.

Vitamins are called body regulators. If one's diet contains plenty of fresh fruits and vegetables and whole grain cereals he will get a sufficient amount of these vitamins.

Water is not a food but it is essential in man's diet in order that his foods may be prepared for assimilation by the body. The amount of water needed by the body depends on one's age and work and the climate. One should form the habit of drinking several glasses of water in between regular meals.

From these paragraphs one can see that a proper, well-balanced diet may consist of—

Fresh fruit and vegetables, both cooked and raw.  
Whole grains and nuts.

Such a diet is called a "vegetarian diet." When eggs and milk products are added to the vegetarian diet it is called "lacto-vegetarian." It is less difficult to keep a proper balance between the different food elements if the lacto-vegetarian diet is followed. Milk is a protective food since it is well supplied with certain minerals and vitamins as well as being a rich source of protein, fats and carbohydrates. The Sacred Record recognizes milk as a food for it speaks of the New Earth as a place "flowing with milk and honey."

### Flesh Food in the Diet

As stated earlier in this chapter, the ultimate source of all food is the plant kingdom. The flesh of animals is made up from the food from the plant kingdom which the animal eats, so that when man eats meat he is getting his food from a second-hand source. Along with it he gets some of the waste products which are in the flesh of the animal.

### Disease in Animals

One writer has said, "If those who eat meat could see the condition of some of the animals when living they would turn from it with loathing."

Disease among all fowl, fish and animals used by man for food is continually on the increase. Investigation shows that tuberculosis, cancer, tumours of all kinds, worm infestation and Bang's Disease (caused by the same germ which causes undulant fever in man) are all rapidly increasing in these creatures. These diseases may be transmitted to man through handling the flesh of the animals and from eating the meat which may not be cooked thoroughly, from drinking infected milk, or from eggs from infected fowls.

### High Protein a Cause of the Degenerative Diseases

During recent years, the chronic or degenerative diseases have been increasing rapidly. These diseases are mostly characterized by destructive changes in the cells of certain organs of the body, such as the kidneys, the liver, the heart and the brain. The damaging effects of high protein are particularly serious with elderly people.

The marked increase of kidney disease, heart disease, apoplexy, hardening of the arteries and kindred affections are to a large degree attributable to an excessive use of protein, especially that of flesh origin.

### Cancer in Relation to Meat Eating

Dr. Buckley in his book, "Cancer, Its Cause and Treatment," calls attention to some very interesting statistics which seem to indicate a possible relation of diet to the cause of cancer. He states that during a certain period of fifty years, the consumption of meat in England doubled, making at that time the yearly consumption an average of 130 pounds per capita, while during the same period cancer increased fourfold. In Ireland, where the consumption of meat was much less, only about forty pounds per capita,

the death rate from cancer was much lower. In Italy, where the amount of meat used was comparatively small, cancer was still lower in the mortality rate. Places where vegetarianism prevails show a very infrequent occurrence of cancer. The fact that the majority of cancers occur in connection with the digestive organs is also good evidence that diet may have a bearing upon the subject.

### Meat and Endurance

Meat in the diet greatly diminishes endurance. This has been proved by many experiments. The most noted perhaps are the experiments conducted by Dr. Irving Fisher of Yale University, U. S. A. He chose fifteen flesh-eating athletes and a mixed group of non-flesh-eaters, mostly untrained in athletics. In the experiment of holding the arm out at the side and deep-knee bending, the flesh abstainers showed more than double the endurance of the meat-eaters.

When one accustomed to a heavy meat diet discontinues its use he feels a sense of weakness and loss of vigour. This is due to the stimulating effect of meat which fevers the blood and excites the nerves. In time this feeling of weakness will not be felt and normal natural strength will be maintained without the use of meat.

From all that we have learned regarding the dangers of using flesh as a food it is comforting to know that a balanced diet can be maintained without its use. Sir Robert McCarrison, lecturing in Madras drew the conclusion: "A perfectly constituted diet is one in which the principal ingredients are milk, milk products, any whole cereal grain, or mixture of cereal grains, green leafy vegetables and fruit."

### Preparation of Food

Many foods should be cooked before being eaten. Cooking accomplishes three things: First, it destroys the disease-producing germs that are found abundantly on most foods and especially in meat. Second, cooking makes the food more easily digestible. There are some foods,

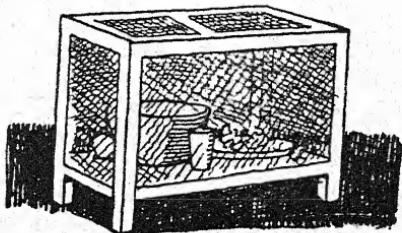
such as wheat, dahl, and beans, that man's digestive organs cannot digest until they have been cooked. Third, cooking makes food more palatable; for many of the raw foods, such as rice, beans, wheat and the millets, when eaten raw, do not have the taste they have after being well cooked.

There are three common methods of cooking food, viz., boiling (or steaming), baking (or roasting) and frying (or cooking in oil).

Frying is a very poor method of cooking, for while foods can be very quickly prepared in this way, yet it were better to spend more time in the cooking rather than to eat fried foods and thereby injure the digestive organs. In the process of frying, the oil that is used forms a coating on each particle of food, very much the same as though it were painted with oil. When oil-covered food reaches the stomach, it cannot be readily digested. Continuous use of fried foods is one cause of dyspepsia.

### The Kitchen

Proper cooking of the food has much to do with the health of the family. More attention should be given to the matter of having a good room for a kitchen. The kitchen should be the cleanest room in the house. Windows should be provided in order that an abundance of sunlight may enter. The floor, walls and ceiling should be kept clean. Buckets and other receptacles, with covers, should be provided for the refuse and the dirty water. Refuse and dirty water should not be thrown out just in front of, or at the side of the door, nor under the floor, for this makes filthy places where flies and disease germs breed rapidly.



A cupboard arrangement, whose sides and doors are made of wire netting, should be provided, in which the food may be kept, in order that flies and other insects cannot crawl over the food (see accompanying illustration). Rats, mice, flies, cockroaches and other insects are all very filthy. They have all manner of filthy and poisonous matter on their feet and bodies. They also deposit their filth on the food. It is not an uncommon sight to see flies that have been eating faecal matter fly into a house and alight on the food in the kitchen. For this reason, all food should be kept in a place where rats, mice and flies cannot reach it.

### Eating Habits

The father, mother and children should gather about the table and engage in cheerful conversation while they are eating; for if the mind is peaceful and happy, the food tastes better and digests better. Eat slowly and chew the food thoroughly. Have fixed times for eating, whether twice a day or three times a day. The evening meal should be light, and eaten not later than 7 p.m., as a general rule. At night the digestive organs are tired and need rest, just as the remainder of the body needs rest. A large amount of dyspepsia and disorders of the digestive organs are due to the common custom of eating heartily late at night and then going to bed immediately after eating. For the adult and any child over seven years of age, three times a day is often enough to eat, and nothing should be eaten in between meals.

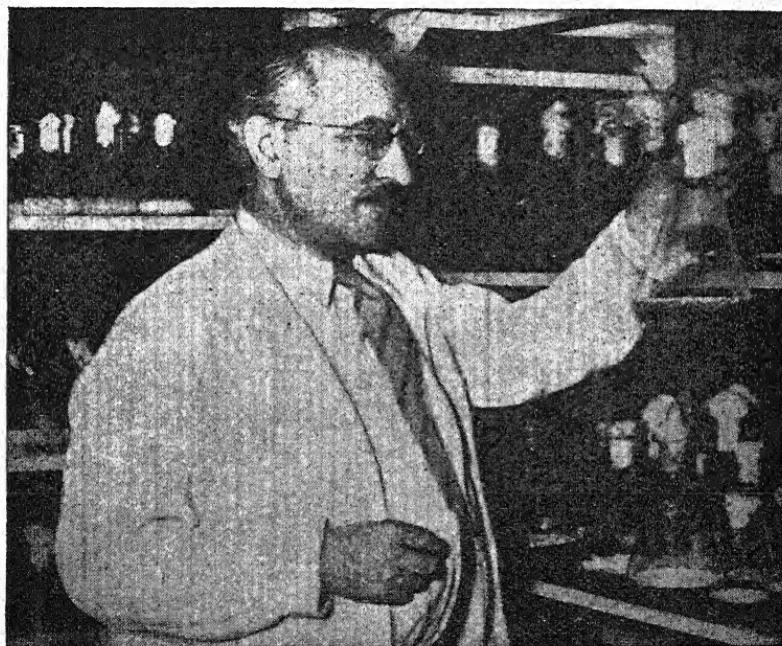
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## *Chapter Fourteen*

# The Causes of Disease

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THE most dangerous enemies of man are those that are the smallest in size. If it were reported that a fierce, man-eating tiger had entered a village, the people would be greatly frightened. Those who possessed guns or swords



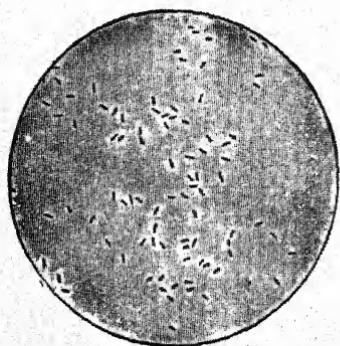
Scientists are continually searching for the causes of disease.

would sally forth to kill the beast, while those who had no weapons of defence would run into their houses and bolt the doors. But there are countless multitudes of enemies in every village that are far more dangerous than any tiger. The tiger at most would kill only two or three persons, and then run away; but these other enemies that are in every village, remain there year in and year out, and cause 98 out of every 100 deaths that occur among the villagers. The enemies referred to are "disease germs."

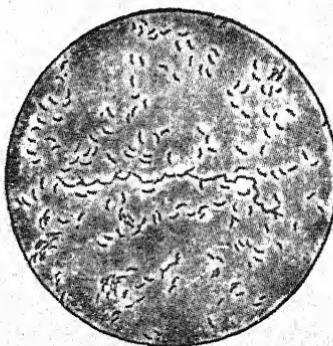
### What Germs Are

In the first chapter of this book, mention has already been made of "disease-producing germs." These disease-producing germs are also called micro-organisms, because they are so small that one cannot see them without making use of a microscope. Most of them are so small that, if there were a thousand of them gathered together in one ball, it would not be larger than a mustard seed. The illustration shows the picture of some germs as they look when magnified 1,000 times. Some of them are round, some of them are long.

Germs multiply very fast. It requires several months from the time a seed is planted until it sprouts, grows up, and yields other seeds. But one germ, if it is in a warm place, will, in thirty minutes' time, divide and become two



Dysentery germs.

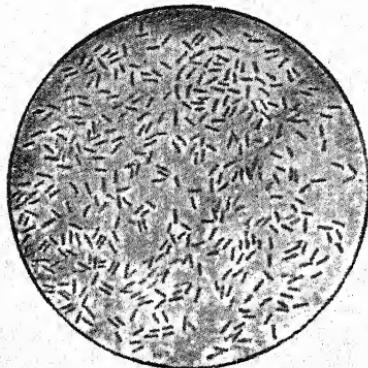


Cholera germs.

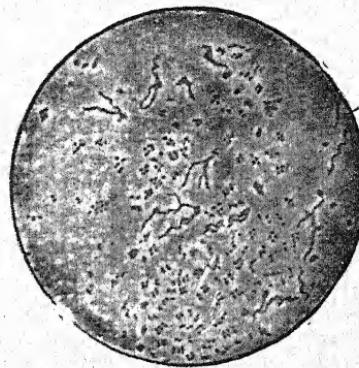
full-grown germs; and in another thirty minutes those two germs will each divide into two, thus producing four; and in another half hour there will be eight. If they keep on multiplying at this rate, the one germ will produce a family of a million germs in ten hours' time.

Germs will grow in any place that is warm and has a little moisture. The conditions that favour most rapid growth and multiplication of germs are warmth, moisture, and darkness. Almost all plants and animals require sunlight in order to grow well, but germs are killed by strong sunlight. Germs also grow abundantly in places where there is decaying vegetable or animal matter. As a general rule it may be stated that the cleaner and lighter the place, the fewer germs there will be in it.

Since germs are so small, so light in weight, multiply so rapidly and can grow in or on almost everything, they are distributed very widely. In fact, there is hardly any place you could name where there are no germs. They are in our mouths and noses, and on the skin. They are in the food we eat, and the water we drink. They are on the floor and walls of our houses, in the surface soil of our court-yards, in the water of the ponds, wells and rivers, and in the air we breathe. The air on high mountains does not contain germs. Wherever human beings live in the largest numbers, there the most germs are found.



Typhoid germs.



Colon bacilli, which cause diarrhoea.

Not all germs are harmful, but there are so many that harm man that the only safe plan is to be on guard against all germs.

### How Germs Cause Disease

The way germs cause such diseases as cholera, typhoid fever, diphtheria, tuberculosis, plague, boils, scarlet fever, syphilis, gonorrhœa, etc., is as follows: When germs enter the body and grow there they produce poison. It is the poisons produced by the germs that cause the fever, headache, pain, diarrhœa, etc., that occur in the diseases which afflict us.

### Where Disease Germs Come From

The germs that cause disease do not originate within our bodies; they enter from without. They come from sick people or from sick animals. For example, a man who is sick with cholera has in his body the germs that cause cholera. Whenever this man uses a dish some of the cholera germs from his mouth and his hands get on the dish; and if any other person uses that dish without first washing it in boiling water, he will be almost sure to swallow some of the cholera germs. The germs will multiply in his alimentary canal, and in a short time will produce enough poison to cause fever, diarrhœa and all other symptoms of cholera. Another way in which germs may be spread from the man sick with the cholera is through the bowel discharges. The bowel discharges of a person who has cholera are full of cholera germs. If this faecal matter is thrown out into the pond or river, or thrown out on the ground near a well, the germs will continue to multiply; and those who use the water from the pond or river or from the well that is close by the place where the faeces were thrown, will take some of the cholera germs into their bodies, and these germs will soon be in the alimentary canal; and in a short time such persons also will have cholera.

In the sputum of those who have tuberculosis of the lungs there are many disease-producing germs. When these persons spit on the floor or on the ground, the sputum soon

dries and becomes mixed with the dust. This dust gets into the air and people, when they breathe in that air, also breathe in some of these germs that cause tuberculosis. If the person who thus takes these germs into his body is not very robust, the germs will multiply rapidly and quickly cause tuberculosis of the lungs. These two instances will suffice as illustrations to show where disease germs come from.

In addition, however, it should be mentioned that there are a few diseases that men contract from the lower animals. Thus we contract rabies from the dog, plague from the rat, trichinosis from the hog, and tuberculosis may be contracted from cattle. Certain diseases of the skin, such as ringworm, may be contracted from the cat and the dog.

### How Disease Germs Enter the Body

There are three doors of entrance by which germs get into the body; namely, the mouth, the nose and any injured spot in the skin. Germs that cause disease enter through the mouth in our food and drink. When one eats with unclean hands, when children put their fingers into the mouth, or when a piece of money is placed in the mouth—in all these ways germs enter. Disease-producing germs enter the body through the nose, along with the dust that is in the air we breathe.

The unbroken skin forms a covering for the body through which germs cannot enter, but when the skin is injured in any way, germs can enter the body just as rain can get into the house when there is a leak in the roof. If one accidentally injures the skin by cutting it with a knife, or by bruising it, or if a splinter or a needle is thrust into it, a small or large opening is made in the skin; and since there are always germs on splinters and knives and on the skin itself, the germs get down under the skin. Here they multiply, and soon the injured place becomes red and swollen, and in a day or two there is pus in it. All this is due to the germs that entered when the skin was injured.

There is another way that disease germs enter through the skin, and that is through the bites of insects such as the

mosquito, the flea, the louse, the bedbug, and the tick. When these insects bite a person, they suck out a small amount of the blood. If the person bitten is sick with malaria or typhus, the insect when it sucks his blood takes into its body some of the malaria or typhus disease germs. Later, that same insect will bite a well person and inject into his body some of the germs it has sucked out of the sick person's body. This is the way in which several very serious diseases are contracted.

### How to Avoid Being Infected by Disease Germs

Since almost all disease-producing germs come from diseased people, it is a matter of the first importance to destroy all germs as soon as they leave the sick person's body, and by so doing prevent the germs from being scattered in the food and drink, or on the utensils that other people use. In all cases of sickness such as cholera, typhoid, plague, diphtheria, etc., the sick person should be in a room by himself. In most of these diseases the sick person should be taken to an isolation hospital if there is one available. But wherever the sick person is, he must have a room by himself, and no one but those who are caring for him should enter the room. Dishes and other utensils that are used for the sick should be kept in the room and washed with boiling water each time after they are used. The nurse should take pains to wash her hands frequently, and she should not eat her food in the room where the sick person is.

The urine and faeces voided by the patient should not be thrown out until they have been mixed with some disinfectant. The sputum and the discharges from the nose also contain the disease germs; therefore the sick person should expectorate and blow the nose into pieces of paper. The pieces of paper should be burned.

To guard against disease germs entering the body, one must be careful not to eat any unclean food. The water from rivers, ponds and most wells is contaminated with poisonous germs and should be boiled before being drunk. Any fruit that one has purchased in the open market should be washed with soap and peeled before being eaten.

Be careful not to injure the skin. In case of injury to the skin, apply tincture of iodine or wash with soap at once. Keep all clothing and bedding clean by frequent washing in order to avoid being bitten by bedbugs, lice, etc. Wherever there are mosquitoes use a net over the bed to avoid being bitten by them.

After taking every possible precaution, it will be unavoidable but that disease germs will at times get into the body. But, thanks to the loving watch-care of an all-wise heavenly Father, He has given our bodies the power to destroy disease germs if they are not too poisonous or too numerous. This power of resisting disease and destroying poisonous germs is in the blood. If one does not have good food, or if he breathes air that is not pure, or works so hard that he is continually fatigued, or if he uses wine or tobacco, or if he is given to sexual excesses, the blood loses much of its power of resisting and destroying disease germs. Therefore it is important that in our efforts to guard against being infected with disease germs, we eat good food, breathe pure air, take seven to eight hours' sleep every night, do not use alcohol or tobacco in any form, and live clean lives morally. In this way the body will be strong and vigorous, and the blood will be enabled to kill the disease germs that may gain entrance to the body from time to time.

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## *Chapter Fifteen*

# The Menace of Flies

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THE fly is such a small creature; how can it possibly kill a man?

It is by carrying poison that the fly kills people. And although flies kill tens of thousands of people in India every year, yet very few suspect the fly of being a murderer.

In order to understand the deadly work of the fly, it is necessary to study its life history and habits.

The female fly lays eggs and these eggs change into larvæ (maggots). The larvæ later become flies. It requires from ten to fourteen days from the time the fly lays its eggs until the new generation of flies is produced. One female fly will lay at least 120 eggs, and in the course of two weeks each of these 120 eggs will develop into a fly. From this it will be seen that in a few months' time many millions of flies may come from a single fly.

The chief breeding place of the common fly is in animal manure. Flies also breed in human excrement and in rotting material of almost any kind. It may be said that flies breed wherever filth is allowed to accumulate.

The fly is hatched in filth, eats filth and prefers to live in filthy places. The fly's body and its six legs are all covered with numerous hairs. On each of the six feet of the fly is a rounded pad. These pads are covered with a sticky, glue-like material. Having the body and legs covered with hairs and having this sticky material on the feet the fly is an ideal carrier of disease germs. He moves from piles of manure, from open latrines, from rotten garbage, from sitting on open sores, to the homes of the people where he alights on the food, drinks the milk, sits on the baby's

mouth, or its eyes, and thus carries germs wherever it goes. He spreads such diseases as sore eyes, diarrhoea, dysentery, typhoid fever and cholera.



It is the duty of every citizen to destroy the fly by getting rid of places of filth where flies breed, by screening the houses to keep flies out, by swatting those that do get in. Declare an all-out war on one of man's worst enemies—the common fly!

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### *Chapter Sixteen*

## How to Live a Hundred Years

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A N ANCIENT sage said, "Man does not die; he kills himself." This is true in the case of most people. While it is true that all must die some time, yet very few live out the natural term of life.

The records of every community contain the names of men who lived to a great age; some of them lived to be over a hundred years old. But it is found in the case of most of these centenarians that they began to care for their health early in life.

Most men and women while young have good health and are strong physically. When warned against doing things that injure the health, they scoff and say, "I am young and strong; it will not hurt me to do this." The God who rules the universe has fixed a law that governs the actions of every man and woman. "Whatsoever a man soweth," He declares, "that shall he also reap." If a man sows wheat, he will get a harvest of wheat; if he sows dahl, he will secure a harvest of dahl. The young person who forms bad habits of living is sowing the seeds of disease in his body, and it is an absolute certainty that sooner or later he will reap ill-health. In Chapters 11 and 12 it has been shown that sexual excesses and the diseases resulting from dissipation shorten life. Also that the use of such habit-forming drugs as opium and tobacco sow the seeds of ill-health and so shorten life.

Many who read this book have already passed the period of their youth and may already be afflicted with disease. They will naturally ask, Since I have neglected

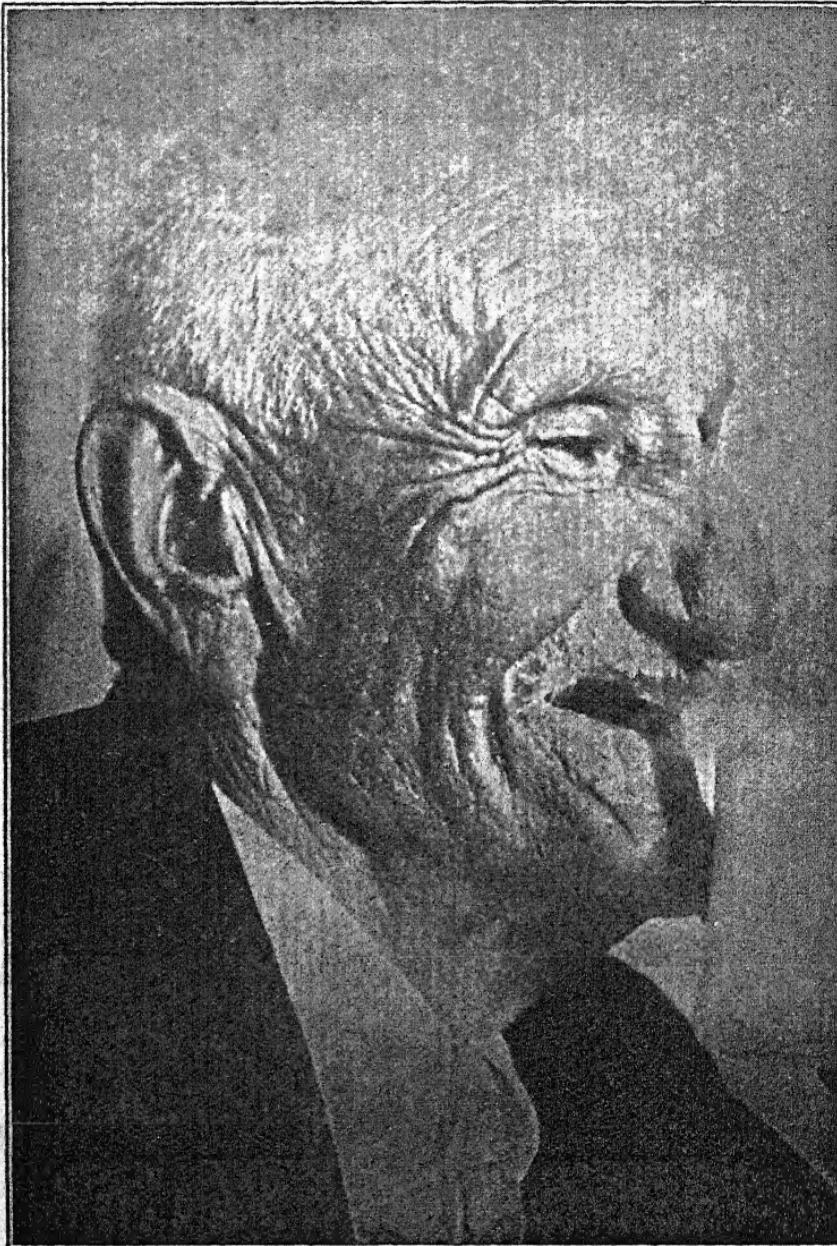
to carefully guard my health during the past years, is there any hope that I may have long life? This will depend on how seriously the body has been injured. But there is no one who cannot greatly lengthen the years of his life if he will at once leave off all those habits that injure the health and do those things that tend to long life. There are many instances of men, forty or more years old with diseased bodies, who have reformed their habits and lived to the age of seventy-five or eighty years.

### To Live Long a Man Must Be Temperate

Temperance is one of the essentials to long life. The lives of men and women who have reached the century mark have been free from excesses of all kinds. They have been temperate in eating and drinking. Temperance also has to do with the control of the passions as well as the control of appetite. Anger, envy, bitter feelings, all have a harmful influence upon the body and tend to shorten life. Kind thoughts and a contented mind are life lengtheners. The one who thinks and acts in harmony with the Infinite One who rules the universe is connected with the source of life. By this means he can prolong the days of his life.

### Food for Aged Persons

Among the foods that are especially adapted to aged people might be mentioned rice, soft-boiled eggs and bread that has been baked the second time, and made crisp. If the teeth are poor, hot water may be poured on this to soften it. Fruits should be eaten frequently. When ripe fruits can be secured at a reasonable price, eat raw fruits. Steamed or boiled fruits are also excellent. Cakes and confectionery should not be eaten. Old people should bathe frequently. If the skin is rubbed briskly with a dry towel after bathing, this will serve as a preventive against taking cold easily.



ZARO AGHA—THE "MOSLEM METHUSelah,"

A VEGETARIAN—VIGOROUS AT 156 YEARS OF AGE.

This photograph was taken in 1930 when Zaro Agha was 156 years old. He was a life-long vegetarian. He fought in the Napoleonic Wars. After surviving the trials and tribulations of life for more than a century and a half in Turkey, he made a tour of America, showing surprising mental and physical activity. He was injured in a serious motor accident in New York and has since died.

## RULES FOR LONGEVITY

1. Be sure to have the rooms you occupy well ventilated.
2. Seek out-of-doors occupation and recreation.
3. Sleep out-of-doors if you can.
4. Breathe deeply.
5. Avoid overeating.
6. Eat sparingly of meats and highly spiced foods.
7. Eat slowly and chew thoroughly.
8. The bowels should be evacuated daily.
9. Stand, sit and walk erect.
10. Keep the teeth, gums and tongue clean by brushing the teeth daily.
11. Do not allow poisons or disease-producing germs to enter the body.
12. Do not over-work. Rest when you are fatigued. Sleep from seven to nine hours daily, according to your needs.
13. Avoid anger and worry—keep serene.

(The above rules were given by a group of scientists for those who desire to keep in health and to live long.)

NOTE: While it is *better* to "eat sparingly of meats," as these scientists suggest, in our opinion it is still better to dispense with flesh foods altogether.—ED.

### Exercise

Daily exercise is essential in order to live long. The body is like a machine; if the machine is not used, it soon gets rusty; and everyone knows that a rusty machine very easily breaks. If one does not exercise, the body becomes stiff. In the case of old people, if they do not exercise, the body becomes so stiff in time that they no longer can use the legs in walking. Some famous men who lived long made it a practice throughout their lives to exercise daily, and even after they had become very old they would take a walk daily in the fresh air.

The mind should be exercised by reading and discussing important subjects. If those who are old would do this, they would not become childish, as many people do.

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## *Chapter Seventeen*

# Accidents and Emergencies

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ACCIDENTS and injuries are of daily occurrence. In every large family scarcely a day will pass without some member of the family getting cut, or bruised, or getting something in the eye, or having a toothache. Many times the injury is a severe one, such as broken bones, or a deep cut that bleeds profusely. When such an accident occurs,

### THE FIRST-AID BOX

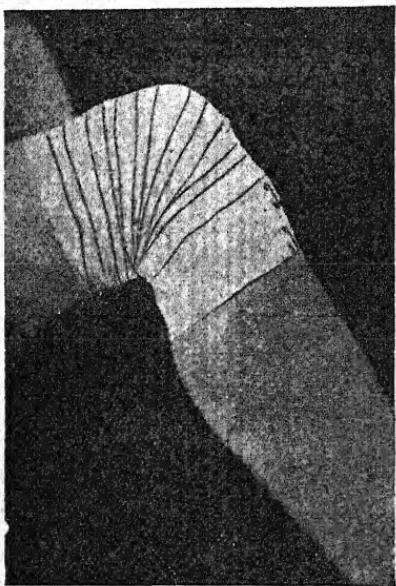
- 1-inch compresses of adhesive in individual packages.
- Sterile gauze squares, about 3 x 3 inches, in individual packages.
- Assorted sterile bandage compresses in individual packages.
- Triangular bandages.
- Pieces of sterile gauze about 1 yard square in individual packages.
- Burn ointment, preferably 5 per cent tannic acid jelly.
- A rubber-stoppered bottle of aromatic spirits of ammonia.
- A rubber-stoppered bottle of 2 per cent iodine solution.
- Inelastic tourniquet.
- Scissors.
- Splinter forceps, 3-inch size.
- Roller bandages, 1-inch and 2-inch sizes.
- Wire or thin board splints.
- Sterile castor oil or mineral oil in tubes for use in the eyes.

all that most people can do is simply to stand and look on without being able to help the injured person. Every one should know what to do in an emergency, for by doing the

right thing promptly he may be able to save someone's life.

### Bandaging

It is necessary to use bandages in connection with almost every injury, therefore everyone should know how to put bandages on the different parts of the body. Bandages should be made of clean cloth. Bandages for the arms or legs should be about 2 inches wide. Bandages for the



Spiral reverse bandage for the knee. Begin the bandage above the knee-cap, make reverse turns under the knee, and fasten with safety pins.

fingers should be a little less than an inch wide. It is well to prepare beforehand several of these bandages. Roll them up and keep them wrapped in clean paper or clean cloth. The illustrations on the next three pages show how to apply bandages properly.

### Bruises

When a person falls and strikes some part of his body, or when he is struck by something, the skin is not

usually broken, but the flesh under the skin is injured and some of the small blood vessels are broken. This causes the ordinary black spot that is seen after a bruise.

### Treatment

Apply at once ice or very cold water. Elevate the bruised part. This helps to relieve the pain. If the skin of the bruised part is broken, scatter on it some sulfathiazole powder and apply a clean cloth bandage.

### Abrasions and Cuts

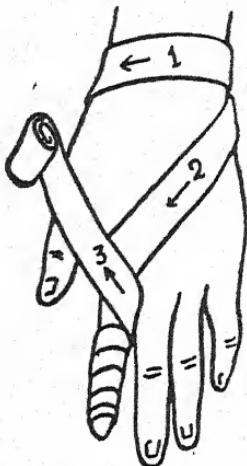
In the cleansing of any wound, the less it is handled the better. Clean the wound with the cleanest water or water and soap available, dry with clean cloth, and if the wound is small and fairly clean, apply a small amount of sulfathiazole ointment and bandage. This dressing should be renewed daily till healing is complete.

If the wound is large and infected, it is best to apply a liberal-sized wet dressing for a day or two to get the wound cleaned up. This wet dressing should consist of a clean gauze or cotton material folded in several thicknesses, well soaked with a solution of Epsom salts (a heaping tea-spoonful in a cup of warm water). This dressing should be kept wet by frequently adding the solution to the dressing. After the wound has been well cleaned by this type of dressing, the wound may heal faster by applying a light layer of sulfathiazole ointment to a clean cloth and placing it over the area involved. This should be changed daily or more often if necessary to keep clean.

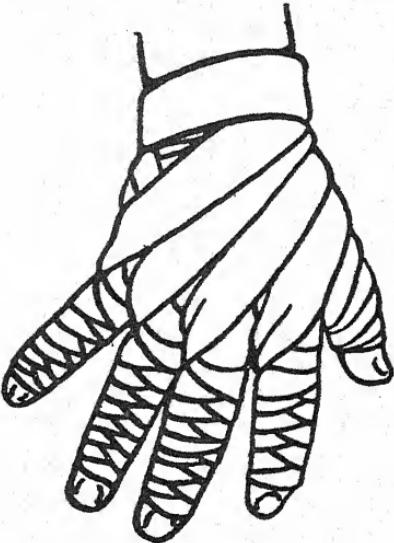
### Severe Wounds that Bleed Profusely

If the bleeding from a wound is considerable and does not lessen soon, a clean cloth may be dipped in very hot water and pressed on the wound. The water must be very hot, or this method will be of no value.

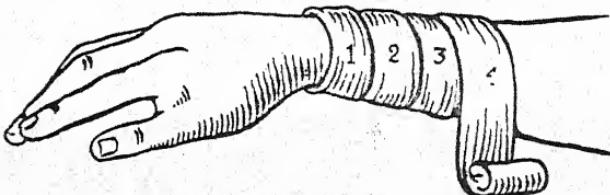
If blood flows from a wound very fast, cause the patient to lie down, and press with both thumbs into the soft



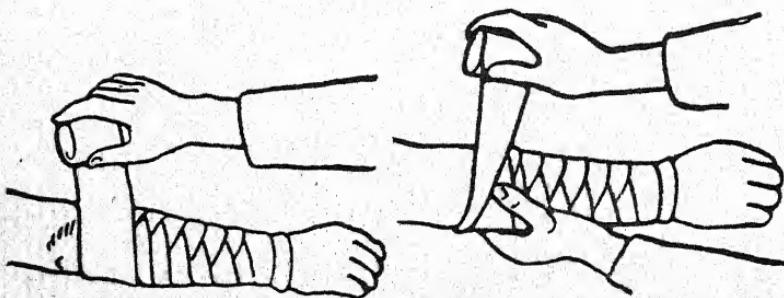
Finger bandage—  
follow numbers.



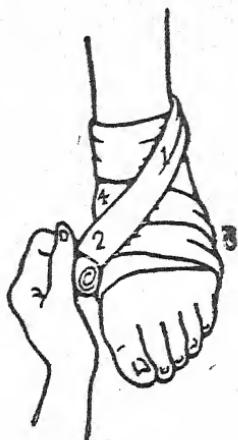
Bandage each finger separately.



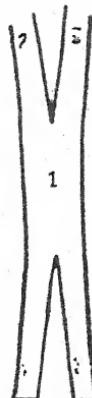
Wrist bandage—follow numbers.



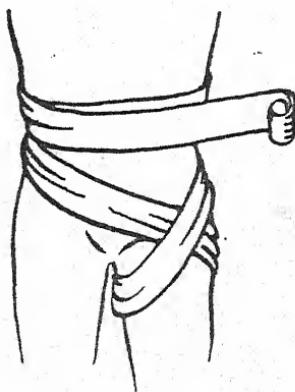
Arm bandage—begin at wrist and wind upward as illustrated.



Foot bandage—  
follow numbers.



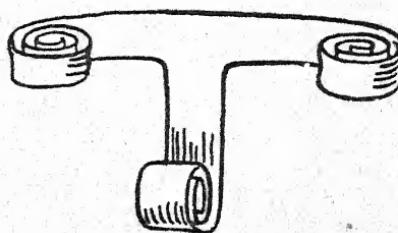
Head bandage—cut cloth as indicated—  
follow numbers in tying.

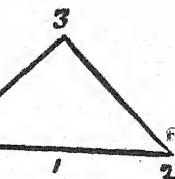


Thigh bandage—cut bandage  
as indicated below and  
apply as shown above.

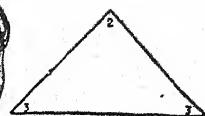


Eye bandage.





Triangular head bandage.



Triangular head bandage, side view.

Triangular bandage for arm sling.



Bandage for shoulders and upper arm.

parts just above the wound. If the injury is on the arm or leg, a folded cloth or handkerchief may be tied loosely about the limb above the wound and a stick used to twist the cloth tightly. A small round stone or a cork placed in the folds of the cloth just above the wound will be more effective in stopping the bleeding than if the cloth alone is used. The cloth must be twisted tightly, but should be loosened every fifteen minutes, enough to allow circulation. The bleeding arm or leg should be elevated and rested on some kind of support, in order that less blood will flow into it. As soon as the bleeding stops, the tight cloth should be removed, but it must be loosened slowly, just a little bit at a time, because if suddenly loosened the wound may start to bleed again.

As soon as the cloth is twisted tightly and the flow of blood is lessened, tincture of iodine, merthiolate, Dettol or other disinfectant, should be swabbed in the wound by means of a swab made by twisting some absorbent cotton about the end of a splinter of wood. When the bleeding ceases, place over the wound a few layers of cloth that have been boiled in water for a few minutes. After this put on a bandage.

### How to Stop Bleeding from a Wound of the Scalp

Place over the wound a thin piece of cloth which has been wet with tincture of iodine, then apply over this more layers of clean cloth in order to make a pad. Press the pad down on the wound firmly.

### Bleeding from the Face and Neck

Bleeding from a cut lip may be stopped by first washing the hands and then putting the forefinger in the mouth and squeezing the wounded place firmly between the finger and thumb.

In case of severe bleeding from the face, grasp the patient's neck, the same as you would if you wished to choke him. By grasping the neck firmly just below the corners of the lower jaw, the flow of the blood to the face can be lessened. In addition to this, apply pressure, by



Diagram showing points for pressure to stop bleeding.

means of a pad, over the wound, the same as already mentioned for stopping bleeding from the scalp.

### Bleeding from the Shoulders and Armpit

Press firmly with the thumb just behind the middle of the collar bone. (See illustrations, pages 104, 106.)

### What to Do for a Wound that Gets Infected

When a wound becomes red, painful and swollen, and there is pus in it, the best method is to lay on small pieces of cloth wet in a solution made by adding a small spoonful of boric acid to half a cupful of water. Re-wet the cloth with this solution so that it will be continually wet. All cloths placed on a wound should first be boiled in water. If a piece of oiled paper or oil-cloth, or a piece of clean banana leaf, is placed over the cloth wet with boric acid solution, it will prevent the cloth from drying out quickly. If boric acid is not available, common salt or Epsom salts may be used instead.

If a wound or any kind of sore on the hands or feet has pus in it use the alternate hot and cold water treatment described on page 153.

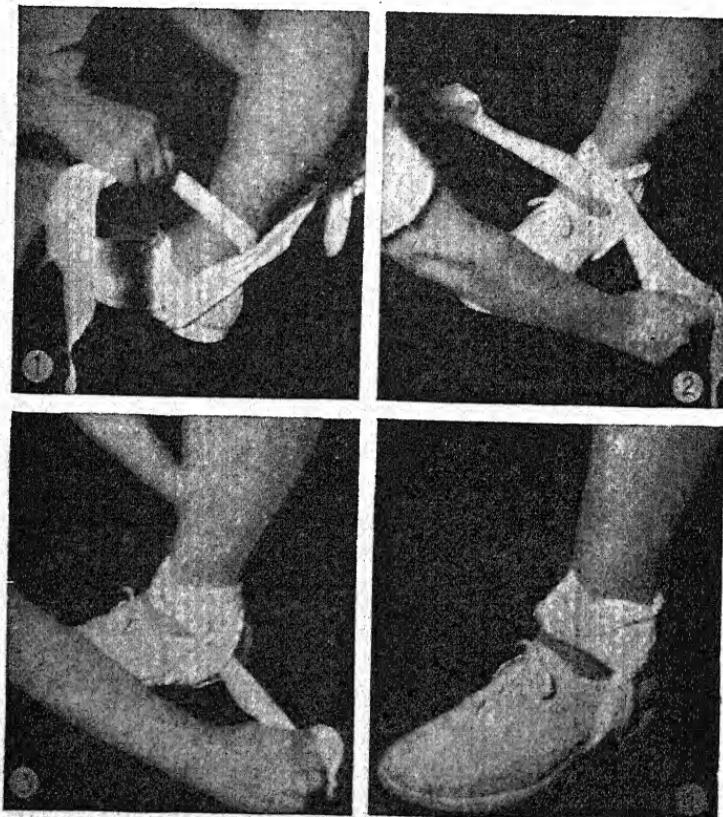
### Sprains

A sprain is an injury caused by the sudden twisting of a joint. The joints most often sprained are the ankle and the wrist.

The sprained part should be immersed in cold water for half an hour. If one is near a spring or stream of water this treatment is easy. If it is necessary for the person to walk after injuring the ankle the bandage described on page 108 should be applied.

When reaching home the ankle should be tightly bandaged with a figure of eight bandage. When possible an ice bag should be applied to the swollen side of the ankle (being careful to put a flannel cloth between the bag and the skin) for the first twelve hours. The bag should be removed for half an hour every two hours. At the end of

the twelve hours the alternate hot and cold treatment described on page 153 should be given three times daily. Between treatments the ankle should be snugly bandaged, preferably with an elastic type of bandage. Usually this treatment will be necessary only for a few days.



#### METHOD OF BANDAGING A SPRAINED ANKLE

To protect the ankle: (1) Take a cravat bandage about two inches wide, and place it under the shoe just in front of the heel. Carry the ends around and up, crossing them above the heel. (2) Continue the bandage forward, crossing it over the instep and bringing it downward toward the arch to make a hitch under the cravat on each side just in front of the heel of the shoe, as shown in Figure 3. Pull tight, carry the ends back up across the instep, and tie, as in Figure 4.

### Broken Bones

In every case of broken bones a physician should be called. The instructions given below are for those who cannot secure a physician at once. They are instructions as to what to do until the physician arrives.

When a bone is broken, cause the patient to lie down and remain quiet. When a bone is broken, the ends are covered with sharp splinters of bone just like the two ends of a broken piece of wood. Any movement of the limb causes these sharp splinters to tear the flesh and to cause severe pain and injury.

Before attempting to move anyone who has broken a bone, a splint of some kind should be applied to prevent movement of the broken ends of the bone.

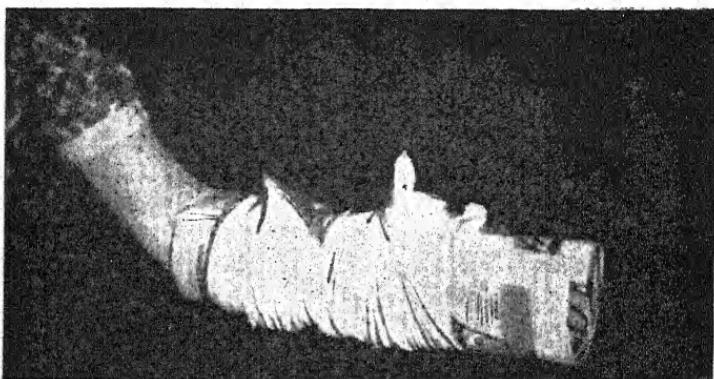
If the bone which has been broken is in the arm or leg, split some thin pieces of bamboo a couple of inches wide. If the bones of the arm are broken, the pieces of bamboo should be about a foot in length. If the bones of the leg are broken, the splint should be long enough to reach from the foot to the hip.

To put on a splint, first gently straighten the broken arm or leg just enough to permit the application of the splint. All this must be done very gently so as not to cause too great pain. Having done this, the next thing to do is to surround the broken limb with a thick layer of cotton, or if this cannot be secured, use a few articles of clothing as a pad about the limb before the pieces of bamboo are bound about it. When the padding is applied, then place the pieces of bamboo about the limb and bind them on firmly. This having been done, the patient may be taken home or taken to a dispensary or hospital.

It requires three weeks or longer for a broken bone to get well, and therefore it is necessary to keep the splint on for that length of time.

### Compound Fractures

A compound fracture is a fracture where the broken bone or bones pierce the skin. It calls for special attention, since infection is almost certain because of the dirt and



#### AN IMPROVISED SPLINT FOR A BROKEN FOREARM

Lay the arm on a thick magazine 12 to 14 inches in length. Place two cravat bandages under the magazine, and then draw the ends together with the magazine up and around the arm. Tie them securely. If desired, a pad of gauze may be placed inside the magazine to protect the wrist and forearm.

germs drawn into the deeper tissues. Whenever possible the services of a competent physician should be secured. The fracture must be treated as an open wound, and a drainage tube inserted to drain away the germs and poison until the body can make the necessary repairs. The fracture must be very carefully treated.

#### Dislocations

When the end of a bone gets out of place, the joint cannot be moved. This will usually enable one to distinguish between a dislocation and a broken bone.

In treating a dislocation, the aim is to get the end of the bone back into its proper place. In almost every instance it requires the assistance of a physician to accomplish this; therefore, in case of a dislocation, take the patient to a physician or call a physician. The sooner after the injury the physician is secured, the easier it will be to get the bones into their proper places. By delaying a day or two it may be that the physician will have to perform a surgical operation in order to effect a cure.

### Toothache

When there is a cavity in a tooth that is aching, the food should first be cleaned out of it. Wet a little absorbent cotton in some oil of cloves or oil of thyme and fill the hole with it. Press the cotton into the hole with a toothpick. Sometimes filling the hole of the tooth with baking soda will stop the ache.

### Burns

If the burn is very slight, the immersion of the injured part in cold water is a good treatment. After immersing in cold water for twenty minutes or longer, then smear the burned part with carbolated-vaseline (two or three drops of carbolic acid to a small spoonful of vaseline) or with a mixture of equal parts of white of egg and boiled coconut oil.



SMOTHERING FIRE IN CLOTHING

Quickly wrap the victim in a rug, a blanket, a coat—anything at hand—then roll him on the floor, smothering the flames by pressing the covering tightly about him. Laying the victim on the floor tends to prevent the flames from reaching the head and thus being inhaled.

If the burn is very severe, the clothing should be cut and removed. Five per cent sulfathiazole ointment or peni-

cillin ointment may be applied directly to the burned area and then bandaged, or the ointment may be applied to a clean cloth and then applied to the burned area and bandaged. This should be changed daily or as needed to keep the wound clean. This sulfathiazole ointment keeps the wound soft and at the same time prevents infection starting in the damaged tissue. "Tanifax" which may be purchased at the chemist's shop is excellent for burns. Paint the burned surface with Tanifax, allow it to dry and then apply a second coating. Nupercainal ointment is helpful and gives great relief in surface burns, especially sunburn. A preparation called "Foille" is very good.

### Scalds

In case of scalding by hot or boiling water or oil, the treatment outlined above will be helpful.

### What to Do When a Nail or a Splinter Is Run into the Foot or Hand

First remove the splinter or nail, then plunge the part into water as hot as can be borne, keeping it hot for twenty minutes. Pour cold water over the part, apply a disinfectant or sulfathiazole ointment, and bandage. In order to prevent infection the hot and cold treatment outlined for other infections (page 153) may be used several times daily.

### Snake Bites

Several thousand people die in India every year from snake bite. Many of these might be saved if proper measures were instituted in time. Most bites are on the legs or hands. Immediately a tourniquet should be placed around the limb between the bite and the body. This prevents the flow of poisoned blood back to the body. Without delay cut deeply with knife, razor blade or any sharp instrument through the fang mark and cause free bleeding. These cuts should be placed so as to open up the flesh about the wound, and as much blood extracted from the wound area as possible.

If a helper can suck on this cut area with his mouth, more of the poisoned blood and serum can be removed. The one who sucks should make sure he has no abrasions in his mouth. After the wound has been thoroughly treated in this way, the patient should be taken to a dispensary or doctor where anti-venin is available. During this time the tourniquet should be kept in place. The tourniquet cannot be kept on over an hour without danger of loss of the limb. It is well after an hour to loosen the tourniquet to allow circulation to return slowly.

The anti-venin if given in time is one of our best life-savers. Every community should know where snake bite anti-venin is available.

### Scorpion and Centipede Stings

When stung by a scorpion or centipede, use a needle and prick the skin deeply at the point of the sting. Prick a dozen or more holes in the skin. Then wet the skin with water and sprinkle on the spot some crystals of permanganate of potash. These crystals should be rubbed into the area of the sting. Leave this for several minutes.

### Sunstroke

When persons working out in the sun suddenly become unconscious and fall to the ground, they should be quickly taken to a shaded place and cold water should be poured on the head and chest. While the cold water is being poured over the patient, let someone rub the skin of the chest and arms briskly. Sunstroke is very serious, and a physician should be called to examine the patient.

### Poisoning

In most cases when poison has been swallowed, except in cases of corrosive poisons like carbolic acid, the first thing to do is to cause the patient to vomit. This may be done in several ways. One way is to stick a feather or a finger back into his throat and tickle the throat. Drinking

a glassful of lukewarm water in which have been stirred two large spoonfuls of mustard flour or four large spoonfuls of salt, or two spoonfuls of baking soda, will usually cause vomiting if the first method fails.

### Carbolic Acid Poisoning

To save the life of one who has taken carbolic acid, do not try to make the patient vomit, but have him quickly swallow four or five raw eggs. After this give the patient a large spoonful of magnesium sulphate (Epsom Salts) or sodium sulphate in a glassful of water.

### Poisoning by Arsenic or Rat Poison

Use the methods already mentioned to cause vomiting. Then give the patient four or five raw eggs, and a big dose of magnesium sulphate or sodium sulphate.

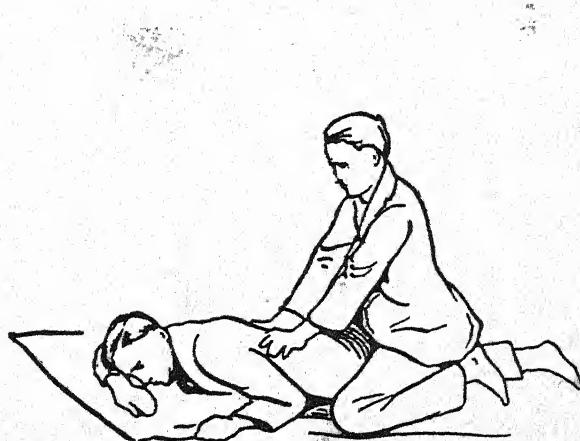
### Restoring to Life Those Who Are Apparently Drowned

As soon as the body is drawn out of the water, quickly wipe water and mud out of the nose and mouth. Rip open the clothing about the chest; open the mouth, and keep it open by putting a piece of wood between the teeth. Turn the patient on his face; put your arms under his arms; hold up the middle of the body so that the water will run out of his lungs. As soon as the water stops running from the nose and mouth, let the body down. A roll of clothing should be kept under the abdomen. Then place your two hands on the back as shown in the illustration on page 115, and press down firmly; then suddenly release the pressure. Do this about twelve times a minute (do it just about as fast as you yourself are breathing). Pressing on the back forces air out of the lungs, and when the pressure is released, air enters the lungs. In case there are any signs of life in the patient, the artificial respiration should be continued for an hour or more. If anyone else is near to assist, have him rub the skin of the body briskly to dry it. Also secure bottles filled with hot water, and place them beside the patient's body. The water must not be very hot



"Hold up the middle of the body." (See text above.)

or it will burn the patient's skin for the skin of a man who is almost dead is very easily burned.



"Place your two hands on the back." (See text on page 114.)

## What to Do When Bitten by a Dog or Other Animal

When bitten by a dog or other animal, wash the wound with disinfectant water or with soap and water and treat as any other wound.

The next thing to do is to determine whether or not the dog or other animal is mad—or rabid. The animal should be tied up where it can be observed and where it cannot bite others. If it has rabies it is a sick animal and will die within ten days. If this happens the one bitten should go at once to some hospital or health centre where the Pasteur treatment is given. This treatment should be given before any symptoms of the disease of rabies develop in the one bitten, for after the symptoms develop the treatment cannot help. If the animal runs away and the one bitten cannot find out whether or not it is rabid, the only safe procedure is to take the course of treatments.

If one is in doubt as to what he should do he may receive information by sending a detailed telegram stating just what has happened to him to one of the four Pasteur institutes. Following are the four institutions and the code words for telegrams to each:

1. Pasteur Institute of India, Kasauli ..... Pasteur.
2. Pasteur Institute of Southern India, Coonoor (Madras) ..... Virus.
3. Pasteur Institute, Rangoon (Burma) ..... Virus.
4. King Edward VII Memorial Pasteur Institute, Shillong (Assam) ..... Rabies.

The Pasteur Anti-Rabic Treatment is now available in most centres in India, so that those living a long distance from these four Pasteur Institutes need not make the long journey. In every place where there is a first-class civil hospital, in all military hospitals, in many mission hospitals, in railway hospitals at leading centres, and in district and central jails there are facilities for giving the anti-rabic treatment. The first thing to do when bitten by a dog suspected of having rabies is to give the above prescribed first-aid treatment. The patient must then, with the least possible delay, be taken to the nearest centre where the Pasteur treatment is available.

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## *Chapter Eighteen*

# Pregnancy and Childbirth

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THE only dependable record we have of the origin of man is found in Genesis, the first book of the Sacred Scriptures. This record says, "God said, Let us make man in Our image, after Our likeness: and let them have dominion over the fish of the sea, and over the fowl of the air, and over the cattle, and over all the earth, and over every creeping thing that creepeth upon the earth. So God created man in His own image, in the image of God created He him; male and female created He them.... And the Lord God formed man of the dust of the ground, and breathed into his nostrils the breath of life; and man became a living soul."

We learn from this record in Genesis that every plant and animal was given power to reproduce and thus perpetuate its kind. With reference to man the Creator said, "Be fruitful and multiply, and replenish the earth." The Creator could as easily have created a world full of people as to have created the two people—the man and woman—whom He did create. But He chose to divide, as it were, this creative power with man. For this reason men and women should not look upon the reproductive function as a means simply of gratifying their passions, but they should regard it as though there was something about it that is, in a way, akin to the Divine.

### **Conception**

Mention has been made in Chapter 11 of the necessity of men after marriage of avoiding excessive sexual indulgence. While the sexual relation of the man and wife is right and

natural, yet it is right and natural only when controlled by law and reason. The need for controlling sexual indulgence may be made plain by comparing it with hunger and thirst. Both of these are natural instincts, which it is right to satisfy in an intelligent manner; but everyone knows that it is not right to indulge our desire for eating and drinking to the point of becoming gluttons or drunkards. Neither is it right or reasonable for a man, simply because he can do so if he desires, to indulge in sexual intercourse to the point of becoming a sexual glutton.

Too frequent child bearing is a heavy drain on the health of the mother. What course is open to those married men and women who wish to control the number of their offspring and yet who desire to have normal sexual relationships? For the average woman there is a short period of only a few hours each month when she is capable of becoming pregnant. This fertile period occurs when the ovum is released from the ovary. In the average woman whose menstrual cycle occurs every 28 days this happens about 14 days before the beginning of the next menstrual cycle. This time varies in different individuals although in most women it will fall somewhere between the 16th and 10th days before the next menstrual period is expected. When it is desired that conception take place it is well for sexual intercourse to be limited to this six day period during the month. On the contrary when conception is not desired sexual intercourse should be avoided during this six day period of fertility.

It should be kept in mind that the above concerns the average woman whose menstrual cycle is every 28 days. There is more uncertainty in respect to the period of fertility for those women whose menstrual cycles are more or less than 28 days or which vary from month to month.

### **Development of the Child in the Uterus**

As soon as a woman becomes pregnant, the ovum, which is much smaller than a mustard seed (it is 1/125th of an inch in diameter) begins to grow. In a few days' time it has the appearance of, and is almost as large

as, a mulberry. In four weeks' time it is as large as a pigeon's egg. By the end of the second month it is about the size of a hen's egg, and has begun to take the shape of a human body. There are blood-vessels which attach it to the inside of the uterus, and the food which the mother eats and digests passes through her blood-vessels to the embryo (the child that is growing in the uterus), and makes it grow.

It is a most wonderful thing how the little mass that looks like a mulberry can grow and develop into a human body with its 206 bones and over 500 muscles, with eyes and ears, heart, brain, etc. It is another evidence that a Supreme Being created man and causes the little mass to develop into a perfectly formed body. Anciently there was a wise king by the name of David, who said, "I will praise Thee [God], for I am fearfully and wonderfully made; my body was not hid from Thee when I was made in secret; . . . For Thou hast formed my reins, Thou hast knit me together in my mother's womb."

By the end of the fourth month the child is five inches long. By the end of the sixth month it weighs about two and a half pounds. If it should be born at the end of the sixth month, it would not live more than a few days. By the end of the eighth month (252 days), the child weighs from four to six pounds, and is about eighteen inches long. If the child is born at this time and is well cared for, it will live. At the end of the ninth month (280 days), the child is fully developed. It will weigh from six to ten pounds, and is about twenty inches long.

### Duration of Pregnancy

The duration of pregnancy is about 280 days. The following methods may be used in estimating the time when the child will be born. Count forward nine calendar months from the day when the last menstruation began, and add seven days to this. For example, if the first day of the last menstruation was January 1, the date when it is expected that the child will be born would be October 8.

Another method that is very easy to use is to count 280 days from the first day of the last time the woman

**TABLE FOR CALCULATING THE DURATION OF PREGNANCY**

January		February		March		April		May		June		July		August		September		October		November		December		January		February		March		April		May		June		July		August		September		October																			
January		February		March		April		May		June		July		August		September		October		November		December		January		February		March		April		May		June		July		August		September		October																			
October		November		December		January		February		March		April		May		June		July		August		September		October		November		December		January		February		March		April		May		June		July		August		September		October													
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	1	2	3	4	5	6	7																								
8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	1	2	3	4	5	6	7

In the top line, find the date of menstruation; the date below will indicate the time when confinement may be expected. For example, if time of menstruation is March 1, confinement may be expected on December 6.

menstruated. In no case can the date be estimated exactly. The child may be born two weeks earlier or two weeks later than the time calculated. For example, if the last time the woman menstruated before becoming pregnant was on June 1, then 280 days from the time would be March 8. This is the date when the child will be born.

### Signs of Pregnancy

How may a woman know that she is pregnant? There are a number of signs that will enable her to know. When a married woman who has previously been menstruating regularly ceases to menstruate, it is fairly certain that she is pregnant, yet not absolutely certain; for a woman may become pregnant while she is still nursing a child, and she may become pregnant before she has begun menstruating after the last child was born.

### Danger Signs in Pregnancy

1. Persistent or severe vomiting.
2. Persistent or severe headache.
3. Repeated dizziness.
4. Blurred vision or other visual disturbances.
5. Swelling of the face, especially under the eyes.
6. Swelling of the feet, ankles, or limbs.
7. Sharp pains in the upper part of the abdomen.
8. Stopping of foetal movements for a week or more.
9. Bleeding from the vagina.
10. Abdominal cramps together with pain in the lower back.
11. Mental depression and change in disposition.

Morning sickness usually occurs when a woman is pregnant a few weeks. Upon getting up in the morning she will suddenly feel sick and nauseated and will begin to retch and vomit. It may occur every day for several weeks. This is a fairly certain sign of pregnancy.

During the second or third months of pregnancy the breasts become larger and firmer. The nipples become more prominent.

From the third month of pregnancy on there is a gradual enlargement of the abdomen.

In about four and a half months after becoming pregnant, the woman usually feels the first movement of the child in her uterus.

### Care of the Pregnant Woman

The woman who is pregnant must have a liberal amount of nourishing food; for she must eat to supply two persons, herself and the child in her uterus. It is very important that the bowels move daily. If there is constipation, she should follow the instructions given in Chapter 23.

She should sleep in a well-ventilated room.

It is important that the pregnant woman take some muscular exercise daily; otherwise her muscles become weak and flabby, and the child will be weak, and she will also have a very difficult time when the child is born.

She should drink several pints of pure water daily.

She should avoid the use of wine, tobacco and betel-nut.

She should take a cleansing bath frequently.

Sexual intercourse should not be indulged in during the last two months of pregnancy and only very moderately during the first seven months.

### Preparation for Confinement (Labour)

As the time of confinement draws near, the room should be swept well. Remove everything hanging on the walls and then whitewash the walls with lime. The floor should be scrubbed, or if it is an earth floor, sweep it well, and then scatter lime in the corners of the room, and under all the furniture. Remove everything from the room except bed and table. If there is only one room in the house, hang up clean mats and make a partition between the section where the woman's bed is located and the other part of the room.

The articles that should be provided are the following:

1. A pound or more of absorbent cotton to be used for sponging up blood, etc., and to be used for the pad that is placed over the vaginal opening after the child's birth.
2. Two or three strips of strong new cotton cloth, ten inches wide and four feet long, to be used as a bandage about the mother's abdomen after the child is born.
3. Several pieces of old cloth which have been washed clean and boiled. These are to be placed under the mother to absorb the blood and other fluids.
4. A piece of Ceylon flannel or some other soft cloth. This should be well washed and boiled. The baby is to be wrapped in this cloth.
5. Two strips of cloth four-and-a-half inches wide by two feet long. This cloth should have been boiled. This is used as an abdominal bandage for the baby.
6. Soap and a small brush, to be used in scouring the nurse's or midwife's hands.
7. A few ounces of Lysol. A half teaspoonful of Lysol should be added to a pint of water for washing the nurse's or midwife's hands.
8. An ounce of boric powder, to be used for dusting on the stump of the umbilical cord.
9. Some small pieces of clean cloth which have been boiled. Each piece should be about three inches long by three inches wide with a hole in the centre large enough to slip over the stump of the umbilical cord.
10. A four- or six-ounce bottle of boric acid solution (see prescription No. 1 in Appendix). This is to be used in washing the baby's eyes and in washing the mother's nipples.
11. Half an ounce bottle of 10 per cent argyrol solution for washing the baby's eyes (see prescription No. 3).
12. A few ounces of vaseline or sweet oil to be used in cleansing the baby's body just after it is born.
13. Some safety-pins for fastening the abdominal bandages of the mother and baby.
14. Some clean cloths to be used for baby diapers.
15. Two pieces of cord (tape) six or eight inches long should be provided. Make the tape by twisting together firmly ten or twelve cotton threads. These cords are

to be used in tying the umbilical cord. Also provide a good pair of scissors to cut the umbilical cord.

These articles should be provided beforehand. And all the cloths that must be boiled should be kept wrapped in a clean cloth after being boiled. These things should not be handled without first washing the hands.

The clothing prepared for the mother and child, also the sheets for the bed, should be clean, and protected from dust after they are prepared.

It is of the greatest importance that everything be clean. A large per cent of all babies dying in infancy die within two weeks of the time they are born. This is entirely due to the fact that at the time of the child's birth care was not taken to have everything clean. Many mothers are sick and have fever for a long time after childbirth. This is also entirely due to not having everything clean at the time of childbirth.

As soon as the woman knows that the time of childbirth has arrived, she should at once have her bed prepared. Spread several sheets of newspapers, or a sheet of oil cloth, over the pad or mattress to keep it from getting wet; then spread clean bed sheets on this. Never use old dirty cloths on the bed to catch the blood.

Several gallons of water should be boiled in clean vessels. Part of this should be poured into clean basins or water jars and covered with a clean cloth, and allowed to cool. Part of the water should be kept hot. A small table should be placed in the room. Wash the top of the table with boiling water and put on this table the various articles needed. Also provide a couple of washpans; wash them well with soap and hot water.

### Labour

Two signs mark the onset of labour. One is that there is a reddish discharge from the vagina; the other is "labour pains." The true labour pains occur at fairly regular intervals of fifteen to thirty minutes at first, becoming more frequent as labour progresses.

If a competent physician can be secured, it is always well to engage a physician. In case a physician cannot be



Care of a baby at the time of its birth. The doctor helps, if necessary, to induce breathing immediately after birth.

secured, you may be able to secure the help of a nurse trained in midwifery. If a competent physician is called, he will know what to do. The instructions given here are for those cases in which a competent physician is not caring for the case.

Visitors should not be allowed in the room. Not more than two other persons beside the nurse or midwife should be in the room.

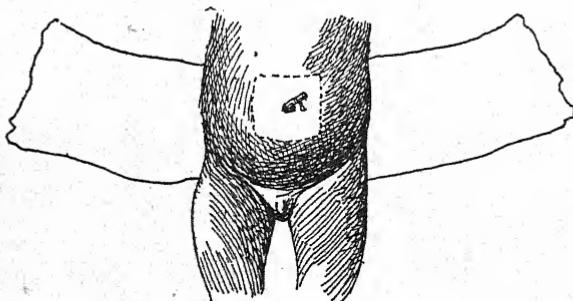
The woman should take a warm bath. The region of the external genitals should be washed well with soap and warm water. The urine should be voided frequently during labour. In case the bowels have not moved within the last six or eight hours, she should take a warm enema to empty the bowels. (See Chapter 20 for method of using the enema.)

During the first pains the mother may sit up or lie down as desired. When the pains become severe, she should be on the bed with her legs drawn up. The custom of sit-

ting up or standing up during this time is productive of injury to the mother, and it is impossible to keep the child clean with that method.

The nurse or midwife must take the greatest care to wash her hands and arms clean. The arms should be bared up to the elbows. Trim the finger nails and use something to clean the dirt out from under the finger nails. It is not enough to wash the hands with soap and warm water. Use also a small brush to scour the hands. A clean dress should be worn. It is well to use a large, clean cloth as an apron.

At the time of confinement do not give the woman any medicine, thinking that it will assist her in giving birth to the child. She does not need any medicine and will get along better without it. Do not tie a rope or bed sheet about the woman's abdomen. This hinders rather than helps. The midwife or nurse should not insert the fingers into the vagina. By so doing the woman will be infected and puerperal fever will result.



The proper way to care for the umbilical cord.

After the "bag of waters" bursts, the head of the child will be seen emerging from the mouth of the vagina. If the position of the child is normal, the face of the child will be downward or toward the mother's back, and the top of the head will appear first. If the head comes out too rapidly, that part will be torn seriously. So as soon as the head can be seen, place the fingers on it and press downward firmly during each pain. The head of the child is thus bent down upon its chest, so that it may the more easily

pass through the vaginal opening. The passing of the head is also in this way retarded for a few minutes. In the interval between labour pains the muscles relax. When this loosening occurs, the head should be allowed to emerge. By using this method there is less likely to be tearing.

After the head emerges, there is usually a slight pause before the body is forced out. As soon as the head comes out, pass the fingers down alongside of the baby's neck to see if the umbilical cord is wound about the neck or not. If the cord is wound about the neck and is not pulsating, the child should be delivered quickly. When the cord is not about the neck, the midwife should use a bit of absorbent cotton or a piece of clean cloth to wipe the baby's eyes, and should also open the child's mouth and wipe out the mouth.

When the child is born, wrap it in the piece of Ceylon flannel or soft cloth. Do not allow the face to be in a pool of blood. The midwife should quickly wash the child's eyes by dropping a drop of 10 per cent argyrol solution in each eye. In case you do not have argyrol, wash the baby's eyes by dropping several drops of boric acid solution in each eye. Thousands of babies become blind because their eyes are not washed in this way at the time of their birth.

Just as soon as the child is delivered, the one who is assisting the midwife should place one hand on the mother's abdomen and grasp the uterus. It can be felt through the abdominal walls as a hard lump. Squeeze it lightly. Do not release the hand for an instant, for this squeezing causes the empty uterus to contract, and prevents bleeding.

As soon as pulsation ceases in the umbilical cord, it should be tied and cut. Use the two pieces of tape prepared for this purpose. These two pieces of tape, together with the scissors used in cutting the umbilical cord, should first be placed together in a small basin and boiled for several minutes. Leave them in hot water until you are ready to use them. Be sure and tie the tape about the cord very tightly. Never use an instrument that has not been boiled several minutes just before using, to cut the umbilical cord; neither should you use any kind of cord or string that has not been boiled several minutes, to tie the umbilical cord. It is by the use of articles that have not been boiled, in cutting and

tying the umbilical cord, that poisonous germs enter the body, causing tetanus.

As soon as the cord is cut, sprinkle some boracic acid powder on the stump, then place over the stump a piece of the cloth that was prepared for this purpose and that has been boiled in water for several minutes. (See prescription No. 4, Appendix.) Draw the stump through the hole in the cloth; then fold the cloth over the stump of the umbilical cord. Hold this cloth in place by a bandage that passes around the baby's body. Lay the child on its right side in a warm, dry place until you have looked after the mother. The placenta (afterbirth) will be expelled in a short time after the birth of the child. Do not pull on the end of the umbilical cord, and do not tie anything to the cord. It is a mistake to think that there is danger of the umbilical cord passing back up into the mother's body and causing her injury. The one who is grasping the uterus should continue to squeeze it firmly but not use too much force. This will prevent bleeding, and will also help to expel the placenta.

As soon as the placenta is expelled, a heavy cloth bandage fifteen inches wide should be bound about the abdomen snugly, and fastened with pins or with strings sewn to the two ends. This serves as a broad belt to make pressure on the abdomen.

As soon as the infant is washed and dressed, it should, as a general rule, be put to the breast; for as soon as it begins to suckle, the uterus will contract and become small and hard. This tends to stop bleeding from the uterus. Before the abdominal bandage is applied, all the soiled clothing and bedding should be taken away, and the parts of the woman that have been smeared with blood should be washed well with warm water and then wiped dry. After this, apply a pad made of the absorbent cotton, or a pad made of several thicknesses of cloth (which has previously been boiled), over the external genitals. Fasten this pad in place by a tape on each end which can be pinned to the abdominal bandage in front and at the back.

The woman should lie quietly in bed for several days. The pad over the external genitals must be frequently changed and the external genitals should be frequently bathed.

The woman should urinate in six or seven hours after the birth of the child. If she is unable to urinate after this length of time, a large towel folded in several thicknesses should be wrung out of hot water and applied over the pubic region and the external genitals. The bowels should move on the day after the birth of the child. If they do not, a cathartic should be taken.

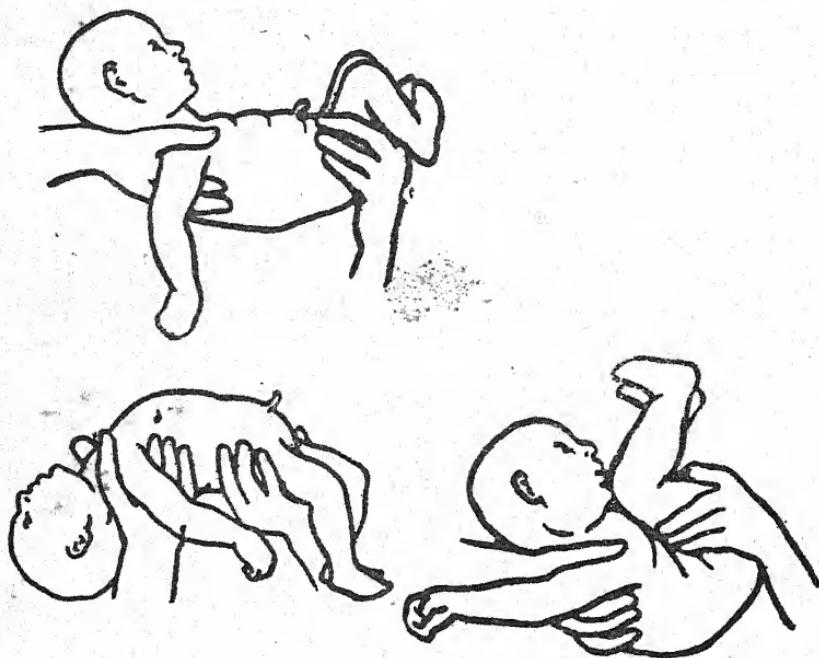
After the birth of the child the mother can eat ordinary foods. It is well not to drink cold water or eat cold foods for a day or two. The mother should be given well-cooked, nourishing foods, such as rice, gruel, eggs, milk, bread, potatoes, fish and ripe fruits.

### What to Do If the Child Does Not Breathe

Normally the child gives a cry and begins breathing as soon as it is born. If the child does not give a cry and start breathing, but lies perfectly still, or only gasps feebly, it must quickly be made to breathe. Whatever is done to resuscitate the child, must be done quickly. The mouth and throat should first be wiped out with a finger covered with a thin, clean cloth. Cover the finger and the thumb with a thin piece of cloth and grasp the baby's tongue. Pull gently on the tongue at the rate of ten times a minute. While this is being done, have someone slap the child on the buttocks with a cloth, or dip a cloth in cold water, and slap the child on the skin of the chest. These methods will often start breathing. As soon as the breathing starts, wrap the child in a cloth that has been warmed before a fire.

If the above methods are used for a couple of minutes, and yet do not cause the child to breathe, then the umbilical cord should be quickly cut and tied, and artificial respiration used. The accompanying illustrations show how to give artificial respiration. The movements must not be too fast, not more than ten or twelve a minute. It is well to have a vessel (of a size large enough that the baby can be laid within it) of water at a temperature not lower than 105 degrees Fahrenheit. While using artificial respiration keep as much of the child's body as is possible immersed in the hot water. Do not lose hope too soon. If there are any signs of

life, continue the artificial respiration for half an hour or longer.



### Hæmorrhage at the Time of Childbirth

There is always some hæmorrhage during and just following the birth of the child, and at the time the afterbirth comes out; but such bleeding normally lasts for only a short time. Should there be profuse bleeding, the woman begins to complain of feeling cold; she turns pale and feels faint.

### Treatment

Place a roll of bedding under the woman's hips, in order to elevate them. Cause the uterus to contract by grasping the uterus through the abdominal wall, and squeezing it firmly in the hand. Do not relax your grasp until after the hæmorrhage has stopped. A cloth wet in the coldest water obtainable should be applied over the pubic region and external genitals. Re-wet and apply this cloth frequently. The cold causes the blood-vessels to contract, and so helps

to stop the bleeding. Some cold water may be poured on the abdomen from a height of two or three feet. Put the baby to the breast at once; for as soon as it begins to suckle, the uterus is stimulated to contract. If fluid extract of ergot can be secured, give one teaspoonful of it, and repeat the dose in three hours. After such a haemorrhage the woman must lie very quietly for a couple of days. Under no circumstances allow her to sit up or to get out of bed.

### Fever Following Childbirth (Puerperal Fever)

A woman who has just given birth to a child always has a slight fever for a few days after childbirth. Such a fever is not dangerous, and seldom lasts more than three or four days. But a fever that begins about the third or fourth day after childbirth is very serious. With the fever there is a very high pulse rate (the normal pulse rate is seventy-two beats a minute). There may be a chill at the onset. There is usually some pain in the lower part of the abdomen, and sharp pain is felt if anything presses on the abdomen. The head aches. When the fever begins there is usually a decrease for a day or two in the amount of the discharges that have been coming from the uterus.

If care is taken to have everything clean at the time of confinement, puerperal fever will not occur; for this fever is due to germs that enter the uterus from the unclean hands of the midwife, or by using dirty cloths under the woman and about her external genital organs to catch the blood and other discharges. If the midwife puts her hands or any kind of instrument into the woman's vagina, this will in most cases infect the uterus, and puerperal fever will be the result.

As this is a very deadly disease, no time should be lost in calling a physician who will administer the necessary penicillin. In case penicillin is not available, one of the sulfa drugs, preferably sulfadiozine, can be administered with life-saving effect.

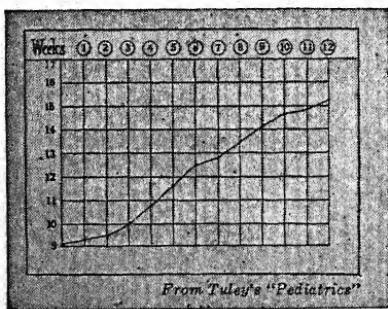
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## *Chapter Nineteen*

# Care of Infants and Small Children

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IN A certain community, out of every one hundred babies born, seventy-one die before they are one year old. In an adjoining community, out of every one hundred babies born, only five die before they reach their first birthday. The reason for this wide difference in the two communities in the number of babies who die is that the parents in the



Normal weight chart for the first twelve weeks of baby's life.

one place do not give the babies proper care, but in the other community the babies receive proper care. Here in India a large number of the babies born do not live twelve months. This terrible loss of life is almost entirely preventable. It is preventable because it is due to lack of cleanliness at the time of the child's birth, to feeding solid foods to babies that are only a few months old, especially feeding them meat, raw melons, vegetables, etc., feeding them food

which the flies have infected with disease germs, feeding the child at any time it happens to cry, allowing the baby to put any and every sort of dirty thing in its mouth. Since this high infant mortality is largely preventable, should not parents give careful study to the subject of how to care properly for small children?

### The Normal Child

The normal child at birth should weigh between six and eight pounds. There is no gain in weight during the first week after birth. During the first six months the child should make an average gain of about four ounces a week. During the following six months the average weekly gain is slightly less than four ounces. During the second year the child should gain about six pounds in weight.

The time when the teeth should come in is mentioned in Chapter 4.

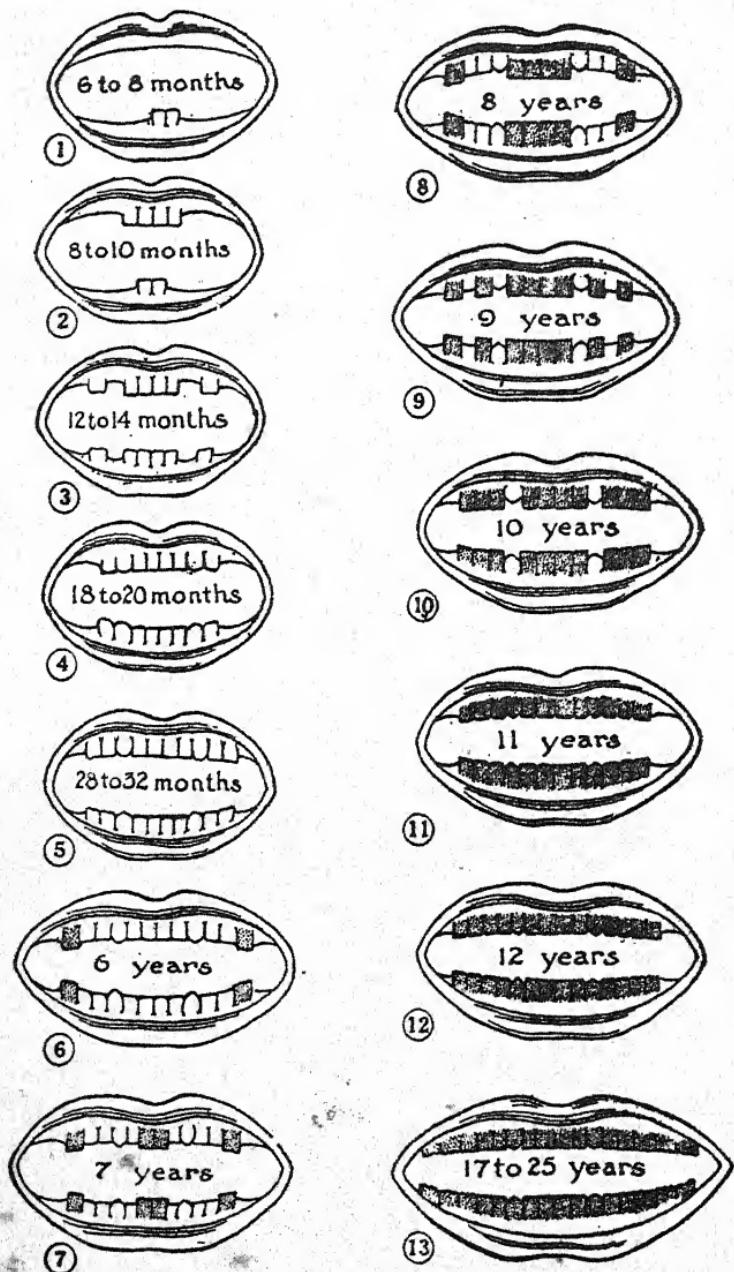
At the age of ten months a child should be able to stand on its feet, and by the time it is twelve months old the child should be able to walk a little.

When the child is born there are two "soft spots" (fontanelles) in the skull, one just above the forehead and one in the back of the skull. The one at the back closes about the end of the second month; the one in front about the eighteenth month. If either of the "soft spots" remains after the child is two years old, it is usually due to the child not having secured sufficient food, or due to a disease called rickets.

Since it is natural for the child to cry at times, the mother should not get into the habit of nursing it every time it happens to cry.

### Care of the Child

Every child should be vaccinated against smallpox before the age of three months. If smallpox is prevalent in the community, the child should be vaccinated a week or two after its birth. (See Chapter 22.) By the time it reaches six to eight months of age the child should be im-



Teething chart. The shaded teeth are permanent ones.

munized against diphtheria, tetanus, and whooping cough as well as smallpox.

During the early weeks of life a healthy child will sleep most of the time. A comfortable bed should be prepared for the child. A woven basket makes an excellent bed for a baby. This should be covered with a piece of mosquito net to keep the flies from alighting on the child's eyes and face. Flies cause sore eyes and pustules on the skin. They may also cause the child to have diarrhoea. Do



Bathing the baby.  
Note the manner of holding  
the infant.

not cover the baby's head when it is sleeping. A baby needs an abundance of fresh air—so do not draw curtains about the bed where it sleeps, but keep the windows open or place it out-of-doors under a cover where it will be well shaded from the sun.

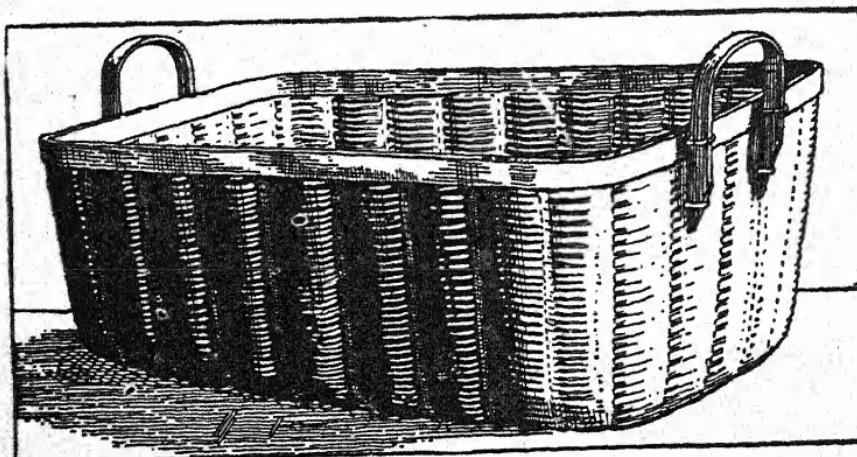
The small child must be kept clean by daily bathing.

Place a clean rice-straw or reed mat on the floor and keep the child on this. If the child is seven or eight months

old it will creep about; and in that case make a small pen, place this pen on a mat, and keep the child in the pen.

Do not give the child a "comforter." When the child is five or six months old give it a spoon or some other hard, clean article to bite upon while it is cutting teeth. No matter what the article may be that is given the child to bite upon, it should be kept clean by frequent boiling.

Use clean cloths for diapers. The foul cloths often used not only have a foul smell, but they irritate the child's external genitals.



The ordinary clothes basket makes an ideal bed for baby.

It is necessary in the case of a boy baby to retract the foreskin of the penis frequently and keep the end of the penis clean. If the prepuce cannot be drawn back, take the child to a competent physician and have the prepuce stretched so that it can be retracted. The crease between the labia of a female child's external genitals should also be looked after and bathed frequently.

In clothing a child the buttocks and external genitals should be covered. It is not good to allow children to go about nude or clothed in a way that exposes the buttocks and external genital organs.

### Proper Food for the Child

#### FORMULA WHEN FRESH MILK IS USED

Age of Baby	Whole Milk	Boiled Water	Corn Syrup or	Dextrin-Maltose	Total Ounces
	Ounces	Ounces	Level Tablespoons		
At birth	10	10	1½	3	20 (approx.)
1 month	14	10	2½	5	24
2 months	20	12	3	6	32
3 months	24	12	3	6	36
4 months	24	8	3	6	32
5 months	26	8	3	6	34
6-8 months	26	6	3	6	32
9th month			Give whole boiled milk if baby can tolerate it. From one month to another make increases gradually. The drop at the 4th month is due to the increase in supplementary feeding.		

#### FORMULA WHEN TINNED EVAPORATED MILK IS USED

Age of Baby	Evaporated Milk	Boiled Water	Corn Syrup or	Dextrin-Maltose	Total Ounces
	Ounces	Ounces	Level Tablespoons		
At birth	5½	15	1½	3	20½ (approx.)
1 month	7	17	2	4	24
2 months	10	22	3	6	32
3 months	12	24	3	6	36
4 months	11	21	3	6	32
5 months	13	21	3	6	34
6-8 months	13	20	3	6	33
9 months	15	17			32
10 months	16	16	Given in a cup		32

The best food for any infant is mother's milk, provided the mother is in good health. The mother should do all in her power to keep well. She should get sufficient rest, drink much water, take some exercise in the open air daily, eat plenty of nourishing food with enough bulk to keep the bowels in good order, and she should maintain a happy, contented state of mind.

No nursing mother should use chillies, betel-nut, tobacco or alcoholic beverages. Harmful substances from these are transmitted through the mother's milk to the nursing child. This is especially true of the nicotine which is found in tobacco. It weakens the baby's heart and stunts its growth.

The average new-born baby should be nursed every three hours. Some very strong babies can be successfully nursed from birth on a four-hour schedule. It may be necessary for a few weeks to put the baby to the breast at

2 o'clock in the morning, but just as soon as possible this feeding should be discontinued, so both baby and mother will have undisturbed rest. If the baby is put on a three-hour schedule at birth the time between feedings should be gradually lengthened until at three months the four-hour schedule can be followed. This schedule should be maintained until time for weaning.

Between feedings the baby should be given boiled drinking water which has been slightly warmed. This is best given from a bottle with a nipple but can be given from a spoon.

The time for weaning the baby depends upon the progress it is making and the state of the mother's health. For the first six months the average gain in weight should be from six to eight ounces per week. After that it will be less. By the time he is a year old he should weigh about three times his weight at birth.

Most babies should be weaned when they are nine months of age. The weaning should be done gradually. Some suggestions for supplementary feedings are here given:

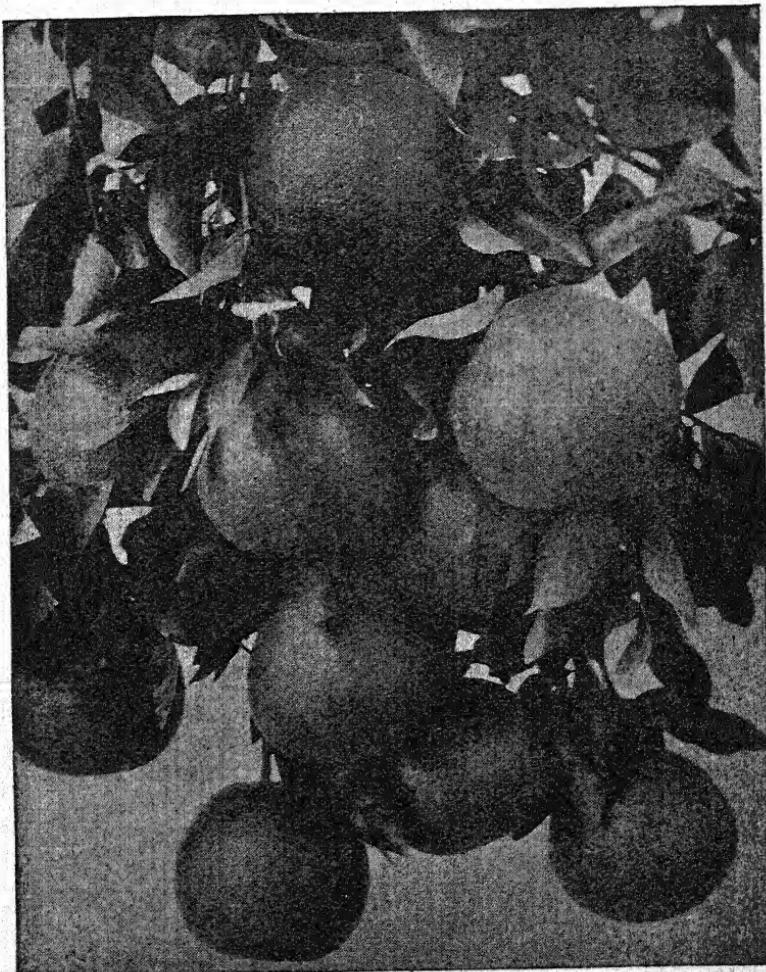
1st month: Water in which carrots have been cooked (no salt, no oil).

2nd and 3rd months: Whipped ripe banana, well-cooked cereal. (This cereal may be rice gruel made by cooking the rice until it is a mush, or wheat gruel made by cooking well-sifted atta for one or more hours). These may be given at the time of the 10 a.m. feeding before nursing the baby. Always introduce new foods to a baby when he is hungry.

3rd month: The yolk of an egg which has been boiled twenty minutes or one from a soft-boiled egg. Begin with a small amount of the yoke mixed into a paste with milk and gradually increase it until he can take the entire yolk.

Mashed carrots, spinach, yellow squash and fresh tomatoes (no seeds and mashed to a paste) may be introduced.

At first give just a bite and increase to one tablespoonful. This gradual process applies also to the cereal and banana feeding previously mentioned. If the mother



The juice of ripe oranges or tomatoes contains vitamins required by growing infants.

has plenty of milk and the baby is gaining normally, no supplementary feeding except the orange juice will be necessary until the baby is eight months of age.

Gradually work up to the following schedule sometime between nine and twelve months.

7 a.m. 2-4 tablespoonfuls cereal with milk (mashed ripe banana or milk toast may be substituted); Fruit sauce; 1 slice zwieback (dry toast); 8 oz. milk or as much as baby will take.

9:30 a.m. 4 oz. orange juice; 1 teaspoonful cod liver oil.

11:30 a.m. 2-3 tablespoonfuls mashed vegetables (carrots, spinach, string beans, green peas, tomatoes, cauliflower, parsnips, asparagus); 1-2 tablespoonfuls cottage cheese; 1-2 tablespoonfuls potato, rice, or spaghetti; 2-3 tablespoonfuls custard, gelatine, dessert, tapioca; 4-6 oz. milk.

3 p.m. 4-6 oz. milk, graham cracker or arrowroot biscuit or zwieback.

5:30 p.m. 2-4 tablespoonfuls mashed banana or cottage cheese (curds); 1 egg; 1-2 tablespoonfuls stewed fruit; 8 oz. milk or as much as he will take.

#### Allow No Other Foods

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This schedule with some additions can be followed up to eighteen months or even through the second year. Do not give the young child any of the following: Tea, coffee, hot bread, brinjal, green corn, cucumbers, radishes, gridle cakes, sweet cakes, fried foods, gravies, pork, salt or dried fish, corned or dried beef, spices, chillies, nuts, sweets, berries, melons, fresh fruits except bananas and orange juice.

Orange juice supplies vitamin C and should be given from the first month. Begin by giving 1 teaspoonful of orange juice with 1 teaspoonful of slightly warm boiled water. Gradually increase the amount of juice until at three months the baby is getting 3 ounces daily. Give up to 4 ounces daily through the first year.

#### Wet Nurse

In case a mother is sick after childbirth and unable to nurse her child, the best thing to do is to secure a wet

nurse. A wet nurse is one who breast-feeds the child of another. Care should be taken in selecting a wet nurse to see that she is not afflicted with tuberculosis or syphilis. In case the child does not thrive on the milk from one wet nurse, it will be necessary to change and secure another one.

### Artificial Feeding

In case the mother cannot nurse the child, and a wet nurse cannot be hired, then it becomes necessary to feed the child from a bottle. Cow's milk or goat's milk, if they can be secured fresh and clean, are the best substitutes for mother's milk. It is absolutely necessary where the weather is continually warm that the milk be secured within three or four hours from the time it comes from the cow. As soon as you secure the milk, put it into a clean cooking vessel and boil it.

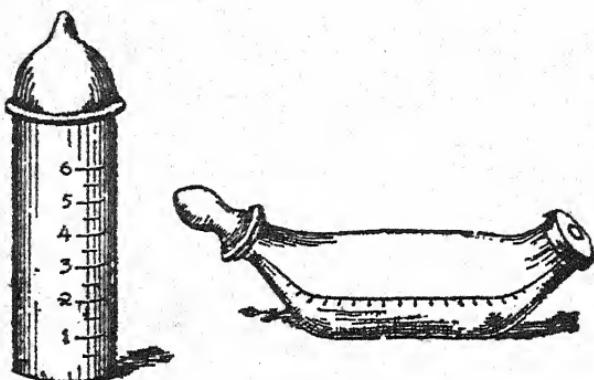
The general plan of feeding given for the breast-fed child may be followed when artificial feeding is necessary. The foregoing charts give the amounts for each day. The total should be divided equally among the number of feedings to be given. If corn syrup or dextrin-maltose is not available, cane sugar may be substituted though it is not as satisfactory. The amount of cane sugar should be half that of the corn syrup. The first chart is for fresh whole milk either cow's or goat's. If powdered milk is used it may be mixed as directed on the tin for whole milk and substituted for fresh whole milk in the formula.

The second chart is for evaporated or unsweetened tinned milk.

The same suggestions for weaning from the breast apply to weaning from the bottle.

### Bottles

The illustration on page 142 shows the proper kind of bottles to use for feeding the child. The bottle must be kept clean. Each time before using remove the rubber nipple and wash the bottle well inside and outside. Wash



Two patterns of sanitary feeding bottles.

until no trace of milk is seen in the bottle. Also wash the rubber nipple well. Wrap the bottle and the rubber nipple in a thin clean cloth; place in a vessel containing enough cold water to cover the bottle and heat till the water boils—the water should be kept boiling for several minutes. If water that has been boiled is used to wash out the inside of the bottle and the rubber nipple each time after using, and if the bottle is kept wrapped in a clean cloth, then it will only be necessary to boil it once a day.

### Constipation

A healthy baby has usually from one to four bowel movements daily. After the second or third month there are as a rule only two movements daily. In case the bowels fail to move at least once or twice daily, the child should be treated for constipation. Constipation in a small child should be looked after without delay, for if not it will result in the child becoming seriously sick. One or more of the following methods may be used:

1. Increase the amount of fat (oil) in the food.
2. Give the child plenty of water to drink. The water should be warm and should have previously been boiled.
3. Give orange juice, or tomato juice, or some other kind of fruit juice, mashed papaya or ripe banana.

4. Use a piece of hard, white soap, cut it into a cone shape two inches long and about the size of a lead pencil at the small end and a little over half an inch in diameter at the large end. Every morning at a regular time, if there is no natural movement of the bowels, this piece of soap should be oiled with a little vaseline and inserted half of its length into the anal opening; hold it there for a few seconds and then allow it to be expelled—a free movement of the bowels will follow in most cases.

### Diarrhoea

If the child's bowel movements are very frequent and watery and of a foul odour, it has diarrhoea. In most cases of diarrhoea it will be necessary to stop the ordinary food for a day and give the child nothing but warm boiled water and rice water. The rice water is made by boiling a small amount of rice in a large amount of water until the grains are well broken up, and then pouring through a thin cloth to strain out everything but the watery part. All food and drink given the child must be clean. If this fails to stop the diarrhoea it will be necessary to use the methods outlined in Chapter 21.

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## *Chapter Twenty*

# The Home Hospital

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OF HIMSELF man has no power to cure disease. While this is true, yet there is much he can do to help or hinder the healing process; and it is one of the chief aims of this book to describe the various simple methods that can be used to help Nature in the healing of sick bodies.

### Natural Remedies

In this chapter will be described those remedies that have a wide range of usefulness—such, in fact, as will be helpful in the treatment of almost any disease. They are called natural remedies because they do not consist of poisonous drugs, but are those things from which the body naturally secures strength and health. Some of them are very common and very inexpensive; yet they are very efficacious.

### Sunlight

The important relation of sunlight to health is shown in the effect produced upon plants or animals when they are deprived of sunlight. If a plant is removed from a sunny place to a dark place, it quickly becomes yellow and sickly. Animals kept in the dark soon become weak and sickly.

Sunlight causes our bodies to thrive as it causes the plants to thrive. Sunlight will kill disease germs in a short

time. Very few cases of skin disease occur on those parts of the body that are constantly exposed to the light. It has been proved repeatedly in hospitals that the sick people who are kept out on the open verandahs and in those rooms that face the sun, recover more quickly than do those who remain in poorly-lighted rooms. Sunlight is acknowledged to be a remedial agent that is absolutely essential in the treatment of tuberculosis. No matter what the disease is, the sick person should be in a well-lighted room, or better still, he should be out-of-doors protected by an awning or some other kind of a shade. The sun is the source of all the heat, light and energy in the world. It is life-giving. Provision should be made so that every room in the house may be well-lighted. People who live in poorly-lighted houses are prone to contract disease.

### Pure Air

If one's air-supply is cut off, one will die in a very few minutes. A fire will not burn well if it cannot get a draught of air; neither can our bodies produce the necessary heat and energy to keep in health, unless we constantly breathe pure air. One who is sick is in greater need of pure air than one who is not sick. In Chapter 5 of this volume the importance of a continuous supply of pure air has been emphasized.

### Water

Water is one of the commonest things in the world. It is also one of the cheapest things in the world. No plant or animal can live without water. Two-thirds of the weight of our bodies is water.

When a man cannot secure daily a sufficient amount of water in his food and drink, he quickly loses his strength. In Chapter 7 it has been shown that it is necessary to drink an abundance of water in order to help the skin and kidneys in expelling from the body the poisons that are being constantly produced in every part of the body.

Water-drinking cleanses the body internally, just as bathing cleanses the body externally.

Water is useful in the treatment of almost every disease which afflicts men. Its use as a remedy in the treatment of disease antedates that of any other remedy. An adult should drink from five to seven pints of water daily. All water should be boiled before being drunk. Water for drinking should not be too cold. Do not drink ice-water. All who are sick should drink an abundance of water. It is especially important that those who have fever should drink large quantities of cool water. In case of pain in the stomach, with the spitting up of sour fluid, drinking hot water will relieve the pain. Every infant should be given a small amount of warm water (that has been boiled) to drink several times a day. Oftentimes when a baby cries, it is crying for water and not for something to eat.

### How to Use Water in Curing Disease

It is the blood that heals. This fact is fully discussed in Chapter 6. It is the blood that maintains the heat of the body, destroys disease germs, and repairs diseased or injured portions of the body. This being the case, the aim in curing any part of the body that is diseased, should be to secure an active circulation of the blood through that part. The circulation of the blood in any part of the body can be controlled by the use of hot and cold water. By means of alternate hot and cold applications of water, the circulation of the blood in any part of the body can be markedly increased. The hot application, which should continue about two minutes, causes the blood-vessels in the part of the body where the heat has been applied to dilate. As soon as the blood-vessels dilate, the blood rushes in from other parts of the body to fill them. If cold is then applied for ten to twenty seconds, the dilated blood-vessels will be caused to contract; as they contract, the blood is forced out into the blood-vessels in other parts of the body. Repeating these alternations of hot and cold constitutes a veritable pumping process, which greatly increases the amount of blood flowing through the diseased part.

## Equipment Needed for Home Hydrotherapy

For the giving of water treatments in the home only simple appliances are needed. Substitutes may be used in emergencies, but it is much better to provide the things listed below:

1. One set of six fomentation cloths—wool or half wool—each at least 30 x 36 inches. An old woollen bed blanket cut in four pieces makes four good fomentation cloths.
2. Two rough friction mitts.
3. Two hot-water bottles.
4. One ice bag.
5. One bath thermometer.
6. Two elliptical foot tubs, about sixteen inches long and ten inches deep.
7. Washtub, pans, kettles, towels, sheets and blankets such as are usually found in the home.
8. Two large, deep tin cans or buckets. These should be about one foot in diameter and sixteen inches deep.

### Fomentations

Fomentations are one of the most effective means of using water in the treatment of disease. The best material for fomentation cloths is heavy flannel. A single flannel blanket will make two pairs of fomentation cloths. In place of flannel blankets, any woollen cloths may be substituted. Fomentation cloths, to meet all conditions, should be almost three feet long and nearly as wide.

For application to the spine, the fomentation cloth should be about six or eight inches wide, and extend the entire length of the spine. Over the chest, stomach, liver, or bowels, it should be folded so that it will be wide and short. If a fomentation is too hot, lift it up for a second, just enough to pass a towel between it and the skin, to remove the moisture from the surface of the body; and then immediately apply the fomentation snugly. The fomentation should be left on until it begins to feel comfortable, then it should be renewed by unfolding the dry

cloth and leaving it in place, and re-wetting the wet cloth and placing it back in position, after having it wrung dry as before.

Ordinarily the fomentation should be changed every three to five minutes, and should be continued for fifteen to twenty minutes. When applied to relieve pain, it may be necessary to continue them for from thirty to sixty minutes. In all cases, the fomentations should be very hot.

Fomentations will relieve nearly all kinds of pain, and it is safe to use them except for pain in the lower right abdomen which may be due to appendicitis. Then an ice bag should be applied. They are far superior to liniments and ointments of all kinds. In the treatment of most cases where fomentations are used, their effectiveness is increased by making a very brief application of cold after each hot fomentation. The cold can be applied by wringing two thicknesses of some thin cloth, like a handkerchief or small towel, out of cold water, and applying it over the fomented part for a few seconds. Remove and dry quickly, then follow immediately with another fomentation.

In every case after applying fomentations, apply cold to the area for a few seconds. Then rub dry with a towel.

In the chapters describing the treatment of the various diseases, mention will be made of those diseases in which the fomentation, the hot foot-bath, the sitz bath, the enema, etc., are useful.

### Hot Foot-Bath

For a hot foot-bath, a large wooden pail, a washbowl, or even a tub may be used. In the foot-bath, the water should reach above the ankles, and the temperature should be about 105 degrees Fahrenheit to start with. The feet are quite sensitive to heat. Soon after the feet are in the warm water, the temperature should gradually be increased to a point as hot as can be borne, by adding hot water a little at a time. The bath should continue from five to twenty minutes. In giving a hot foot-bath, a cloth wrung out of cold water should always first be placed on the patient's



Alternate hot and cold immersion.

forehead, and this cloth should be frequently renewed. This cold cloth prevents dizziness and headache.

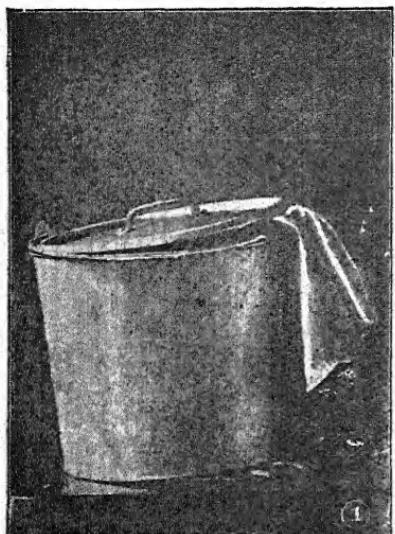
The hot foot-bath, if prolonged to fifteen or twenty minutes, is a very effective means of producing perspiration. If such an effect is desired, surround the patient with blankets, and have him drink hot water or lemonade during the time his feet are kept in the hot water. Keep the head cool. Then put him to bed, cover well and allow the sweating to continue.

The hot foot-bath is excellent in curing headache. It is useful in the beginning of a fever; in inflammation of the pelvic organs; to overcome chilly sensations; to produce perspiration; and for sore, aching or cold feet.

One or two tablespoonfuls of ground mustard, stirred into the water, will intensify the effect of the bath. In fevers, and with weak patients, give the hot foot-bath with the patient lying down.

### The Sitz Bath

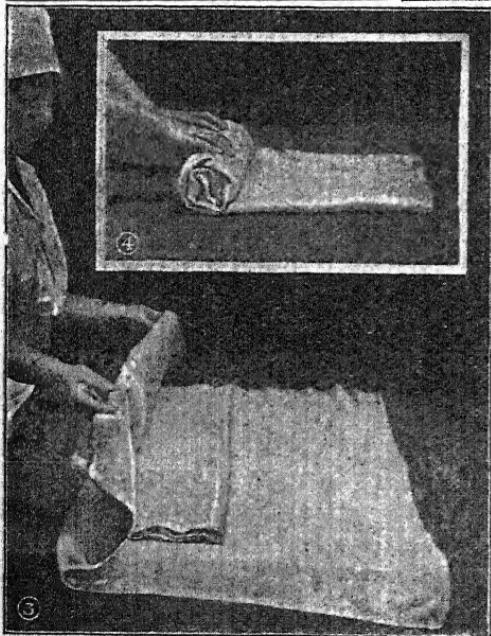
For the sitz bath, an ordinary tub may be used. The hot sitz, temperature 105 to 115 degrees Fahrenheit, is the most common and useful form of taking this bath. The duration is from five to fifteen minutes, usually.



1



2



3

1. Spread out on the table the cloth for the dry covering. Fold together in three thicknesses so as to make a long, narrow piece, the cloth or cloths to be used inside. Twist this as in wringing clothes and immerse the entire cloth, except the two ends, in the boiling water. The ends may be held out of the water by applying the cover tightly over the kettle. Leave until thoroughly soaked with the boiling water.

2. To wring, grasp the dry ends, twist the cloths several times, then stretch out. This wrings out the boiling water without burning the hands.

3. Place the hot cloth on a dry one that is large enough to fold over well.

4. Roll it up to retain the heat while carrying it to the patient,

**REQUISITES:**—Some fire-place (charcoal fire in sigri, primus stove, etc.). A deep dish or large kettle which is kept boiling over the fire. A large cover will be helpful in holding the heat. A minimum of two fomentation cloths. (Four will be better.) A mixed wool and cotton blanket cut into four pieces, each piece 30 to 36 inches square, is ideal. A Turkish towel, a small hand towel and a bowl of cold or ice water are needed.

5. After placing a towel over the area to be treated, apply the fomentation, tucking it in well; then, to protect the bedding from dampness, adjust another towel over the fomentation cloth. Keep an iced cloth on the head, changing whenever it becomes warm.

6. With a dry towel wrapped about the hand, reach under the fomentation



and towel already on the patient and wipe off all moisture. The patient can endure a hotter fomentation if the moisture from the preceding one is wiped off.

7. To change the fomentation: Have another rolled and ready to apply. Then put the hot fomentation, ready to unroll, in place as the old one is taken off. When the fomentations are finished, wipe off the area with a cold wet towel; then dry. Three fomentations are called a set. More may be given if necessary to relieve pain.



When taking a sitz bath, the feet should be in a smaller tub of warm water. Protect the upper part of the patient's body with a garment or a blanket, and keep a cool, wet cloth applied to the forehead.

The hot sitz is an excellent means of relieving pelvic pain due to inflammation of the uterus, ovaries, vagina or bladder. It is also very useful in relieving severe pain during the menstrual period, or just preceding it, or to bring on the menses. In the latter case it may be necessary to repeat the treatment several days in succession, even two or three times a day. It is also good to relieve pain in the hips. After a hot sitz bath, the parts of the body that were in the hot water should be rubbed quickly with a cold, wet towel, and then dried thoroughly with a dry towel.



Equipment needed for the giving of a hot sitz bath.

### Alternate Hot and Cold Immersion

For any infection of the hand or foot, such as an open sore or ulcer, the remedy par excellence is the application of alternate hot and cold as follows: Provide one bucket of very hot water and another bucket of cold water. Place the diseased part, whether hand or foot, first into the hot water for three minutes; then withdraw and insert for one minute in the cold water. The hot water should be kept hot by adding hot water at each change. If possible put ice in the cold water. Alternate in this way for six changes ending with cold water. This treatment, repeated three times a day, will produce marvellous results in the curing of an infected wound or an open sore of any kind. The efficiency of the treatment for infections will be increased much if one part of Lysol is added to every two hundred parts of the hot water, or if two tablespoonfuls of Epsom Salts per gallon of water is added.

For sprains and bruises, this same treatment, with the exception of the medicine, is very effective.

### Cold Mitten Friction

For a cold mitten friction, a pail or pan of cold water is required, and a mitten made from coarse alpaca cloth or from coarse towelling. Proceed by dipping the mittened hand into the water, while grasping the hand of the patient with the other. Squeezing the water out of the mitten, make a quick sweep from the fingers to the shoulder of the patient and back again, and then very rapid friction, according to the sensitiveness of the patient. Repeat this twice or three times. Then dry by very brisk rubbing with a coarse towel. Repeat on the other arm, then the chest, abdomen, legs and back. The entire treatment should not take more than from twelve to fifteen minutes. The effect of this treatment depends mostly upon the briskness with which it is given. Avoid rubbing the abdomen in cases of typhoid fever or appendicitis.

As a rule, the cold friction is most effective when preceded by some hot treatment such as fomentations.

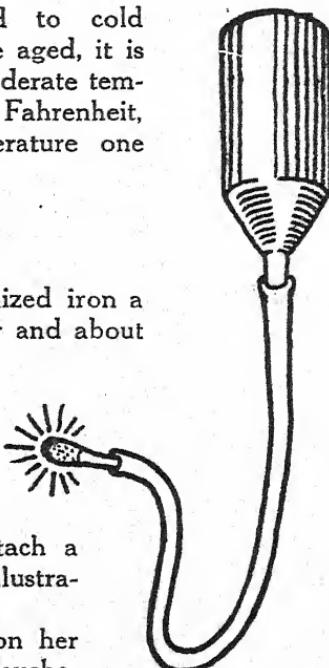
Fomentations, followed by cold friction, once, twice, or three times a day are a valuable treatment for many illnesses.

Friction of any kind should be avoided in all eruptive diseases or skin diseases.

With those unaccustomed to cold water, or with the feeble or the aged, it is best to begin with water at a moderate temperature, say about 80 degrees Fahrenheit, and gradually lower the temperature one degree or more a day.

### The Vaginal Douche

Make out of tin or galvanized iron a container five inches in diameter and about ten or eleven inches high, with a small opening near the bottom to which a spout is soldered. Attach to this spout a piece of rubber tubing four feet or more in length; and at the end of the rubber tube attach a glass or rubber nozzle. (See illustration.)



The patient should lie upon her back in the bath-tub, or put a douche-pan under the hips. Use a glass or rubber tube with openings along the sides, the tube being about six inches long. Insert this tube in the vagina and always direct it downward and backward along the lower vaginal wall. Have the water container three feet above the hips.

For simple cleansing purposes, the water should be warm, i.e., about 100 degrees Fahrenheit.

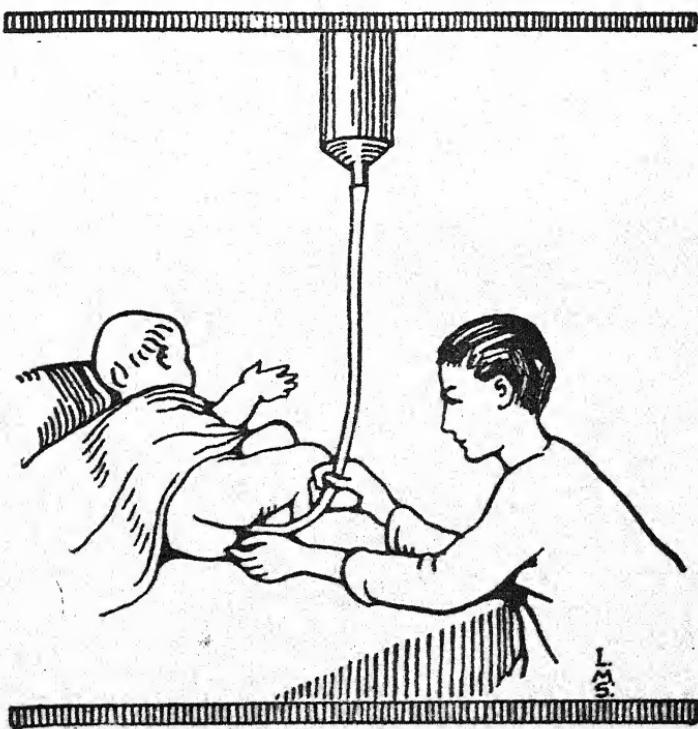
To relieve pelvic pain, the water should be from 110 degrees to 115 degrees Fahrenheit, and the quantity at least four quarts.

To re-establish the menstrual periods, use several quarts of water at 103 degrees Fahrenheit, and repeat two or three times a day.

### The Enema

The enema is used to empty the bowels. A douche can, as described under "The Vaginal Douche" is required, also enema tubes; small tubes should be used for children. All water used for enemas should have been previously boiled. The best position is lying on the back or on the side.

For a simple cleansing enema for an adult, use two or three quarts of water at a temperature of 100 degrees Fahrenheit. Pour the water into the enema can, and suspend the can about three feet above the bed. Pinch the rubber tube to prevent water from running out. Apply a little vaseline or clean oil to the end-piece and insert this end-piece into the bowel. It should be inserted in an up-



Giving an enema to the baby.

ward direction and toward the back. Insert for two or three inches, and then release the rubber tube so the water will flow. If there is griping pain, pinch the rubber tube to check the flow until the pain ceases. Resist the desire to defecate until the greater part, or all the water, has entered the bowel. After the water has entered the bowel, the abdomen may be kneaded with the hands. This causes the water to pass up higher into the bowel and results in a more thorough cleansing of the intestine.

For chronic constipation, or where it is necessary to take an enema daily for a few days, the cool enema, 70 degrees Fahrenheit to 80 degrees Fahrenheit, is more tonic.

In high fever, as in pneumonia or typhoid fever, the enema at 70 degrees Fahrenheit, retained for a few minutes, is very efficient in reducing temperature. It may be given every four hours. For high fever in typhoid the continuous enema has proven of great value. On the end of the tubing from the enema can a glass Y tube is attached. On one end of the Y a rubber tube is attached and one end placed in a bucket. On the other end of the Y a colon tube is attached. This is inserted several inches into the rectum. A continuous flow of cool water into the bowel and out gradually lowers the fever. When the fever has dropped two or three degrees the enema should be discontinued. The patient lies quietly on his side during the treatment. With high fever in scarlet fever, the enema at 80 to 90 degrees Fahrenheit, should be given. A cold enema should not be given to a young child.

In diarrhoea that persists, a very hot enema, 110 to 115 degrees Fahrenheit, may be given. Not so, however, in typhoid fever. In this case, give an enema at 90 degrees Fahrenheit, after the stool or several times a day.

### Hot-Water Bag

A rubber bag filled with hot water retains the heat a long time, and may be used in place of fomentations, by surrounding the bag with a moist piece of flannel. As a rule, moist heat is more effective than dry heat. For back-

ache, toothache, menstrual pains, or pains in the abdomen, the hot-water bag is almost indispensable.

Fill the bag one-third full of very hot water, then press the sides of the bag together above the water. This will exclude the air and steam. Then screw on the top, so that it will not leak. When placing on the feet, wrap the bag in a flannel cloth. If a patient is unconscious, great care must be exercised to prevent burning.

### How to Make a Cold Compress Without Using Ice

In this chapter the use of the cold compress has been referred to several times. In many localities it is impossible to secure either ice or cold water. In such cases the following method may be used: Wet a thin cloth or a small towel in water, then without wringing out the water, grasp the towel by two corners and swing it back and forth in the air. By swinging it vigorously ten or twenty times the towel will become quite cold.

### Sponging

Sponging consists of the application of a liquid by means of a sponge, a wash cloth, or the bare hand, in which the chief effect is derived from the liquid itself, little friction being needed.

Plain hot or cold water, or water containing salt or soda, vinegar and salt, or alcohol, or witch-hazel may be used. The order of treating the various parts of the body should be the same as with the cold mitten friction.  
(Pages 153, 154.)

In using cold water to reduce fever, a wash cloth or a sea sponge should be used. It is squeezed out only enough to prevent much dripping, and considerable time is spent on each part of the body, going back and forth over the part until it is perceptibly cooler. Each part is dried lightly without rubbing. Hot sponging is used in fevers where there is chilliness, the same methods being followed as with cold sponging. In sponging with weak salt water, soda

solution, vinegar and salt, and in applying alcohol or witch-hazel, the bare hand is best.

**Saline Sponge:** To prepare the water for a saline sponge, dissolve about four ounces of common salt in a basin or bowl of tepid or cool water. It is a mild tonic and circulatory stimulant for anaemic or weak persons.

**Alkaline Sponge:** Put two ounces of sodium bicarbonate (baking soda) into a basin of cold water. It is useful in itching and hives. It need be applied only to the affected part.

**Vinegar and Salt Rub:** This is useful in checking the night sweats of tuberculosis. Prepare a half pint of equal parts of vinegar and water, to which add one or two tablespoonfuls of salt. Apply principally to the parts that perspire the most.

**Alcohol Rub:** This is a very popular means of finishing a sweating bath, or for quieting purposes at night. It might be used in place of a wet hand rub or cold mitten friction, though it is less effective than the latter. Use equal parts of grain alcohol and water. Wood alcohol is poisonous when applied to the skin, and should never be used.

**Witch-hazel Rub:** This has about the same effect as the alcohol rub. It is used undiluted.

### Use of Patent Medicines

Newspapers and magazines are full of advertisements for medicines of all kinds. They are often described as "miraculous cures" for all kinds of diseases.

Do not be deceived by these claims nor by the testimonials which accompany them. Many of these medicines contain stimulants such as alcohol, which make the user feel much stronger when he actually is no better. It is best to seek medical advice from those who have received training in a medical college.

### Caring for the Sick

The most important thing in the healing of disease is not medicine, but rest, good food, good care and the use

of every possible means to aid the blood in destroying the disease germs and the poisons produced by these germs.

### Rest

In every case of severe illness the patient should go to bed and remain there night and day. Many sick people do not get well because they lie down only until they begin to feel better; then they get up and begin to go about and do their ordinary work and eat ordinary food.

When a person is sick, he will recover more quickly if his neighbours and relatives will not call to visit him too often. They sometimes bring food and medicines to the patient, which are not the kind that the patient should use. Another way in which those who visit sick people may do harm is by spreading the disease. Many diseases are communicable (can be carried from one person to another), and visitors, by shaking hands with a sick person, or by sitting on his bed, or by handling articles in the patient's room, get the disease germs on their hands and clothing, and as a result may carry these germs to their homes, thus causing others to contract the disease. It is best that only the two or three who are caring for the patient should enter his room.

One who is sick needs pure, fresh air, and often visitors who are allowed in the room smoke cigarettes and cigars and pollute the air that the sick person breathes.

Every sick person needs much sleep. No one should be allowed to sit about in the patient's room and keep a light burning. The light should be put out early so that the patient can go to sleep.

### Diet for Sick Persons

Proper diet is one of the most important things in the treatment of the sick.

In some kinds of sickness, the sick person can use the ordinary foods; but in most diseases, and especially in diseases of the stomach or intestines, special food must be prepared. No matter what the disease is, the sick person

should be given an abundance of water to drink. The water should first be boiled and cooled. Fresh, ripe fruits and the juices squeezed from the fruits are excellent for the sick.

Eggs, soft-boiled, poached or jellied, are good; they should never be fried or hard-boiled. Eggs can be poached by breaking the egg into a small amount of boiling water. Take the egg out of the boiling water as soon as the clear part of the egg has all turned white. Eggs are jellied by heating to boiling point about two pints of water in a small cooking vessel. As soon as the water boils, set the vessel off the stove and place in it a couple of eggs. Allow the eggs to remain in the water from ten to fifteen minutes. If properly done, the inside of the egg should be of the consistency of thin jelly. Eggs prepared in this way are very easily digested. Egg-nog is very easily digested. It is made by beating the white of an egg to a stiff froth, then beating in the yolk, adding to this a little sugar and a spoonful or two of pineapple juice. Then stir the egg into half a glassful of milk or fruit juice. (Pineapple juice may be omitted.)

In cases of diarrhoea or dysentery, or in case of any acute, severe disease of the stomach or intestines, egg water is sometimes the only food that can be given to the patient. It is made by stirring the whites of two eggs into a glassful of water which has been boiled and cooled. It may be flavoured with a little lime juice or lemon juice.

"Congee," (rice-gruel) or a gruel made from browned wheat flour makes a good food for the sick, whether for a child or an adult. Fresh milk that has been boiled, baked potatoes, stewed fruits, arrowroot gruel, bread cut in thin slices and thoroughly toasted, are all good for the sick.

The foods to be especially avoided by the sick are the common vegetables, such as onions and garlic; also bean curd, cake, confectionery or sweets of any kind. Curry, pepper, ginger and very salty foods should also be avoided by the sick.

In preparing foods for the sick, the aim should be to prepare clean foods that can be made appetizing, and that are easily digested.

The patient, if seriously ill, should have a room by himself. This room should be well lighted. It should have

two or more windows. In some diseases such as cholera, diphtheria and scarlet fever, the patient should be kept in a house that is not inhabited by other people, because these diseases are so very communicable that they would be contracted by those who lived in the house with the patient.

### How to Take the Temperature

One cannot always tell by feeling the skin whether a person has fever or not. To ascertain whether a person has fever or not, it is necessary to use the fever thermometer. The thermometer has marks and figures running 90 degrees to 110 degrees Fahrenheit. An arrow marks  $98\frac{1}{2}$  degrees; this is the temperature of a person who is not sick. If the mercury in the thermometer goes to 100 degrees or above, the patient has fever; 103 degrees is a moderate fever; 104 degrees or 105 degrees is a high fever.

To use the thermometer, firmly grasp the upper end of it, with the end containing the mercury downward, and jerk it quickly several times as though you were snapping a whip. This must be done in order to shake the mercury down into the lower end of the thermometer. Then place the end of the thermometer containing the mercury under



the patient's tongue. Tell the patient not to close the teeth but to close the lips tightly and to breathe through the nose. The thermometer must be left under the tongue for three or four minutes.

The armpit may first be wiped dry and the thermometer placed there. The arm should be held down close against the chest.

In the case of children, in order to avoid breaking the thermometer, it may be inserted into the bowel for a couple of inches or laid in the groin.

Before and after using the thermometer it should be washed with soap and water (do not use hot water). After

being washed with soap and water, it should be washed with alcohol or with a solution of Lysol made by adding a small spoonful of Lysol to a glassful of water.

### The Pulse

The rate of pulse at different ages is as follows:

At birth	130-150	a minute
At 1 to 2 years	110-120	" "
At 2 to 4 years	90-110	" "
At 6 to 10 years	90-100	" "
At 10 to 14 years	80-90	" "
Adults	72	" "

To count the pulse, place the tips of three fingers on the front of the wrist an inch from the outer edge of the wrist and an inch above the base of the thumb.

### The Breathing

The rate of breathing at different ages is as follows:

At birth	40	a minute
At 2 years	28	" "
At 4 years	25	" "
At 10 years	20	" "
Adults	16	to 18 a minute

To count the breathing, take your watch in one hand, lay the other hand on the patient's chest, and count each time the chest expands.

### Bathing

Many people think that when a person is sick he should not be bathed. This is a serious mistake for there is greater need of frequent bathing for the sick than there is of frequent bathing for those who are not sick. By bathing one part of the body at a time and drying that part as soon as it is bathed, there is no danger of the patient's catching cold. In many kinds of sickness, bathing is as valuable as medicine.

### Disinfecting

In the chapter on Common Infectious Diseases, mention has been made of the proper method of disinfecting the bowel discharges.

Burning or boiling is the most effective way of disinfecting. Pieces of paper or cloths that have been soiled by the sick should be burned.

Almost all articles of clothing or bedding can be boiled without injury. This should always be done before the garments or articles of bedding are used by others.

Bowel discharges and urine can be placed in oil tins, and covered and boiled before being thrown out; or the discharge may be mixed with shavings or straw and burned.

Sunlight will kill germs if the germs are in the sunlight long enough. For this reason the patient's room should be well lighted, and the clothing and bedding of the sick should frequently be hung out in the bright sunlight and sunned for several hours.

Formaldehyde (Formalin) is an excellent disinfectant for a house that can be closed tightly. To disinfect clothing or other articles that cannot be washed or boiled, put the articles in a box that can be tightly closed. Put in a layer of clothing and sprinkle on a small spoonful of formalin, then put in some more clothing and add another small spoonful of formalin. Then close the box tightly and keep it closed for twenty-four hours.

Bichloride of mercury is one of the most widely used disinfectants. It is very poisonous, and for this reason it cannot be sold promiscuously. It is usually put up in tablets (pills). Two of these tablets in a quart of water (two glassfuls) make a solution in which there is one part of bichloride of mercury to a thousand parts of water. This can be used for washing the hands after handling the sick. When towels or handkerchiefs, etc., are soiled by the sick, they may be soaked in this for half an hour and then washed.

Carbolic acid in a solution containing two to five parts of carbolic acid to 100 parts of water is also a commonly used disinfectant.

Lysol is an excellent disinfectant when used in a solution containing one part in 100 parts of water (1 small teaspoonful of Lysol to a glassful of water).

Lime is a useful disinfectant. It may be scattered on the ground under and about the house. It may be used to cover bowel discharges which have been thrown into a pit.

Sulphate of copper may be used as a disinfectant. It should be used in the proportion of about one teaspoonful to four glassfuls of water.

To disinfect a house where a sick person with an infectious disease has lain, the best method is to scrub the floors and walls and furniture with soap and water, and if carbolic or bichloride of mercury can be secured, make a solution as just described, and wash floors, etc., with one of them.

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## *Chapter Twenty-one*

# Children's Diseases

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### Diarrhoea

HERE are several diseases in which diarrhoea is the most prominent symptom, such as the ordinary diarrhoea, acute indigestion, and cholera infantum. But since the cause and treatment of all are very similar, they will be discussed together in this chapter.

Some form of diarrhoea causes the death, yearly, of tens of thousands of infants. Diarrhoea is caused by germs. The digestive organs of a small child are so feeble that they are unable to destroy these germs. It is evident to all that it would take a much smaller dose of a poison to kill a baby than to kill a grown man. Since this is true, eating a small amount of unclean, or spoiled, indigestible food, that might cause only a slight diarrhoea in an adult, will produce a very serious diarrhoea in an infant, and may even kill it. Many people fail to appreciate this fact, and so they carelessly give to very small children every kind of food, thinking that the child can eat any food that the adult eats.

Another reason why diarrhoea is so common in small children, is that they are fed mainly on milk or some kind of gruel in which disease-producing germs grow very rapidly.

A third reason that accounts for the commonness of diarrhoea among small children, is that children are easily chilled, and a chill almost always results in the child's

having diarrhoea. A small child is easily chilled, even in the hottest weather, and for this reason should always have on at night some kind of garment that covers the abdomen.

In diarrhoea the food does not digest, but passes down through the alimentary canal without any of it entering the blood to give strength and heat to build up the body. Moreover, in diarrhoea the child not only does not derive any sustenance from the food it eats, but in addition loses a lot of fluid from its body. This is what causes the faeces in diarrhoea to be so thin and watery.

In view of these facts, the diarrhoea of small children should not be looked upon as unimportant, but prompt measures should be taken in every case of loose, watery bowel movements.

### Prevention of Diarrhoeas

A knowledge of the reasons why diarrhoeas are so common in small children, should enable intelligent parents to prevent them.



The right way.

The wrong way.

### **Unclean Surroundings**

In the first place, the child must not be allowed to lie, sit or crawl about on the dirty floor or in the street. Floors, especially earth or brick floors, are very filthy. They are covered with the filthiest kind of dust and dirt that has been brought in on the shoes from the street and from the latrines. If any animals have been in the house, these have added to the filth on the floor.

Children reared in a dirty house will be more likely to have frequent attacks of diarrhoea. The house should be kept clean by sweeping the floor—sweep the corners and under the furniture. If it is an earth or brick floor, scatter powdered lime along the edges of the walls and under the furniture. Do not allow chickens or other animals in the house. Never allow the children to urinate or defecate on the floor. If the floor is up off the ground, then the ground beneath the floor should be kept clean; wash-water and slops should not be thrown under the floor. The courtyard should be kept clean by frequent sweeping. Dung heaps, piles of garbage and foul water-drains in the courtyard—all these serve as breeding-places for millions of disease-producing germs. The small children who crawl and run about in the courtyard, get all manner of disease germs in the body.

### **Flies Spread Diarrhoea**

Flies kill babies. They do it by carrying filth from the dung-heap, and garbage-pile, and every kind of filthy place, to the food that the child eats. When food has been prepared for a child, it should be protected from flies; for when a fly alights on the nipple of a baby's feeding-bottle or on the food the baby is to eat, it leaves there filth and poisonous disease germs. The child swallows these, and as a result may quickly develop a severe diarrhoea. Further instruction about flies and how to destroy them is given in Chapter 15.

### **Unclean Milk and Dirty Feeding Bottles**

The necessity of heating milk in order to kill the disease germs has been mentioned in Chapter 19. If the

child's food is made clean by boiling, and then kept in a covered utensil, and if the feeding-bottle and nipple are kept clean by frequent boiling, a large amount of diarrhoea and other diseases will be avoided.

### Improper Food and Irregular Feeding

To give a child sweets, confectionery or cakes may stop it from crying for a few minutes; but the pain and diarrhoea that these articles are almost sure to cause will later lead to many hours of crying, and will often result in killing the child. Flies like sweets and confectionery, and they alight and eat, and leave on these sweets the filth out of their bodies and also the filth that was clinging to their feet and legs. Sweets, confectionery and all such articles are made filthy and dangerous to health not only by the flies, but by the dust from the street and from the filthy hands of the vendor. The only safe rule is that everything of this nature bought from the vendors must be carefully washed before it is given to the child. Such articles are doubly harmful when they are given to the child at irregular times. Every child should be fed at fixed times, and should not be allowed to eat between the times of its regular meals.

Serious diarrhoea of a nursing infant may be caused by some sickness of the mother, or by the mother's having taken some medicine or some kind of food or drink that makes a change in the quality of her milk. In any case of diarrhoea in a breast-fed child, it will be necessary, in order to treat the child successfully, to find out if the mother is sick, or if she has used some kind of medicine or food that could cause the child's diarrhoea.

### Treatment of the Diarrhoeas in Small Children

There are three things that must be done, if diarrhoea is to be successfully treated. These are:

1. Withhold all milk food until the diarrhoea has been checked.
2. Give water freely.
3. Cleanse the alimentary canal.

There are a few other methods of treatment that it may be necessary to use, in addition to the three just named; but the three that have been named are of primary importance.

Give one teaspoonful of castor oil for a very small child and for a child of four or five years give two teaspoonfuls of castor oil.

If the child who is afflicted with diarrhoea, has been taking milk, the use of milk must be stopped for at least one whole day. The stomach and intestines of a child with diarrhoea cannot digest milk. The milk, not being digested, remains in the alimentary canal, and serves as food for the diarrhoea germs, thus leading to the production of more poisons.

In the place of the milk food the child has been taking, give it rice water (see Appendix, prescription No. 25), egg-albumin water, and very ripe mashed banana —2 oz. every 2 hours and no other food until the diarrhoea stops.

Fluids must be given freely, because in diarrhoea every time the bowels move the child loses from its body a large amount of fluid. This fluid comes out of its blood, and so an abundance of boiled water must be given. Rice water can be given part of the time instead of plain water.

The vomiting and diarrhoea show that the body is trying to get rid of something that is harming the alimentary canal. The decomposed or indigestible food in the child's alimentary canal is causing diarrhoea and vomiting, just as pepper in the eye causes the eye to produce tears and blink rapidly in order to get rid of the pepper. In order to help clean out the alimentary canal, give every half hour as much boiled water as the child can possibly be induced to swallow. This water passes down through the alimentary canal, and helps in flushing it. A half teaspoonful of salt should be added to each pint of water. Give the child an enema (see Chapter 20) of this same saline solution after each bowel movement. The water for the enema should be hot (105 degrees Fahrenheit). Apply fomentations to the abdomen every three hours. The child must be kept lying quietly in bed. Under no circumstances allow it to get up, for any muscular exertion will aggravate the disease.

After using the above-outlined treatments for a day, it is well to try to check the diarrhoea by giving a warm enema every three or four hours, and a teaspoonful of prescription No. 7 (b), Appendix, every four or five hours. To make the starch solution for a starch enema, first mix a few spoonfuls of starch (either corn starch, wheat starch, or rice starch) with a little cold water, then add a glassful of water and bring to a boil. Then cool. The starch solution should be quite thin. The fomentations should be continued the same as during the first day of the treatment. Less water should be given than was given the first day.

It is necessary to keep some light covering over the abdomen lest the child become chilled and the diarrhoea be aggravated.

Bathe the child's body frequently and keep the bed clean. The child should be covered with a mosquito-net to keep off the flies. Do not allow the other children in the family to use any of the spoons or dishes used by the sick child. All dishes and spoons used by the patient should be boiled after using.

Cremo-suxidine is a medicine which has proven very successful in treating diarrhoea. It should be given as directed by a doctor. In persistent cases milk of bismuth containing paregoric may be necessary to check the diarrhoea.

### Sore Mouth

Sore mouth is common in nursing infants where there is neglect on the part of the mother to keep the nipples or the nursing bottle clean. The mouth should be cleansed before and after feeding, by means of swabbing with a piece of gauze or thin cloth wrapped about the finger and wet with boric acid solution. (Prescription No. 1, Appendix.) In some cases of sore mouth in children a year or over, the best results are secured by cleansing the mouth with a saturated solution of potassium chlorate. In case there are small white ulcers in the mouth, apply burnt alum. (Prescription No. 8, Appendix.) Where there is persistent trouble, it is advisable to consult a competent physician.

### Colic

Attacks of colic come on suddenly with loud crying, which waxes and wanes as the pains increase and decrease. The stomach and bowels are full of gas, and so the abdomen is tense and hard. The thighs are drawn up over the abdomen during the attacks. Colic usually occurs in artificially-fed babies, and may be caused by too frequent feeding or the feeding of food which is too sweet or is not of the proper quality. Feeding small children any food that is not thoroughly cooked will often cause colic.

### Treatment

Colic can often be relieved by giving warm water with a spoon or from a bottle. Make cloths hot, and lay them on the abdomen. If this does not relieve the colic, then give the child an enema of one pint of water at a temperature of 105 degrees Fahrenheit, to which one teaspoonful of salt and two spoonfuls (1 oz.) of glycerine have been added. The enema may not clean out the upper portion of the bowels; therefore a dose of castor oil should be given in addition to the enema. If the colic recurs frequently a tea-spoonful of prescription No. 7 (b), Appendix, should be given twice a day for two or three days.

Since improper or unclean food probably caused the colic, it is only by giving attention to feeding clean, good food, that further attacks can be avoided.

### Convulsions

There are many conditions that may cause convulsions in a small child, such as improper or indigestible food, rickets, intestinal parasites (worms), malaria, and cholera. When an attack of convulsions comes on, there is usually twitching of the muscles of the face and hands, sudden paleness of the face; the eyes are fixed and turned upward, the head is thrown back, the hands are clenched, and the legs are drawn up spasmodically.

### Treatment

Prepare a hot bath (temperature 105 degrees Fahrenheit) as quickly as possible. Place the baby in the hot bath,

and apply to the head a cloth wrung out of cold water. Since the convulsions are usually caused by some decomposed or indigestible food in the bowels, it is always well, after the child has been in the hot bath a few minutes, to give it a warm enema, and a teaspoonful or more of castor oil. Greater care must be taken in the preparation of the food given the child; for the convulsions are in most cases due to spoiled or indigestible food. It may be necessary to stop the use of cow's or goat's milk, and to buy evaporated milk or some kind of prepared food. It will also be necessary to give close attention to the condition of the bowels; for constipation must be avoided.

### Rickets

This is a bone disease that is usually seen in artificially-fed children. It usually comes on when the child is from six to fifteen months old. The "soft spots" (fontanelles) do not close up when they should. The bones of the legs become crooked. The abdomen is usually enlarged. The child is weak and undersized. It is often due to a lack of exposure to sunlight.

### Treatment

Since the disease is due to not receiving the right kind of food—food which contains the material that the body requires to build bones—the first thing to do is to give better milk. Give some fruit-juice several times daily. For children a year old or over, give eggs and fruit-juices, in addition to milk. By way of medication, these children should be given 15 to 30 drops of Halibut Liver oil or a teaspoonful of Shark Liver oil daily. This may be given in the milk, well shaken up, or by teaspoon. Cod Liver oil may be given up to  $1\frac{1}{2}$  teaspoonsfuls twice daily.

### Coughs and Colds

The majority of small children are troubled a great deal with coughs and colds. Coughing may be due to many things, so it is foolish to think that any one medicine can cure every kind of cough. Most of the medicines advertised in the newspapers to cure coughs, contain opium or mor-

phine. They are very dangerous, and should never be given to a child. The proper treatment of a cough is to remove the cause. It may be due to adenoids or enlarged tonsils, or a long, soft palate. In such cases, the thing to do is to go to a competent physician and have the adenoids, tonsils, or soft palate treated. The cough may be due to a cold, or it may be due to tuberculosis of the lungs. In every case, the treatment should be aimed at the cause. If the cause cannot be known definitely, the steam inhalation method mentioned in the Appendix (No. 31) may be used with good success.

### Colds and Their Treatment

First empty the bowels by the use of an enema (see Chapter 20) of warm water. In addition to the enema, give also a teaspoonful of castor oil. (The child will take the castor oil more readily if it is given in some orange juice or other fruit juice.) Give the child something hot to drink—either a cup or two of some hot fruit juice, preferably lime juice, or some hot soup. Put the child to bed. He should be in a room where the windows are open to allow



Heating chest pack for bronchial and lung diseases in children.  
Left: The wet compress. Right: The dry covering.

free ventilation. Restrict for a few days the amount of food given. After the child perspires, the body should be sponged off and thoroughly dried. If the cough continues, it will be necessary to use fomentations (see Chapter 20) on the front of the chest for fifteen minutes, twice daily. This should be done in a room free from drafts. It is important that the treatment should be persevered in until the cough is cured. By failure to treat a "cold" energetically, it may pass into a much more serious disease of the lungs. Neglected colds often result in pneumonia, with empyema (pus in the chest cavity), or even in tuberculosis.

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## *Chapter Twenty-two*

# Common Infectious Diseases

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### Diphtheria

**T**HIS is one of the most dangerous diseases that afflict children. It is caused by the diphtheria germ. Diphtheria germs not only make a sore spot where they grow in the throat and nose, but they also make a poison which injures the heart.

Diphtheria is a contagious disease. Children catch it from others who have the disease, or from those who have had it recently and still carry the disease germs in the throat, and spread the germs by coughing and sneezing.

Children may get diphtheria from spoons or cups that have been used by others and have not afterward been washed with boiling water. Toys that have been used by other children, and especially whistles and such articles as children put in their mouths, often serve as agents in spreading this disease.

When a child with diphtheria coughs or sneezes, he throws myriads of diphtheria germs out into the air of the room. For this reason if another child enters the room, he is almost absolutely certain to catch the disease. If there is diphtheria in the community, keep your children away from the homes of those who have the disease. It is better, when diphtheria is prevalent, to keep the children at home, and not allow them to go on the street and play with other children.

### Symptoms

The first symptom of diphtheria usually noticed is sore throat. This appears in from two to seven days after exposure. If there is diphtheria in the neighbourhood, and your child complains of sore throat, do not neglect it, but look in the throat at once. It may be necessary to use a thin, flat piece of wood or bamboo to press the tongue down so that one can see into the throat.

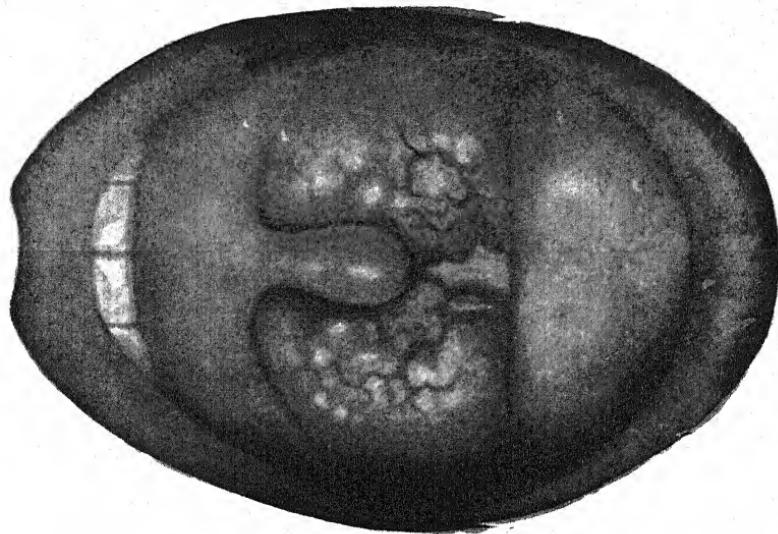
At first the throat may show only a deep red colour, but by the third day a greyish skin will be seen in and about the tonsils. (See accompanying illustration.) The child also has difficulty in swallowing, and there is some fever.

### Treatment

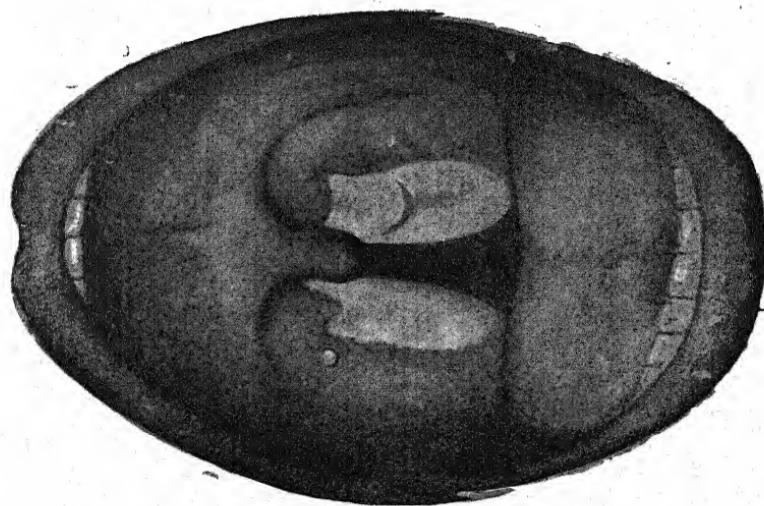
As soon as it is known that the child has diphtheria, a competent physician should quickly be called. Do not delay, thinking that you can cure the disease. There is only one medicine that will cure the disease. It is called diphtheria antitoxin. This is a serum (medicine) secured from the blood of the horse, and this serum opposes the poisonous diphtheria germs. The earlier this medicine is used, the better. If it is used on the first day of the disease, ninety-nine out of one hundred cases will recover. If it is not used before the third or fourth day of the disease, only seventy-five to eighty-five out of one hundred will recover; and if not used at all, over half of the children who contract diphtheria will die.

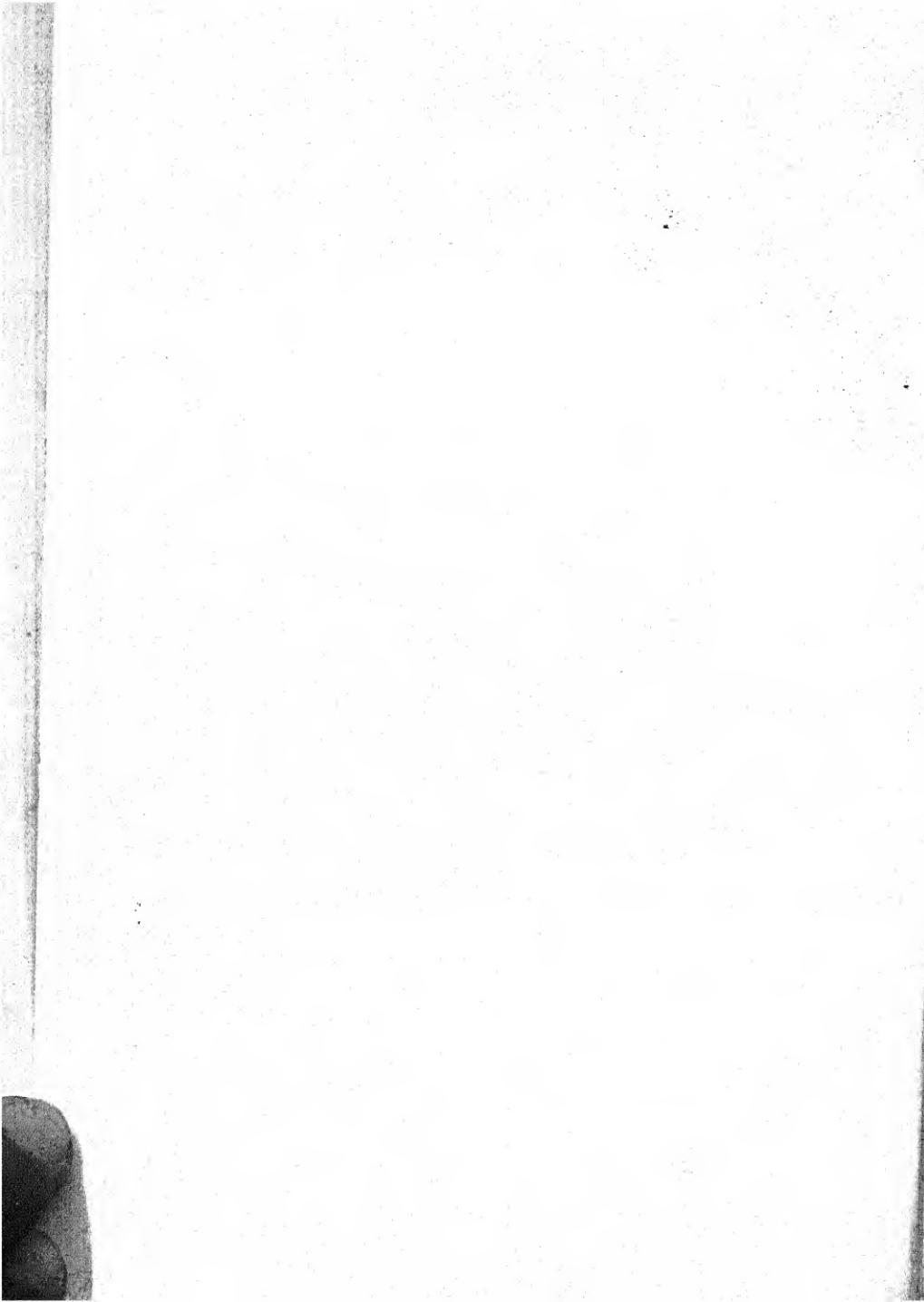
The medicine is a fluid, and must be injected under the skin by means of a hypodermic needle. It can be done properly only by a physician or a skilled nurse. In some places it may not be possible to secure a physician; in that case the parents had better attempt to use the medicine rather than allow the child to die. The hypodermic needle and the antitoxin can be secured from the dispensaries that deal in medicines. The method of using it is as follows: The hypodermic needle must be boiled for a few minutes. Then, having kept the little vial of antitoxin in alcohol for a few minutes, break off the end of the little vial containing

Throat in Tonsillitis.



Throat in Diphtheria.





the antitoxin and draw the antitoxin up into the needle. Wash thoroughly, with soap and hot water, the skin on the outer side of the arm a few inches below the shoulder. After drying the skin, apply some tincture of iodine. Grasp the skin between the fingers, and pull up a fold of skin. Hold the hypodermic needle parallel to the surface of the skin, and insert the needle for an inch in such a way that it only goes through the skin into the space between the skin and the underlying flesh. Inject from 3,000 to 5,000 units of the medicine. If marked improvement is not seen in about twelve hours, another injection of from 3,000 to 5,000 units should be given. In severe cases a third dose may be required.

As soon as it is known that the child has diphtheria, put him in a room by himself, and absolutely forbid other children to enter the room. No one but the two or three who are caring for the child should enter the room. The one who enters the room to nurse the child, should have a long, loose garment to put on over the other clothing to wear while in the room. When going out, remove this garment, and leave it in the room. Always wash the hands and face before leaving the room to go out where you will meet other people or where you will handle anything which others in the family are using. Do not allow any toys or clothing to be taken from the room to be used by others.

The eating utensils used by the sick child should be kept in the sick-room and washed with boiling water each time after using. Feed liquid foods.

The child should blow the nose and expectorate into pieces of paper or old cloth, which should afterwards be burned.

It is necessary to keep the child lying quietly in bed. Do not allow it to get up and move about until you are sure it is well; for moving about may cause sudden death, on account of the heart's having been injured by the poison.

The throat should be swabbed every hour with prescription No. 10 or No. 9 (See Appendix.) Prescription No. 10 should be gently injected into the nose by means

of a small rubber syringe. When treating the child's throat or washing its mouth, the nurse should wear over her own nose and mouth a mask made of several thicknesses of clean cloth.

Fomentations to the sides and front of the throat relieve pain. The child should be given a warm enema once daily. Give the child all the water and fruit juice that it can be induced to take.

As soon as one child in a family contracts diphtheria, all the other members of the family should at once receive injections of antitoxin; for it is found that this medicine which cures diphtheria also prevents one from contracting the disease. Give 500 to 1,000 units for each child and 1,000 to 2,000 units for each adult. If after a month's time diphtheria is still prevalent in the neighbourhood, it will be necessary to repeat the injections.

As soon as the child recovers from diphtheria, the clothing, bedding, and room must be disinfected, in order to prevent others from contracting the disease. (For method see Chapter 20.)

In this enlightened age every baby should be immunized against the dread disease, diphtheria, by injections of diphtheria toxoid. This should be done by a nurse or a doctor before the child is eight months old, preferably at four months.

### Measles

Measles is one of the very common contagious diseases. It is often regarded as a disease of little importance; but every child who has measles should be well cared for lest he has some very serious disease following the attack of measles.

Measles is a disease that spreads very rapidly. If a child comes into a room where another child has measles, or comes near the one who is sick with measles, it will usually come down with the disease in about ten or twelve days. The first symptoms are a cold in the nose, running of the nose, redness of the eyes and some fever. The rash appears on the third or fourth day of the disease. Little red spots like flea-bites appear on the face; the rash spreads,

and in a day or two covers the whole body. The spots on the face grow larger, and fuse, making large blotches.

The serious conditions to be feared following measles are ear disease and disease of the lungs or kidneys. In serious cases the heart also may suffer damage.

### Treatment

There is no medicine that cures measles. The disease will get well of itself after the rash appears, providing the child is well nursed. The child should lie on a clean bed in a clean room. It must be kept warm; for when a child has measles, there is great danger in its becoming chilled. If it becomes chilled, serious lung trouble is liable to result. No other children should be allowed to enter the room, lest they contract the disease also.

In most cases it will not be known what disease the child has until after the rash appears. In that case give the child a couple of teaspoonfuls of castor oil and a hot enema (108 degrees Fahrenheit). The mouth should be rinsed out several times a day with a mouth wash (use prescription No. 9, Appendix). The inside of the nose should be kept clean by spraying it several times daily with salt solution (one teaspoonful of salt to one pint of water). In case there is any pain in the chest and some cough, apply fomentations to the chest twice daily. A physician should be called who will prescribe sulfa drugs or penicillin. These are our best defence against the threatened pneumonia. He will know the appropriate dosage of these medicines which will be determined by the age, size, and condition of the child.

The eyes must be well cared for during measles. The room should be darkened to protect the eyes. Provide boric acid solution (use prescription No. 1, Appendix) and wash the eyes several times a day. (See Chapter 32 for full instruction about caring for the eyes when they become red and inflamed.)

It should be borne in mind that measles is a serious disease, and causes the death of a very large number of children. When it is learned that measles is in a community, parents should try to keep their children from going to

places where they will be exposed to the disease. In every case where one child in a family has measles, keep him in a room by himself in order to prevent other children in the family from contracting the disease.

### Chicken-pox

Chicken-pox is a contagious disease, but as a rule it is not very serious. There is an eruption which first appears on the trunk of the body, the scalp or the wrists. The eruption somewhat resembles smallpox. The treatment consists of giving the child as much water as it will drink, and cleaning out the bowels with a warm enema daily. (See Chapter 20.)

When the eruption has reached the pustular stage, vaseline should be smeared over the pustules (see prescription No. 11, Appendix). Avoid scratching the pustules, lest scars be produced. The eyes should be washed three times a day with prescription No. 1.

### Mumps

Mumps is a disease in which the first symptom usually is pain below the ear. There may be slight fever. The pain below the ear is aggravated by chewing or by swallowing. Slight swelling can be noticed below and in front of one or both ears. The swelling increases, and may become very large. In a few days the swelling begins to go down and usually disappears in about a week.

The treatment consists of being careful that the child shall not become chilled and catch cold. Wash the mouth frequently with prescription No. 10. (See Appendix.) Fomentations over the swelling relieve the pain. The patient should be kept away from others who have not had mumps.

### Smallpox

Smallpox is one of the most dreaded of all infectious diseases. It is one of the most contagious diseases that afflict men. When smallpox is epidemic, not more than one

or two out of every one hundred unvaccinated persons are likely to escape the disease. It attacks old and young, male and female. From of old there is no disease that has been more feared by the people in every land than smallpox, for it is not only very contagious, but when it afflicts the unvaccinated the death rate ranges from twenty-five to fifty-five per cent. In case the one afflicted escapes death, he is almost absolutely certain to be disfigured with pock marks on the face or to be blind in one or both eyes.

Physicians agree with reference to smallpox that it is caused by some micro-organism, but as yet the specific germ has not been discovered. It is known that the discharges from the nose and mouth of a smallpox patient, and the dry crusts and scales that fall from the skin when the patient is recovering, are all very infectious. It is known that although the disease is liable to attack ninety-eight or ninety-nine out of every one hundred unvaccinated persons, yet the persons attacked by smallpox who are not addicted to the use of alcohol or tobacco, and who are clean in their habits, stand a much better chance of recovery than do those who are given to intemperance and dissipation.

### Symptoms

Smallpox does not manifest itself until about twelve days after a person has been exposed to the disease. In the case of children, there may be at the outset a chill followed by headache and severe pain in the back and limbs. The fever may reach 103 degrees Fahrenheit the first day. The eruption usually appears on the fourth day after the onset of the disease, and as a rule appears first on the forehead and on the front surface of the wrists. The eruption is first a dark red papule, but in one or two days it becomes enlarged and filled with a milky fluid, and then in another day or two the milky fluid changes to pus.

### Treatment

There is no certain cure for smallpox. The most important thing is careful nursing. The patient should be kept quiet in bed. The room must not be closed tightly, but

provision must be made for the sick person to get plenty of fresh air. Give large amounts of cool boiled water to drink. When the fever is very high, sponge the patient with cool water. The bowels should be kept open by a daily enema.

The following treatment should be used for the vesicles and pustules: Apply constantly on the face and hands lint soaked in Epsom salt solution, one ounce of salt to a pint of water. When pustules begin to dry, and form crusts, they should be anointed frequently with sulfathiazole ointment. Do not allow the child to scratch open the vesicles or pustules, for in that case deep pock-marks are sure to result.

The care of the eyes is most important. Cleanse the lids every few hours with a bit of lint soaked in a saturated solution of boric acid. (See Appendix, prescription No. 1.) After cleansing and drying the lids, smear a little sulfathiazole ointment on the edges of the lids. Some of the saturated boric acid solution should be dropped into each eye every three hours or oftener.

The mouth and throat should be kept clean by frequently using a mouth wash and gargle. (See Appendix, prescription No. 9.)

### Vaccination

Previous to 1796 there was no method known by which smallpox could be cured; neither was any method known by which the disease could be prevented; but in that year an English physician by the name of Jenner, discovered the method of vaccination as a means of protection against smallpox.

The micro-organism that produces smallpox in man also produces a somewhat similar disease in the cow, called cowpox. The lymph used in vaccinating is obtained from a calf afflicted with cowpox. This lymph is injected into the body of a man, and a vaccination eruption results at the point vaccinated. It is accompanied by some fever through the whole body. Following this the person is protected for a longer or shorter period so that he would not contract

smallpox even though he slept in the same bed with a person who had the disease.

From the time that Jenner discovered vaccination, Western nations began to use the method, with the result that there has been a great decrease in the number of people in Western countries who have died of smallpox during the past 100 years. For example, in 1874 Germany established a law making vaccination and re-vaccination compulsory. This law requires the vaccination of all infants before they are twelve months old, and requires that they be re-vaccinated at the age of twelve. Since that year there has been no epidemic of smallpox in Germany. In one year not more than ten people (this includes infants as well as adults) die of smallpox in all Germany.

In the Philippine Islands, in the section about the capital city, Manila, the officials in the past paid no attention to the matter of vaccination to prevent smallpox, with the result that 6,000 or more people died of smallpox yearly. Later, when compulsory vaccination was put into effect, there was not a single death during the whole of one year in that same section.

It is now known that vaccination with the lymph from cowpox is an absolute preventive against smallpox. It is the duty of every father and mother to have each child (whether male or female) vaccinated before it is a year old, and to have it re-vaccinated before the age of ten.

### **Whooping Cough**

The diet for those suffering from whooping cough should be the "liquid" or "semi-liquid diet." There is no specific cure for whooping cough, and parents should be warned against the too free use of drugs. Narcotic drugs used to relieve the cough may produce drowsiness or unconsciousness. Belladonna may cause delirium; and because it widely dilates the pupils of the eyes, permanent damage to the sight may result from exposure to bright light. The stomach may be upset and other harm follow from the use of quinine. Patent medicines should not be used at all, and medicines prescribed by the physician should

never be given oftener than directed, neither should they be used for other children, unless explicitly directed by the physician.

Much can be done to make the disease less severe. Hygienic means are of great importance. If the weather permits, the child should lead a quiet out-of-door life. Sunshine and fresh air are very beneficial. Much dampness, dust, and wind should be shunned. The bedding should be aired, exposed to the sunlight, and then warmed before the child is put to bed. All excitement should be avoided. The diet should be light but nourishing. An exclusive milk diet is often best for young children, especially when vomiting often.

The inhalation of medicated steam is very helpful. Mix one teaspoonful of oil of eucalyptus and one oz. of compound tincture of benzoin. A teaspoonful of this mixture may be put in a pint of boiling water and the steam inhaled. This may be repeated several times a day, or only at night when the coughing is more violent. (See No. 31, in Appendix.)

Fomentations to the chest and the throat, if carefully given in a warm room, are also an aid in controlling the accompanying bronchitis. There is no objection to camphorated oil being rubbed on the chest after fomentations have been given at bed-time.

Whooping cough is now being successfully treated with chloromycetin and the duration of the disease shortened.

Every child should be immunized against whooping cough by the time he is six months old. The vaccine for this disease is safe to use and is very efficacious.

### Leprosy

Leprosy is a germ disease somewhat similar to tuberculosis. The germs of the disease are found in the sores on the patient's body and in the discharges from the nose.

It is known definitely that leprosy is not contracted through the eating of any particular food, such as fish. Neither is the disease contracted from any of the lower

animals, but it is contracted from some person who already has the disease.

It may be that leprosy can be spread by some kinds of insects such as the louse, bedbug, and fly.

When one member of a family has leprosy, others in the same family often contract the disease. Therefore it is known that close contact favours the spread of the disease. It is a disease that usually is found among people who live in dirty, crowded communities and who neglect to bathe their bodies and to wash their clothing frequently.

### Symptoms

There are two types of leprosy, but both are due to the same germ. The first symptom of leprosy noticed may be attacks of fever, with headache, and pains in various parts of the body; or there may be a feeling of cold or numbness in different parts of the body. Another early symptom is sweating. The sweating may be over the whole body or it may be of but one part of the body, such as the hands or feet or head. Later there is an eruption on the face or limbs, and nodules begin to form in the skin, especially in the skin of the forehead, cheeks, nose, ears, and lips. The hair of the beard, moustache and eyebrows often drops out. Later, the leprosy may cause the eyelids, nose, fingers, toes and other parts of the body to rot and drop off.

In the other kind of leprosy the disease attacks mainly the nerves and causes loss of feeling. But before feeling is lost, there are shooting or burning pains, especially along the sides of the forearm and on the front of the leg. Later, spots are seen on the skin. These spots may at first be red, but in a short time the centre of the spot becomes white and loses all feeling, the hair falls out, and wrinkles and scales appear. In course of time the muscles of the hands and feet become paralyzed. The fingers, toes and portions of other parts of the body may rot away.

### Treatment

Every case of leprosy must be reported to the Health Officers at once. Most governments conduct hospitals for lepers. In these hospitals the very best care and methods

of treatment are used and no charge is made. There is hope of recovery from the disease if the patient goes to a hospital. It is important that leprosy be recognized when it first attacks the patient, for the earlier the treatment is begun the greater hopes there are of checking the disease. Therefore, as soon as a person notices any of the symptoms or signs of leprosy on his body, he should go at once to a good hospital.

### Typhoid or Enteric Fever

Typhoid fever is a disease caused by the typhoid germ. The fever usually lasts for three weeks or more without proper medication, but in some cases may continue only for from seven to ten days. The first symptoms noticed as a rule are malaise, lassitude and headache. There may be general pain all over the body, or a pain limited to the abdominal region. Frequently there is a chill at the outset.

After the onset, the fever usually continues at about 101 degrees Fahrenheit in the morning, and 103 or 104



Source of infection for typhoid fever, cholera, etc.

degrees Fahrenheit, in the evening. The pulse is about eighty or ninety per minute. In many cases the fever subsides somewhat after the first day or two, and the patient, though feeling ill, may continue to go about and not be compelled to go to bed for eight or ten days.

After the first few days of the disease, the fever, as a rule, continues at 103 degrees Fahrenheit. The patient complains of headache; the tongue is coated with a white fur. There is little or no desire for food, and if food is eaten vomiting may occur. The abdomen is usually distended and painful. The bowels may be constipated, or there may be diarrhoea. The patient is drowsy much of the time.

During the second week of the disease, the fever usually continues high. Red spots that look very much like the spot following a flea-bite may appear on the abdomen or chest. The lips and tongue as a rule become covered with dark brown scabs. In one case out of every eight or ten there is bleeding in the intestines, sometimes only sufficient in amount to give the bowels a slightly reddish tinge; at other times the bleeding is so profuse as to cause death. The patient is delirious at times. The bowels are, in the majority of cases, constipated.

During the third week the temperature gradually falls, and returns to normal in about twenty-one days after the onset of the disease. Bleeding of the bowels or perforation due to sloughing of a piece of the bowel, are dangers to be feared during this third week of the disease.

In any case of continued fever, a competent physician should be called; for he is enabled, by examining the patient's blood, to determine for certain whether the disease is typhoid or not. And since every typhoid case should be carefully nursed, and the faeces and urine thoroughly disinfected, it is important that the disease be diagnosed as early as possible.

### Treatment

The latest treatment for typhoid or enteric fever is by the use of chloromycetin. Full instructions for adminis-

tration are given in the folder which comes with the vial of medicine. It should be given under the doctor's orders. This medicine has greatly shortened the duration of this disease.

Good nursing and proper diet are of great value. The patient should be in a well-ventilated room, and should be confined to his bed from the onset.

Most of the food should be liquid. If good fresh milk can be secured, it may form part of the diet. It should be boiled before being given to the patient. Soups with the solid particles strained out, and eggs either jellied or soft-boiled, rice gruel, brown flour gruel, custard, milk toast (it must be thoroughly chewed), baked potatoes, boiled, browned rice—all may be used. (See Chapter 20 for methods of preparing these foods.) Do not allow the patient to eat a large quantity at one time. If there is no nurse to care for the patient continually, keep a jug or pitcher of clean boiled water near the bed so the sick one can drink often and freely. Patients with typhoid should drink an abundance of water, at least six or eight pints daily.

The mouth should be washed, and the teeth and tongue brushed frequently. Use prescription No. 9. (See Appendix.)

Apply fomentations to the abdomen for fifteen or twenty minutes at a time to relieve the abdominal pain, should there be pain.

If there is diarrhoea, use the hot starch enema. (See Chapter 21.) If the bowels are constipated, an enema of warm water every day may be used. (See Chapter 20.)

To reduce the fever, sponge the patient with cool water. Keep sponging the skin for fifteen or twenty minutes, or longer. Dry the skin by fanning it, and not by using a towel. This is a very valuable treatment, for it reduces the fever and revives the patient so that he feels much better in every way. There is no danger of his taking cold because of the sponging. The sponging with cool water may be repeated several times a day if the fever is high. (See Sponging, Chapter 20.)

When the fever is high it may be reduced by using the continuous enema described on page 156, Chapter 20.

A cloth wrung out of the coldest water obtainable should be applied to the head to relieve the patient's headache. The cloth must be re-wet in the water every few minutes.

If any blood is noticed in the stools, no food should be given for ten to twelve hours. If ice can be secured, wrap some broken pieces of ice in a cloth and lay them over the abdomen. The cold will check the bleeding in the bowels.

When the temperature has gone down, and the patient begins to have an appetite, he must not eat coarse meats or vegetables.

In caring for a typhoid fever patient, great care should be taken that the disease shall not spread to others. The fæces, urine and sputum all contain the typhoid germs, and for this reason all three should be disinfected. If bichloride of mercury can be secured, use fifteen grains in a quart of urine or fæces, and allow to stand for an hour or more before emptying. (See Chapter 20 for description of the methods of disinfecting the urine and fæces.) The sputum should be expectorated into pieces of paper and burned.

The patient must have his own dishes, spoons, etc., and these must not be allowed to get mixed with the eating utensils used by other members of the family. They should be kept in the sick room and should be boiled each time after using. Remnants of food left by the sick person should never be eaten by others. Those who nurse the sick should keep out of the kitchen where food is being prepared for others.

Towels and handkerchiefs used by the sick should be boiled.

The nurse must protect herself. A solution of bichloride of mercury of the strength of fifteen grains to a quart of water should be kept in the room, and each time after feeding the patient, or washing him, the nurse should wash her hands in this bichloride of mercury solution.

When the patient recovers, the mat on the bed should be burned and the clothing and bed clothing should be boiled thoroughly. The room should be well white-washed, and the floor scrubbed with the bichloride of mercury.

fifteen grains to a quart of water. (See also Chapter 20 for other advice concerning the cleaning of the room, etc.)

During the disease, and for a couple of weeks after recovery, it is well to give ten grains of urotropin daily to destroy the germs that are in the urine.

### Prevention of Typhoid Fever

Typhoid fever is a disease that can be avoided by all who will be careful about what enters the mouth. The germs enter only through the mouth, and are usually in the water or the food. Most faecal matter is thrown where some of it ultimately gets into wells, streams, or ponds. For this reason use only boiled water for drinking and for washing the mouth, or washing foods that are to be eaten uncooked. Typhoid fever is often carried in milk, and for this reason all milk should be boiled or pasteurized before being used.

The land where vegetables are grown is sometimes fertilized with human faecal matter. The disease germs in this faeces become attached to the leaves and roots of the vegetables, and for this reason vegetables from such places should be cooked before being eaten. Fruits are gathered by those whose hands are filthy. The fruit after being gathered is often stored in very filthy places. For this reason fruit from the open market should be carefully washed before being eaten.

Flies spread typhoid. They act such an important part in the spread of this disease that the name "typhoid fly" is often applied to the common fly. Keep flies out of the kitchen by the use of netting over the windows and doors. Keep cooked food in a cupboard where flies cannot enter. When the food is set on the table to eat, spread a net over it to keep the flies off.

Never use any dish, cup, spoon, towel or handkerchief that has been used by a typhoid fever patient, without first boiling it for several minutes. Never eat any food that has been in a room where someone is sick with typhoid fever.

During recent years a new method for preventing typhoid fever has been discovered. It is very similar to the method for preventing smallpox by vaccination. The vac-

cine against typhoid is injected into the body with a hypodermic syringe, and one who has received injections of the typhoid vaccine is immune for two or three years. One can keep up his immunity to typhoid by first taking the initial three injections of the vaccine and then taking a single injection each year. This is a very safe procedure to follow. This method is one that should by all means be used by those who live in places where there is much typhoid fever, and by those who travel much and are thus unable to exercise the necessary care about their food and drink.

An important factor in avoiding typhoid is the natural resistance of the body against disease. The use of alcohol, tobacco, betel nut or opium—in fact, dissipation in any form—weakens the body and paves the way for the typhoid germ to easily gain a foothold. If one has indigestion or diarrhoea, the alimentary canal is in a condition that renders him liable to contract typhoid much easier than an individual whose alimentary canal is in good condition.

### Cholera

Great epidemics of cholera have swept over almost every country on the globe; and, as a rule, five out of every ten who contract the disease, die. The disease is always present in most of the large Asiatic cities; and all should understand how the disease is spread, in order that they may be enabled the better to avoid it. And since cholera is not necessarily fatal, all should know the most effective treatment.

The cause of the disease is the cholera germ. The germ gets into the body through the mouth along with the food or drink; or it may get into the mouth through the fingers or something else being put in the mouth. After the germs enter the body, they usually cause the disease in one or two days' time, and, at the outside, in less than five days. The disease may come on in a few hours' time after eating or drinking something that contains a large number of cholera germs.

### Symptoms

The symptoms in a typical case of cholera are as follows: In about 12 to 18 hours after having eaten or drunk something that contained cholera germs, there will be pain in the abdomen. In a very short time diarrhoea begins and rapidly increases in severity until thin rice-water stools run from the bowels almost continuously.

In some cases the disease begins with chilliness, thirst, coated tongue, slight pain in the abdomen, and during the day three or four copious, watery stools. The patient feels very weak. The following day the bowel discharges rapidly increase in number. The discharges consist of a whitish rice-water-like fluid. They are voided forcibly. There is also forcible vomiting. The vomited material consists at first of the food that may have been eaten, but later the matter vomited up looks very much like the bowel discharges. The thirst becomes intense, and there is severe pain in the legs, arms, back and other parts of the body.

As the disease increases in severity, the appearance of the patient becomes alarming. The eyes are shrunken and surrounded by black rings; the nose is pinched and pointed; the cheeks hollow; the lips blue; the surface of the body cold, and moist with sticky perspiration; the skin of the hands and fingers has the appearance of the skin of the hands of a laundry man who has had his hands in hot soapy water all day; the voice is weak; the breath is cold; there is very little urine passed.

Cholera does not always come on in the ways described above. Sometimes the patient will have an ordinary diarrhoea for some time, and this later changes to cholera.

There are cases of cholera in which the patient does not go to bed. He has diarrhoea, weakness and passes very little urine. These cases of cholera serve to spread the disease widely, since the sick persons can go about and mingle with well people.

In epidemics of cholera, the disease may be so severe that people attacked complain of terrible cramps in the legs or arms, and die in a very few hours without any diarrhoea.

After the severe symptoms of the disease have abated, there is still great danger of the patient's dying from failure of the kidneys to eliminate urine.

### Diagnosis

During an epidemic of cholera, any diarrhoea may be the beginning of cholera, and should be treated as though it were cholera. The profuse rice-water-like stools, the collapse, the cold clammy skin, the shrunken features, the shrivelled fingers and toes, the cramps, the scanty urine, are all distinctive of cholera.

### Cholera in Children

Cholera in children is often overlooked, because the symptoms are often unlike the symptoms of cholera in the adult. In many cases a child with cholera will have the symptoms of diarrhoea or dysentery. Many children with cholera have marked convulsions along with a slight diarrhoea. Whenever cholera is present in a community, if a child sickens and has diarrhoea, cramps in the stomach, or convulsions, he should be treated the same as you would treat a case of cholera.

### Treatment

The treatment should be begun as early as possible. As soon as the disease is diagnosed, report to the nearest Health Officer, and secure, if possible, a competent physician to care for the patient.

The patient should be placed in bed as soon as there are cramps or diarrhoea. Provide a bed-pan and urinal, so the patient will not have to get out of bed. Give large quantities of cold, boiled water, to which has been added the juice of limes or lemons. Give no food other than rice-water and egg-albumin-water. (See Chapter 20.) If vomiting occurs, withhold food for a time, and give water freely. Fomentations to the abdomen are helpful.

Recently a very effective treatment for cholera has been discovered. It consists of injecting salt solution into the veins. One hundred and twenty grains of pure salt

are added to one pint of pure boiled water. This is sterilized by boiling and when cooled, is injected into a vein in the leg or arm. This is the best treatment known for cholera. The injections as a rule have to be repeated several times. This is a treatment that only a physician or a skilled nurse can give.

If neither a physician nor a skilled nurse can be secured, then give the following treatment:

Keep the patient warm. It may be necessary to place next to his body, bottles filled with hot water wrapped in cloths. Every three hours give a hot (105 degrees Fahrenheit) saline enema of two quarts of water. Use eight tea-spoonfuls of salt in the water. Three times a day give a hot (105 degrees Fahrenheit) tannic acid enema. This is made by adding seventy-five grains of tannic acid to a pint of water. This helps to check the diarrhoea.

A treatment that has recently been used much, and is very efficacious, is to give, in addition to the saline enemas, potassium permanganate. The patient should be urged to drink, in the place of water, potassium permanganate solution, made by adding five or six grains of potassium permanganate to each pint of water. Two or three ounces of this solution should be drunk at one time. In addition to this, every half hour give a pill containing two grains of potassium permanganate.

As soon as the diarrhoea is checked somewhat, the patient may be given small quantities of rice gruel. Although the symptoms may be relieved and the patient feel much better, yet the saline enema should be continued. (Do not continue the tannic acid enema after the diarrhoea stops.) Urge the patient to drink large quantities of water, to which the juice of limes is added. A medicine called "Tomb's Mixture" is beneficial in treating cholera.

The patient is not out of danger until he begins to pass urine. For this reason, continue the hot saline enema until the kidneys begin to do their work of eliminating urine. Apply fomentations and massage over the lower part of the back.

Never use any of the ordinary patent diarrhoea or dysentery medicines. Do not use any whisky or any other kind of intoxicating liquor.

### Instructions to the Nurse Caring for a Case of Cholera

The first thing to be done in case of cholera is to take the patient to an isolation hospital, if there is one available. In case there is none, the patient should be placed in a room which contains only a bed, a table and a chair. The windows should be kept open; and, if possible, the windows and doors should be covered with mosquito netting to keep out flies.

One person with cholera may infect a whole village or city if the bowel discharges are not carefully disinfected. The bowel discharges should be collected in a vessel, and then should be mixed with an equal amount of 1 to 1,000 bichloride of mercury solution (made by adding seven and a half grains of bichloride of mercury to a pint of water). After adding the disinfectant, allow it to stand for an hour before throwing out. Never throw the fæces into a pond or stream, or near a well.

In case no bichloride of mercury can be secured, a hole may be dug at a distance of a hundred feet or more from any well or stream, and the fæces thrown into this and covered with a layer of lime or ashes. This method can be used only during the dry season. During the wet season, if no disinfectant can be secured, the fæces can be put in a tin vessel and boiled before they are thrown out.

The fæces of a cholera patient are so poisonous (because of the cholera germs) that a droplet no larger than a mustard seed, if it should get on some food or in some drinking water, would be sufficient to cause the one who used that food or water to contract cholera.

Any utensil used by a cholera patient for eating or drinking must not be taken out of the sick room without first being boiled. Everything the cholera patient touches with his lips or hands is poisonous (because there are cholera germs on the lips and hands), and must not be handled by others. The nurse who is taking care of a cholera patient must wash her hands often with 1 to 1,000 bichloride of mercury solution. She should never put her fingers into her mouth. She should not eat any food in the sick-room. And before eating food, the hands should be

washed first with soap and water, and then immersed in the 1 to 1,000 bichloride of mercury solution for several minutes.

After recovery, the room in which the cholera patient was kept, together with all the furniture in the room, should be disinfected, according to the methods outlined in Chapter 20.

### How Individuals Can Avoid Contracting Cholera

It is known that the gastric juice of a healthy individual will destroy cholera germs if there is not too large a quantity of them. Therefore, one of the most important points in avoiding the disease is to keep the stomach and intestines healthy, and to keep the whole body in good health. In an epidemic of cholera, it is always those who use intoxicating liquors, and who dissipate, that get the disease and die first.

There is more danger of getting infected with cholera if one happens to get cholera germs into the stomach when it is empty or when the body is exhausted.

The cholera germs always enter through the mouth; therefore, to absolutely avoid contracting the disease, all that is necessary is to make sure that the food and drink have been boiled, and that flies have not been allowed to get at it after it has been boiled.

The fingers must be kept out of the mouth.

In many cases, the disease is contracted by eating raw fruits or vegetables.

All precautions mentioned in the sections on diarrhoea and typhoid fever should be observed, in order to make sure of avoiding cholera. These may be recapitulated briefly for the guidance of individuals in case of an epidemic of cholera.

Those who travel in areas where cholera is apt to be encountered and those living in a district where cholera breaks out should be immunized against the disease by taking cholera vaccine. This is given by injection and is available in all health centres.

### TEN RULES FOR AVOIDING CHOLERA

1. Be inoculated against the disease.
2. Be absolutely certain that all water used for drinking purposes or for cleaning the teeth and mouth, has been boiled.
3. Eat no foods except those that are cooked and are served steaming hot.
4. Melons, cucumbers, and raw fruits must not be eaten.
5. Anything bought on the streets is dangerous, and must not be eaten unless it first be boiled.
6. Do not touch any articles, such as towel, handkerchief, bed-clothing, bowls or spoons, that have been used by one sick with cholera, unless the articles have been boiled after being taken away from the sick-room.
7. Flies, cockroaches, and ants carry the cholera germs. Food should be kept covered, so that these pests cannot get to it. Special care should be taken that the food, after being cooked, should be kept covered so that no flies can reach it.
8. Wash the hands thoroughly with soap and water before handling food or drink.
9. Avoid, if possible, close contact with those who live in families or communities where cholera is epidemic.
10. When travelling, carry your own drinking cup, washpan, towels, etc., for to use the cups, pans, etc., in the hotels, or on the trains, is dangerous.

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## *Chapter Twenty-three*

# Diseases of the Digestive Tract

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HERE are very few people who at some time or another are not troubled with one or other of the following diseases. While not as serious as typhoid fever or malaria, yet they cause an immense amount of suffering, and prepare the way for numerous other serious diseases.

### Symptoms and Causes of Dyspepsia

The commonest symptoms of dyspepsia are discomfort or pain in the stomach, heartburn, tenderness over the stomach, badly coated tongue, acidity or belching of gas. There may also be headache and vomiting. Sometimes there is a pain in the back between the shoulders. The pain in the stomach is usually temporarily relieved by taking food, only to return later with greater severity. The liver does not act properly, and as a result the stools are usually light-coloured.

The causes of dyspepsia are too numerous to be mentioned in detail. One of the commonest causes is eating too fast. Fast eating means that the food is not well chewed, but is swallowed in large lumps, or masses. The stomach in its efforts to digest these large lumps, produces an undue amount of very acid gastric juice, resulting in heartburn and belching of a sour fluid. Over-eating is a common cause of dyspepsia. To eat too much of even good food will cause indigestion, while eating too much coarse food is the cause of much dyspepsia among the poor classes. The use of improper food, such as food preserved

in salt or sugar, or foods in which there is mixed ginger, pepper, curry, or other hot substances, injures the stomach and unfitst it to perform its work.

The habitual users of intoxicating liquors are all dyspeptics; they have poor appetites, especially for the morning meal. They complain of pain in the stomach and frequently vomit after eating. Tobacco-using injures the stomach almost as much as alcohol, and should be included among the common causes of dyspepsia.

In numerous instances, especially among officials, students, and business men, the cause of dyspepsia is the lack of daily muscular exercise. Man's Creator declared, "In the sweat of thy brow shalt thou eat bread." The health of the body depends upon food and exercise. He who eats and does not exercise is sure to suffer more or less with impaired digestion.

In addition to the causes given above, mention should be made of irregularity in eating, that is, eating between meals and eating heartily at a late hour at night, both of which will sooner or later lead to indigestion. For further details as to the foods that are best and those that harm the body see Chapter 13.

#### Treatment

To cure any case of dyspepsia it will be necessary first to find the cause and remove it. It will be necessary to stop the use of tobacco and intoxicating liquor of all kinds. A sick stomach cannot do as much work as a healthy one; for this reason it will be necessary to reduce the amount of food taken. Only such foods should be eaten as digest easily. The following is a list of easily digested foods: twice-toasted wheat bread, well-cooked, "congee," steamed brown rice, either soft-boiled, poached, or jellied eggs, and peaches, pears and guavas, eaten either cooked or uncooked.

It is well to abstain from the use of sweetmeats. Fried foods should be avoided.

If the dyspepsia is acute, it is well to take a dose of a cathartic and abstain from food for twenty-four hours.

Fasting is a great help in the cure of any dyspeptic condition, for it gives the digestive organs a chance to rest.

In cases where there is heartburn and the belching of sour fluid, it will be necessary to eat very sparingly of starchy foods, and to eat fats and oils instead, to take the place of the starch. If the heartburn and belching of sour fluid is distressing, take 10 to 20 grains of prescription No. 12 (Appendix). Drinking a small amount of very hot water in the morning upon rising, and again at night just before retiring, will help to heal the diseased condition in the stomach. In addition to this, fomentations for twenty minutes, two or three times a day, when there is pain over the stomach, will also be found to be a valuable treatment.

In all forms of dyspepsia the importance of eating slowly and chewing each mouthful thoroughly cannot be over-emphasized. In order that the digestive organs may do their work well, it is necessary to take daily muscular exercise. The skin should be kept clean by frequent bathing.

The constipation that usually accompanies dyspepsia can be treated according to the instructions in the following section. The treatment outlined above will not cure every case of dyspepsia. It will be necessary at times for the patient to find out what kind of food disagrees with him, and to avoid those foods.

### Constipation

There should be one or more movements of the bowels daily. When the bowels move but once in two or three days, this is a condition designated as constipation. Constipation is present also in the case of those who are obliged to use a cathartic daily in order to cause a movement of the bowels. Other symptoms of constipation are a heavily-coated tongue, foul breath, occasional headaches, especially in the top and back part of the head, and at times a feeling of discomfort in the abdomen.

The causes of constipation are sedentary habits, lack of bulky food, and the use of tea, coffee, tobacco and intoxicating drinks. In some cases there may be abnormal conditions in the abdomen, which cause constipation. The

constant use of cathartics will result in a very severe form of constipation. Another cause of constipation, especially in women, is neglect to evacuate the bowels when the desire is felt. In course of time the presence of faecal matter in the lower end of the bowels fails to lead to the desire to go to stool, and a very obstinate form of constipation results.

### Treatment

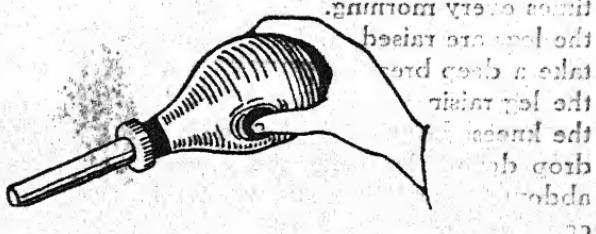
The cure of constipation in most cases consists chiefly in correcting wrong habits. Proper diet and daily muscular exercise will do more to effect a cure than all the widely-advertised medicines. Daily exercise should be taken, either walking, working in the garden, or some other form of muscular exercise. A special form of exercise of great value is to lie down flat on the back, with a small folded blanket or similar article under the small of the back, and raise both legs to the perpendicular. Repeat this twenty or thirty times every morning. Take a deep breath each time before the legs are raised, and each time after the legs are lowered take a deep breath and make a slight pause. Do not repeat the leg raising too rapidly. The legs should not be bent at the knees. Lower the legs slowly and do not allow them to drop down. This exercise strengthens the muscles of the abdomen and in this way aids in curing many cases of constipation.

Drinking slowly a cup of hot or cold water in the morning on rising is helpful in many cases. Most people do not drink enough liquid daily and their constipation may be entirely due to this cause. For this reason all who are troubled with constipation should make it a rule to drink five or six glasses of water daily in addition to the liquids taken with their food at meal time. Fruit juice may be used as a substitute for a portion of the water.

In some cases of constipation the faeces are of a whitish colour. This is evidence that the constipation is due to the liver's failing to do its work. To stimulate the liver apply fomentations over this organ for fifteen or twenty minutes twice a day, and take one quarter grain of ipecac every morning.

It is best not to get into the habit of taking cathartics to relieve constipation; for if one begins using pills it is generally found necessary to continue their daily use. In the use of such cathartics a very injurious habit is formed. In place of medicine take daily chaff from an ounce to an ounce of agar-agar. It may be baked as shortbread in the oven; but it should not be boiled before being eaten.

The enema will serve to clean out the bowels at any time, but it is not best to use the enema daily. A good plan is to use for one or two days an enema of a quart or more of warm water to cause a bowel movement; then on the third day use a small amount of cold water as an enema; and on the following day a still smaller amount of cool water. In this way in the course of a week or two the bowels will move of themselves without its being necessary to inject any water.



A method that has proved to be very efficacious in the treatment of ordinary constipation is to secure a small rubber syringe. (See accompanying illustration.) Use this to inject into the lower end of the bowel a couple of syringefuls of cool water. After injecting the water wait for a few minutes and then go to stool. The small amount of cool water is usually sufficient to stimulate the bowel so that an evacuation results. This method is much easier to use than the enema and is often just as effective.

In the treatment of every case of constipation the patient should understand that it is very important to have a

regular time to go to stool. The best time is in the morning just after breakfast. Every day at this time it is well to go to stool, even though no desire is felt to defecate, for in a short time the bowels will form the habit of evacuating at this time.

In case it is found necessary to use a cathartic, one of the best is cascara sagrada in doses of fifteen drops of the fluid extract, or a couple of the five-grain cascara sagrada pills every morning.

### Hæmorrhoids (Piles)

These are small tumours which form within or just at the mouth of the anus. The tumours are formed by the dilation of the veins of this part. One cause of hæmorrhoids is constipation.

### Treatment

The most important part of the treatment for hæmorrhoids is to cure the constipation. For effecting this the methods mentioned in the preceding section may be used. One suffering with severe hæmorrhoids should be examined by a competent physician, for in such a case it requires the skill of a competent physician to effect a cure.

When the hæmorrhoids are not severe, the following methods will be found effective. Have a regular time to evacuate the bowels, preferably just after breakfast. Secure a small syringe like the one shown in the section on constipation. Inject into the bowel one or two syringefuls of clean, cool water. After injecting the water wait a few minutes and then evacuate the bowels. After having evacuated the bowels inject another syringeful of cool water into the bowel and immediately evacuate it from the bowel. This cleanses the lower end of the bowel of all faecal matter and is a very important part of the treatment. Having evacuated the bowels, use a clean cloth wet in water and wash the parts about the anus. After drying apply a little sulfathiazole ointment. A small amount of this ointment may be applied two or three times a day. It should be applied to the mouth of the anus and also to the bowel inside the anus.

### Diarrhoea

Diarrhoea is not a disease of itself, it is a symptom that occurs in many diseases. If there is cholera in the neighbourhood, the diarrhoea may be the initial symptom of cholera, and should be treated according to the method outlined in Chapter 22. If the diarrhoea continues for several days and the bowel discharges are of a reddish colour and contain mucus, the treatment outlined in this chapter for dysentery should be used.

The ordinary attack of diarrhoea is in the majority of cases due to eating or drinking improper articles of food. That which caused the diarrhoea may have been indigestible, poorly-cooked food, or spoiled food, or unripe fruits, or crabs or dried fish. Flies are responsible for causing an immense amount of diarrhoea. Over-eating of any kind of food, bad drinking-water, worms in the intestines, and chilling of the abdomen, also cause diarrhoea.

### Treatment

The frequent bowel discharges are clear evidence that the bowels are trying to get rid of some offending material in them, and for this reason every help should be rendered, in the way of drinking large quantities of warm water and by the use of the hot (105 degrees Fahrenheit) enema, following each bowel discharge, and by using small doses of castor oil. The water should be sipped slowly. If plain water is not agreeable, thin rice-water, containing a teaspoonful of salt to the pint, may be used instead. The water passes down through the intestines and helps to flush out anything in them that is causing the diarrhoea. Apply fomentations to the abdomen for fifteen minutes every three or four hours to relieve the pain and help cure the disease.

After using the enema and water-drinking for a day, then steps may be taken to check the diarrhoea as follows: Reduce the amount of water drunk and after each bowel discharge give a hot starch enema (See Chapter 21). Give prescription No. 7 (see Appendix) every four hours.

In all forms of diarrhoea it is important that the patient keep quiet. It is best to remain in bed. Any walking or

moving about will aggravate the diarrhoea, just as moving an injured arm or leg increases the pain.

The diet for twenty-four or forty-eight hours must be restricted to such articles as rice-water and egg-albumin-water (Prescription No. 27, Appendix). Not a particle of the ordinary solid foods should be eaten until after the diarrhoea is stopped, and then one should eat very sparingly of solid foods for several days. When the diarrhoea is almost cured, just one mouthful of vegetables or flesh food will often cause a recurrence of the trouble.

All the food and drink, together with all the dishes, spoons, etc., used for a diarrhoea patient, should be kept very clean; they should be washed with boiling water. The patient should always wash the hands before eating. A piece of flannel 12 to 15 inches wide should be worn about the abdomen until the diarrhoea has entirely stopped. This prevents chilling of the abdomen.

### Dysentery

In dysentery there is looseness of the bowels the same as in diarrhoea, but the bowel movements are accompanied with griping and burning in the lower bowel. The bowel passages are frequent and scanty, and contain mucus and blood. Sometimes the disease comes on suddenly with high fever.

A very common form of dysentery throughout all the countries of Asia is that caused by the amoeba. The amoeba is a micro-organism that gets into the intestines along with the food and drink. When amœbic dysentery sets in, the bowel movements contain blood and mucus; the abdomen becomes sore; there is a burning pain in the lower end of the intestines when the bowels move. There may be thirty or more bowel movements in a day. The patient feels weak, and there is a marked loss of weight. The disease often becomes chronic; there will be diarrhoea for a while; following this the diarrhoea will stop and the bowels may be constipated for some days, only to be followed later by diarrhoea more severe than the former attacks.

If the amoebic dysentery has continued for a long time, the food will pass through the body unchanged soon after being eaten.

Abscess of the liver often occurs in those who have amoebic dysentery. In case of abscess of the liver, there will be pain at the lower border of the ribs, on the right side, in front. Sometimes there is pain in the back under the right shoulder-blade.

### Treatment

Every case of dysentery is serious, and the services of a competent physician should be secured if possible. The kind of treatment will depend upon the kind of dysentery afflicting the patient. It requires a skilled physician to tell the differences between the various kinds of dysentery.

It is of the utmost importance that the patient be placed at rest in bed. He should use a bed-pan in order to obviate the necessity of getting up every time there is a bowel movement. Rest in bed is a necessary part of the treatment in every case of dysentery. Never take any of the patent medicines advertised in the newspapers. There are very few medicines that may be used in curing this disease. The promiscuous taking of the ordinary diarrhoea medicines will aggravate the disease. Alcohol in any form does harm and should not be used.

### Ordinary Types of Dysentery

The ordinary types of dysentery and bowel complaint respond in the early administration of products such as Cremo-suxidine. The adult dose is 2 tablespoonfuls for the first dose followed by one tablespoonful every three hours until relieved. Children's doses in proportion.

In treatment of amoebic dysentery the diet should be restricted to soft or mild foods. Avoid harsh vegetables, also hot peppers, sauces, and condiments. The diet should be liberal with plenty of good proteins as milk and milk products, soft legumes, well-cooked split peas, lima beans and dahls. Rice may be used as usual with a reasonable

amount of the above-mentioned foods. Specific medication consists of—

Kurchi bismuth tablets, one three times daily, until 100 tablets have been taken. Rest one week and repeat if necessary. Milk or curd should be taken three times daily.

Treatment may be effected by using a combination of quinacrine and carbarsone, with the addition of aureomycin in severe cases.

### The Latest Treatment for Amoebic Dysentery

The first week sulfathaladine is given in tablet form as follows: Six tablets the first dose, followed by three tablets three times per day for one week. These tablets are one-half gram. After this is given for one week, Diodoquin is given, two tablets three times per day for one week. If the cure is not complete the procedure may be repeated after ten days.

All cases of amoebic dysentery should be treated by a competent physician. During the acute stages of the disease, the pain caused by the gripping and burning may be relieved by fomentations to the abdomen or by heating a thin piece of stone and wrapping it in a dry cloth and placing this over the abdomen. A warm starch enema (see Chapter 21) of a pint of thin warm starch, to which 40 or 50 drops of laudanum have been added, will also relieve the pain. An enema of very hot water, to which is added a teaspoonful of salt to each pint of water, is also helpful in cleansing the lower end of the bowel and checking somewhat the straining and the frequent desire to empty the bowels.

### Both Forms of Dysentery

In both forms of dysentery aureomycin may be used. This medicine comes in 250 milligramme capsules. The usual method of administration is two capsules every six hours until the symptoms subside. Then the dose is reduced to one every six hours for two or three days. There is a form of aureomycin for children called "Spersodis." This is put up in a powdered chocolate preparation, fifty milligrammes

per teaspoonful. The dose for children of various ages is contained in the instructions with the medicine.

In all forms of dysentery, proper diet is a matter of the first importance; for when the interior of the bowels is inflamed and diseased as it is in dysentery, ordinary food irritates the bowels and aggravates the dysentery. For one with dysentery to eat the foods he would ordinarily eat, is very much like putting sand into an inflamed eye. The diet should be reduced to the smallest possible amount. If the tongue is coated, small quantities of thin rice-gruel or egg-albumin-water, may be taken. Raw eggs may be eaten, either plain or as an egg-nog. (See Appendix.) It is best to take small quantities of food every two hours rather than to eat larger amounts three times a day. The food should not be very hot or very cold. Sour foods must be avoided. In cases where the tongue is not coated, milk may be taken. It will be necessary to secure milk that is clean and fresh, and even then it should be boiled just before using. As the condition improves, the amount of food may be gradually increased. Be very careful about eating solid food. Vegetables must not be eaten, and most kinds of fruit are not well borne. Any solid food eaten must be chewed very fine before swallowing. One small piece of food, if swallowed without being chewed, may cause a recurrence of the disease in one who has almost recovered. The mouth should be kept clean by washing several times daily with prescription No. 9. (See Appendix.)

### How to Avoid Diarrhoea and Dysentery

Diarrhoea and dysentery can be avoided; in fact, they are much more easily avoided than many other diseases. The disease germs always enter the body through the mouth; therefore, to avoid the disease entirely, it is necessary to use none but clean foods and drinks, and to avoid putting any unclean thing in the mouth.

Those who observe the following rules will avoid diarrhoea and dysentery:

1. A very large percentage of all cases of diarrhoea and dysentery are contracted through the use of unclean

water. The germs are found in abundance in the stools of all who have these diseases. Many latrines are near wells or streams of water. In some cases, careless persons throw faecal matter into a stream or on the ground near a well. Those who drink well water, or water from any stream, without first boiling it, are in great danger of contracting some form of diarrhoea or dysentery. For this reason, boil all water used for drinking, or for cleansing the mouth or teeth.

2. Do not touch drinking water or food with the hands, unless they have just been washed clean.

3. If food is placed on dishes that have not been washed clean or if it should fall to the ground, it may be smeared with germs that cause diarrhoea and dysentery. Therefore every time dishes or dish-cloths are used, scald them with boiling water. Food that drops on the ground should be thrown away unless it can be scalded or the soiled part cut away.

4. Protect all food from flies. Flies eat the bowel discharges of those who have diarrhoea or dysentery. The faecal matter also gets on the feet of flies. These flies crawl over clean food and leave millions of disease-germs on it. (See Chapter 15 concerning how to get rid of flies.)

5. Most food should be cooked. Food after being cooked must be kept covered so that flies cannot reach it. All vegetables bought in the market must be cooked unless it be some vegetable similar to the cucumber, which can be first washed with soap and water and then peeled. All fruit bought in the market must be peeled before eating. If the fruit is washed with soap and then peeled, this will insure the fruit's being clean.

Slices of melon and fruits that are bought in the market are responsible for causing a large amount of diarrhoea and dysentery.

6. If one member of the family has diarrhoea or dysentery, be sure to disinfect the bowel-discharges before throwing them out. The method is described in Chapter 20. None of the other members of the family should use any dish, cup, wash-pan or towel that is used by the sick person.

7. Keep the fingers out of the mouth. The fingers are used to touch many articles that are not clean, and if put in the mouth, diarrhoea germs may in this way gain entrance. Never put pieces of money, or, in fact, any article except clean food and drink, in the mouth.

8. Just as soon as there is any looseness of the bowels, treatment should be begun by keeping quiet, restricting the diet and eating only fluid foods. By beginning early, the disease may be checked before it becomes serious.

**Please Note:** It is advised that when medicine of the sulfa group is prescribed, it is absolutely necessary that there be copious water-drinking during the time when the medicine is being taken, lest there be damage to the kidneys.

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## *Chapter Twenty-four*

# Insect-Borne Diseases

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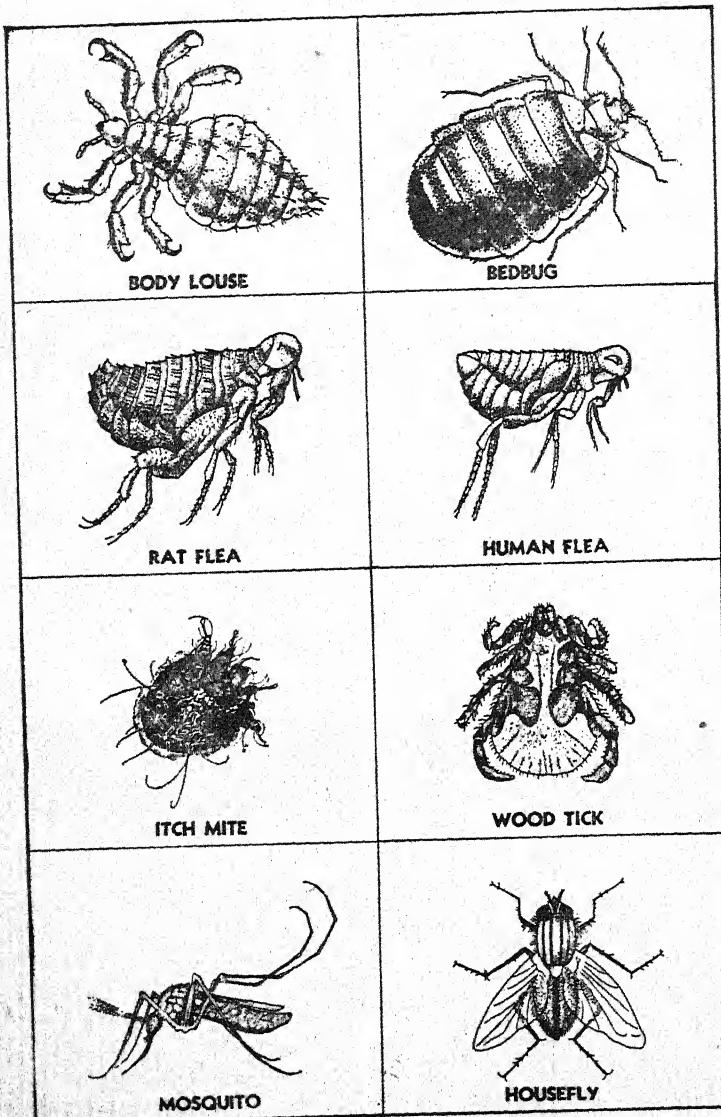
### Typhus Fever

TYPHUS fever is a disease that has received various names, such as prison fever, ship fever, famine fever. These names give one an idea of the nature of the disease; that is, that it is a disease found among those who are poorly nourished and who live in crowded, unsanitary places. The disease often becomes a scourge in famine districts.

It is definitely known that typhus fever is spread by the body-louse and the head-louse. It is possible that it is also spread by other vermin, such as the bedbug. It is possible that it may be spread by the faeces and urine of a typhus fever patient contaminating food and drinking water.

### Symptoms

The disease comes on very suddenly within, not exceeding, twelve days of the time the individual was bitten by a louse which had previously bitten someone sick with typhus. There is first a chill; following this the temperature rises very rapidly, and there may be delirium. The eyes become red and watery. The fever, by the third or fourth day, may reach 104 degrees Fahrenheit, or even as high as 105 or 106 degrees Fahrenheit. Then for the next four or five days the fever will be a little lower than this each morning; but the evening temperature will continue to reach 103 or 104 degrees Fahrenheit. As a general rule, about the fourteenth day of the disease the fever drops suddenly. The abatement of the fever is accompanied by profuse sweating.



Germ-carrying insects which transmit infectious diseases to man.

After the second or third day of the disease, an eruption appears on the body. It is very noticeable about the forearms and shoulders. The spots at first may resemble the eruption of measles. A little later there will be noticed a dark bluish point in the centre of the spots which first appeared.

### Treatment

Medicines cannot cure the disease or cut short its course. The treatment that is outlined in Chapter 22 for typhoid fever will be found to be the very best treatment that can be used in typhus fever. The patient should be put to bed. It is well for the bed to be outside the house, on a verandah or some other place protected from the sun. Give the patient large quantities of boiled water to drink; give also fruit juices. He may eat such foods as rice gruel, eggs, soups, custards, toasted bread and boiled milk.

### How to Avoid the Disease

This disease is seldom found among those who live in clean houses and who wear clean clothing; for such people do not have lice in their clothing or bedding.

In case there is typhus fever in one's neighbourhood, great care must be taken to avoid being bitten by lice. If obliged to go about among those who are sick, one should avoid coming in contact with their clothing, avoid sitting on their beds, and by all means avoid wearing any garment, hat, cap, shoes or stockings that have been worn by one who has the disease.

In caring for the sick, their beds and bed clothing should be kept clean; and it is well to clip their hair short. After a patient recovers, disinfect the bedding and clothing by boiling.

### Dengue Fever

Dengue fever is a disease that is spread by mosquitoes. After having been bitten by mosquitoes which carry the dengue poison, a period of three to six days elapses before the disease develops. The attack is usually sudden. There

is first a feeling of chilliness, followed by severe pain in some part of the body, such as the limbs, back or head. There is always a splitting headache, most severe in the frontal region and back of the eyes. The eyes become red and watery. The temperature rises rapidly from 103 to 105 degrees Fahrenheit. There is no appetite. Nausea and vomiting are not uncommon. In children, convulsions and delirium are common. On the third day the temperature usually falls, accompanied by profuse perspiration, the passage of much urine and sometimes violent diarrhoea. After this the patient feels well for a day or two, then the pains come on again, and the temperature comes up. A rash may appear on the arms, trunk and legs. This second rise of temperature usually lasts but a short time, and then goes down to normal.

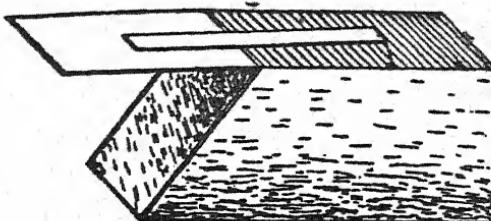
### Treatment

The patient should be kept in bed and protected day and night by a mosquito-net to prevent mosquitoes from biting him and transmitting the disease to others. Restrict the diet to rice gruel, soft-boiled eggs and fruit. At the outset, give a dose of castor oil or Epsom salts. Apply cold cloths or ice to the head to relieve the headache. Give the patient cool, boiled water and fruit juices or lemonade to drink. Apply fomentations to the painful parts.

To prevent the disease, it is only necessary to avoid being bitten by mosquitoes. Use a net on the bed, and always carry a net when travelling.

### Plague

Plague is also known as Black Death or Bubonic Plague. It is a disease caused by the plague germ. This plague germ produces an epizootic in rats, and the disease-producing germ is then spread from rats to man through the agency of fleas. Plague is one of the most deadly diseases that afflict man. When it becomes epidemic in a locality, it sometimes kills the inhabitants by the tens of thousands.



A village rat-trap.

### Symptoms

After the plague germs enter the body, the disease develops very quickly, the usual time being three days. The onset is usually sudden, with a chill, followed by a rapid rise of temperature to 103 or 104 degrees Fahrenheit. There is also headache, pains in the back and limbs, vomiting and diarrhoea. In a few hours' time the eyes become red, and the facial expression is one of fear and anxiety. The temperature may quickly go up to 107 degrees Fahrenheit, and in such a case the patient soon dies.

If the disease is of a less severe type, the fever will generally be about 104 degrees Fahrenheit. Buboes of varying size develop in the groin, axilla (arm pit) or neck. They are very painful. As the disease continues, the patient becomes weaker and weaker, and usually becomes delirious.

Death may occur within a few hours from the onset of the disease. In one form of the disease, known as Black Death, due to blackish spots appearing in the skin, death is almost certain to occur within two days. In another form of the disease called Pneumonic Plague, in which the disease process is most prominent in the lungs, death occurs within two or three days.

### Treatment

The treatment that is of most value for plague is to inject a serum that helps to overcome the poison produced by the plague germs. Also sulfadiazine or sulfathiazole (adult dosage two tablets every four hours) has been used

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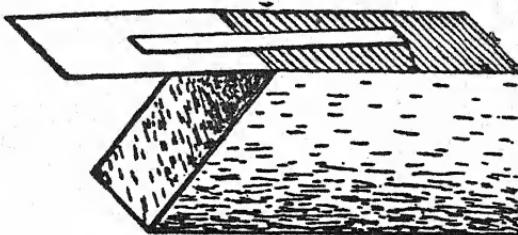
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### Treatment

The treatment that is of most value for plague is to inject a serum that helps to overcome the poison produced by the plague germs. Also sulfadiazine or sulfathiazole (adult dosage two tablets every four hours) has been used

with excellent results. Every case of plague should be immediately reported to the Health Officer. The care of a patient afflicted with plague must be superintended by a competent physician.

The patient must be kept in bed, with the sick-room windows open. Give him liberal amounts of cool water to drink. Use the cool sponging mentioned in Chapter 22 for the fever. Keep cloths, wet in cold water, on the head. Re-wet the cloths frequently. The diet should consist of soups, rice gruel, soft-boiled or jellied eggs (Chapter 20).

### Prevention

The prevention of plague requires, as does cholera, preventive methods controlled by the officials for the good of the public, and also individual preventive methods.

Every effort should be made by the officials, and by all others in a district where plague is epidemic, to destroy all the rats. It has long been known that the rat contracts plague before the human does. When the rat dies, the fleas that have been on its body and have bitten it, leave the dead rat and get on men's bodies. The fleas, by biting the plague rats, get the germs into their bodies; and when they bite a man, the germs get into the man's body and give him the plague.

There is no plague where there are no rats. The destruction of the rats should be entered into systematically by companies of men skilled in rat-killing. Traps, poison, cats and rat-terriers are all effective ways of destroying rats. But the most effective method of all is to keep all foods and grain of every kind in buildings where rats cannot get at them. Rats cannot live without food. In addition to this, walls and floors must be torn out of those houses that are infested with rats and replaced by walls and floors that are rat-proof. The officials, by examining rats caught in different parts of a city, can tell in what parts of a city there is plague, and in what parts there is none.

There is a plague serum that is used as a vaccine. It has been found that those vaccinated with this vaccine are less liable to contract plague than those not vaccinated, and in case those vaccinated are attacked with plague, the death

rate is much lower than in the case of the unvaccinated. In case plague breaks out in a community, all the inhabitants of the community, both old and young, should be inoculated with this serum as a preventive measure.

When plague enters a community, rats begin to die before the disease attacks men. At any time that a dead rat is found in or about the house it should cause the greatest concern. Report the matter to the Health Officer. Keep the dead rat until the Health Officer arrives. Do not pick up the rat with the hands. Before removing the rat scatter carbolic acid over it or pour boiling water on it.

To avoid being bitten by the fleas that carry plague, one must avoid entering the locality where there are plague patients. It is possible to keep a house free from fleas by scattering either kerosene, crude coal oil, Jeyes' fluid, phenyle or cyllim on the floors of the house. Special pains should be taken to scatter the liquid at the base of the walls and in the corners of the room. Powdered alum scattered about on the floor and also D. D. T. powder will keep fleas out of a room.

If it is necessary to go into a house where there are people sick with the plague, it would be well to first be vaccinated with the plague serum; and in addition to that, provide an oil-cloth suit (provided with feet) that will protect the body so that fleas cannot get through to bite the skin.

If the disease is pneumonic plague, it is necessary for the nurse, and all who must be in the building with the sick, to wear over the face a mask made of a thin layer of cotton held between two pieces of gauze.

Pneumonic plague is one of the most contagious diseases known. The germ enters the nose with the air that is breathed, and this is why a mask must be worn over the face.

### Malaria

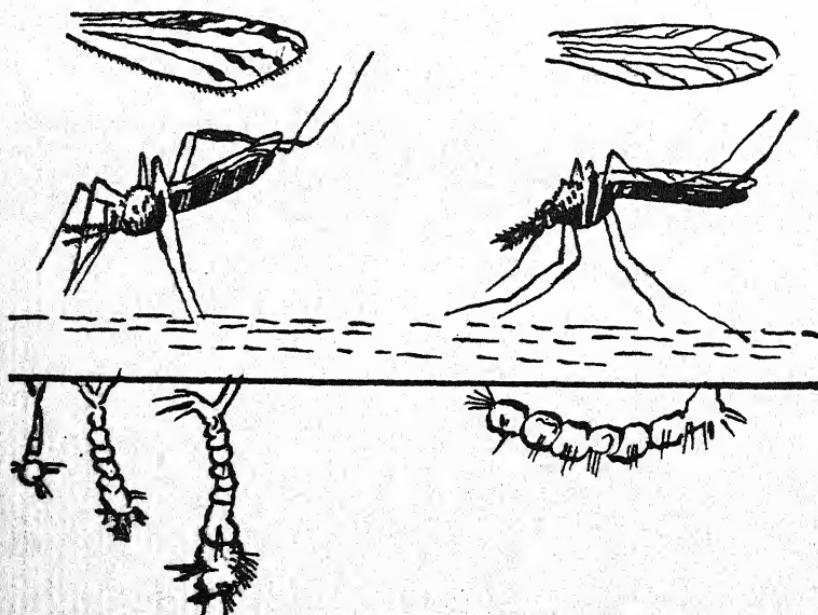
Malaria is one of the very common diseases of India, and yearly causes the death of many thousands of people. Malaria is one of the most easily preventable diseases, because scientists have proved that it can be contracted in

but one way, and that is through being bitten by a mosquito that has previously bitten some person who has malaria.

Malaria is caused by a malaria germ that grows in the patient's blood. When the mosquito bites a man who has malaria, it sucks up into its stomach some of the man's blood. There are malaria germs in this blood, and in the course of some days, when this mosquito bites another man, it injects into his body some of these malaria germs, and this soon results in his having chills and fever.

Not all mosquitoes carry malaria. The kind that has most to do with carrying this disease can be distinguished by the appearance of its body and by its attitude when standing on something. The illustration shows plainly the differences between the malaria-carrying mosquitoes and the common mosquito.

Although the malaria-carrying mosquito is not so common as some other kinds, yet it may be stated that as a



The anopholes or malaria mosquito and larvæ. Wing tracing above. (Left)

The common mosquito and larvæ. Wing tracing above. (Right)

general rule it is always present wherever there are any other kinds of mosquitoes.

### How to Prevent the Spread of Malaria

To prevent the spread of malaria, all that is necessary is to destroy the mosquitoes. The most effective way to do this is to prevent the mosquitoes from breeding. The mosquito can breed only in water. The female lays her eggs on the water in a pond, a rice field, a puddle, a bucket, a jar, an empty tin, an empty coconut shell, or on the water in anything that will contain water. The eggs change into "wrigglers" (larvæ) in two or three days. Everyone is familiar with the shape and movements of the small wrigglers so commonly seen in ponds and puddles. In about two weeks' time the wrigglers change into fully grown mosquitoes.

To prevent the mosquito from breeding, it is necessary to drain the ponds and puddles. Mosquitoes do not breed in water that is flowing. Ditches and drains should be dug deep, and the sides of the ditch should be perpendicular and should be kept free from grass and weeds. In many places, during the rainy season, it will not be possible to drain away all the water, and so prevent water from collecting in the ponds and puddles. If a pond cannot be drained, then put a large number of small fish in it, or keep ducks; for both fish and ducks will eat the "wrigglers," and in this way prevent mosquitoes from multiplying. The surest and most effective way to prevent mosquitoes from breeding in ponds, or in any collection of water, is to spray kerosene on the surface of the water. The oil spreads out on the water and makes a thin layer that prevents the "wrigglers" from getting air, and in this way they are quickly killed. This does not require a large amount of oil. For a large barrel, or similar water container, a large spoonful of kerosene is sufficient. A large glassful of kerosene would be sufficient to spray over a pond 20 feet long and 20 feet wide. If rain falls every day or two, the pond should be sprayed once a week.

Mosquitoes do not fly very far from the place where they breed. For this reason one can avoid having mos-

quitoes in his house by spraying with oil all the ponds and collections of stagnant water within 200 feet of his house. Care must be taken to see that water is not allowed to collect in old tins, water jars or bamboo stumps. If there is a drain along the edge of the roof, it should be cleaned every few weeks so that water will not collect in it.

There is one other method to prevent malaria that should be used by every person, old and young, and that is to sleep under a mosquito net every night. The mosquitoes that spread malaria seldom bite people during the day-time; they usually bite only after sundown. The mosquito net should be of a fine mesh and should be tucked in well to keep out the mosquitoes. This mosquito net should be used every night. When leaving home to travel, the mosquito net should certainly be taken along and used every night. The children's beds should also have mosquito nets.

### Symptoms

The common symptoms of malaria are known to almost everyone; they are chills followed by fever, sweating and headache. As a rule, before the chill the patient may have a feeling of weakness. There may be headache, nausea and vomiting. Sometimes in the case of small children there may be convulsions. Following the chill, the fever goes up to 103 or 104 degrees Fahrenheit. The fever lasts for two or three hours, and then the patient begins to sweat; following this the fever goes down. The attacks may come daily, but they usually come every other day, or at intervals of two days. The attacks may come irregularly, there being only one or two attacks a week or only one or two attacks a month.

There are many kinds of malaria. Some patients with malaria may have symptoms very similar to typhoid; in other patients the most prominent symptom may be intense headache. In children sometimes the only symptom of malaria is diarrhea and wasting.

### Treatment

Infants suffering with malaria may be given one grain of quinine five times a day. Children between one and three

years of age may be given one or two grains five times a day. Children from three to ten years old may be given two or three grains five times a day.

For a child six years old two grains of quinine may be given every day as a means of preventing the disease. But it is not advisable to continue taking quinine daily for a long period of time, because it injures the health.

As there are several kinds of malaria, the treatment is best if planned for the particular variety being dealt with. However, the diagnosis as to variety is possible only with the aid of hospital or laboratory facilities, and the home treatment of the disease should, therefore, be planned to care for all varieties. There are several medications recognized for their effectiveness and others are in process of development. Two of these are quinine and atabrine (quinocrine, mepacrine). For most purposes the atabrine is very effective. In adults one or two tablets (gr. 1½) may be given three times daily for five days, followed by one tablet daily for fifteen days. In treating light or frail people, one tablet three times daily will be adequate. For robust outdoor people, two tablets three times daily will be more effective.

Quinine may be given ten grains morning, noon and night for ten days, followed by five grains morning and evening for twenty days. Children will be treated with dosage in proportion to their size. The following suggestion will be helpful in estimating dosage of quinine. Small children suffering with malaria may be given one grain of quinine five times a day.

Still a third specific remedy for malaria is available. It is sold under the name of Paludrine. Unlike atabrine, it has no staining effect on the skin. Three tablets taken at one time will give immediate relief in most cases of malaria. However, to achieve a complete cure, one tablet should be taken three times a day for ten days. One tablet taken twice a week—Wednesday and Sunday—will protect against malaria infection. Children above ten years of age should be treated as adults; those under ten years should be given less, but in no case less than ¼ (one-fourth) of a tablet should be given.

A fourth specific remedy for malaria is camoquin. Three tablets taken as one dose is usually sufficient to effect a cure in an adult. This medicine is also used for children but in smaller doses. This is the latest treatment for malaria.

### Kala-Azar

Kala-azar is a tropical disease which occurs especially in Assam, Madras and along the Ganges and Brahmaputra rivers. It is probably caused by the bite of a small sandfly (*phlebotomus*) which carries a minute protozoan parasite called *Leishmania donovani*. It is a small ovoid organism showing characteristic markings, when smears are stained and examined under the microscope. These microscopic parasites fill the cells of the body, especially the bone marrow, liver, spleen and blood vessels.

The disease may come on suddenly or gradually. With sudden onset there is usually high fever, preceded in some cases by chill or vomiting. The fever may resemble malignant tertian malaria, lasting two to six weeks. Or the fever may come in waves suggesting undulant fever. The spleen usually enlarges first and after some months also the liver. The patient's condition improves, only to be followed by more fever and swelling of the liver and spleen. Finally, after months of alternating fever and fever-free periods, there is a low grade elevation of body temperature which persists. The patient becomes thin and anaemic, but has a large, distended abdomen. The native name, kala-azar, means "the black disease," so named because in many cases the skin becomes a peculiar grey colour, especially on the feet, hands and abdomen. The hair may fall out, and the patient is apt to have bleeding from gums and nose.

Even though the patient has fever and a large abdomen, and is weak and emaciated, he keeps a good appetite, and clean tongue and may even be working. The disease usually lasts several years, and the white blood cells are greatly reduced, so that the patient is liable to infections such as broncho-pneumonia and ulcers of the mouth. About ninety per cent of the cases die of dysentery.

There is an infantile form that has an insidious onset with fever and gastro-intestinal upset. The child not only has an enlarged spleen, but the lymphatic glands are usually enlarged as well.

There is a cutaneous form called oriental sore, in which the parasites occur in nodules or ugly ulcers of the skin or mucous membranes of exposed parts.

Diagnosis is made by an examination of the blood, bone marrow and tissue, from puncture of liver or spleen or from the ulcers of the cutaneous variety.

Treatment is by means of injections of pentavalent compounds of antimony. For instance, if the preparation "Neestibosan" is being used, ten or more daily injections of twenty-five per cent solution are required, until a total of 2.7 to 4.0 grams are given. Vomiting may be induced by this treatment, so initial doses are reduced to a scale of 0.1 gram the first day, 0.2 gram the second day and 0.3 gram the third day. If the patient develops vomiting, dizziness, delirium, marked changes in temperature, or cramps in the legs, the treatment may have to be suspended. Oriental sore is treated in many different ways, because there is no definite specific. Neestibosan in solution may also be injected in the area of the ulcer to hasten healing. Carbon dioxide snow, X-rays, cautery, excision, injections and ointments are all recommended by various authorities. An ointment of equal parts of methylene blue, vaseline and lanolin, would at least be harmless.

Good hygiene should be emphasized in the care of this disease, and any concurrent disease such as malaria, must be treated. Some iron medication is indicated for the anaemia associated with kala-azar, and vitamin and food intake should, of course, be adequate.

Phlebotomus breed in moist dirt, cracks, crevices, sides of drains, piles of rubbish and all kinds of refuse. So it is important to keep compounds clean and walls in good repair. Dark, moist places should be ventilated and dried. Whitewash and lime help. Smoke in rooms is a repellent, and periodic fumigation of sleeping quarters with sulphur or cresol is advised. Spraying of all possible breeding places with a good kerosene oil emulsion such as Kylpest is recommended. D. D. T. would, no doubt, be helpful.

Plants should not be grown next to buildings or creepers allowed on the walls. Certain animals are reservoirs of the infection and so ducks, chickens, cows, pigs, etc., should not be allowed under or near sleeping quarters. Dogs are known to carry the disease. Houses and places believed to be infected should be avoided and cases segregated 300 yards from those not affected.

In districts regarded as infective, it may be advisable to use a net while sleeping, but to be effective it must be very fine meshed like muslin. A strong current of air as from an electric fan keeps the minute fly away. Upper storeys are best for sleeping quarters. Repellent ointments for application to the skin are useful. One good ointment consists of oleum anisi, eucalypti and terebinth, each 3 minims, and lanolin, 1 ounce.

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## *Chapter Twenty-five*

# Nutritional Diseases

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### Beriberi

UNTIL recently this has been one of the commonest diseases in many parts of Asia. The symptoms vary greatly in different cases. Some who have this disease become partially paralyzed in the legs and arms; there is numbness of the skin, especially of the skin over the shins, the backs of the feet and finger-tips. The patient's legs become thin, and if the calf of the leg is squeezed, the patient cries out with pain. On account of the legs being partly paralyzed, the patient walks with a staggering gait, and gets out of breath very quickly. The heart beats very, very rapidly at times. The voice may be very weak, or sometimes almost entirely lost.

Others afflicted with beriberi have arms, legs, and body greatly swollen. They have great difficulty in breathing. The heart beats very fast. If the muscles in the calf of the leg are squeezed, they will usually cry out with pain. There is no fever in any of these cases. The tongue shows a slick reddish shiny appearance, particularly about the edges.

Beriberi is really an inflammation of many of the nerves throughout the body, and this inflammation causes a partial or complete loss of the use of the muscles controlled by these nerves. The nerves of feeling show the effects of the inflammation by pain in many parts of the body. Some of the nerves which govern the blood ves-

sels show the effects of the inflammation by permitting the vessels to leak. This produces the dropsical swellings in the legs, arms and trunk.

### Causes of Beriberi

Beriberi occurs almost exclusively among those who use white rice as one of the main articles of diet. Chemists have examined the rice and have found that the outside of a grain of rice is not the same as the inside. When the rice is polished, the outer coating is removed. This outer coating is not the hull; it is the reddish-coloured coating that is left on the grain of rice after the hull is removed. In this reddish-coloured coating, there are certain substances known as vitamins, particularly vitamin B, that are essential in order that rice may supply the proper nourishment for the body. If the rice is polished, this outer reddish-coloured layer is rubbed off. This same vitamin that is found in the outer reddish coat of rice is also found in other foods, especially in beans, so that persons who eat beans and vegetables, in addition to the polished rice and fish, do not contract beriberi.

Infants also contract beriberi, and it causes a large percentage of the deaths that occur among children under one year of age. It is true that the infants do not eat white rice, but their mothers do. Since the mother subsists largely upon polished rice, her milk is deficient in vitamin B contained in the outer coating of the rice which is necessary in order to keep the human body in health. For this reason the child that subsists on the milk often develops infantile beriberi.

The symptoms of beriberi in the infant are as follows: The babies afflicted with beriberi are always breast-fed, and the disease usually appears when they are a couple of months old. The baby does not look sick, because its face is plump, and it nurses greedily, and may smile and play as a normal infant should. But it will be noticed that there is blueness about the mouth and nose, restlessness, sleeplessness and loss of voice. In some cases the first symptom that a child shows is sudden crying, which increases in severity until he goes into convulsions,

and dies in a few hours. Infants with beriberi have attacks of dyspnœa (difficult breathing). The child moans and sighs, the face becomes blue, and the breathing and pulse is extremely rapid. There is no fever. If inquiry is made, it will be found that the infant's mother is subsisting almost entirely upon white rice.

### How Beriberi May Be Prevented

From what has been said it is apparent how the disease may be prevented. It is simply to eat the unpolished instead of the polished rice. This terrible disease can be entirely prevented without increasing the cost of living. The unpolished rice is just as appetizing as the polished rice; and had it not become a custom to polish off the outer reddish coating from the rice grain, beriberi would not have become the scourge that it has in the past years.

It is important that all who understand the cause of beriberi should help in educating others as to the danger of using the polished rice. Since the unpolished rice is superior in every way to the white rice, all should use the unpolished rice in order to set an example. It is important that all should understand the importance of making dahl, or other legumes, an important article of diet and not depend so much upon rice and fish.

### Treatment

Treatment of beriberi is largely a matter of proper diet. Correction of the deficiency is the first step in restoration of health. Unpolished rice should be used and to the main staple should be added vegetables, fruits, legumes, dahl and other foods. These may be used as separate dishes or be prepared in curries according to taste.

In addition to dietetic precautions, a liberal amount of vitamin B should be given. This may be given in the form of brewer's yeast tablets, four tablets three times daily, or in the form of one of the standard brands of vitamin B complex.

### Where You Can Find Vitamins

A leading dietitian has prepared the following table, wherein x symbolizes the presence of particular vitamins in ordinary foods, xx being better, and xxx best. Variability is indicated by a v and doubt by a question mark. Note that whereas vitamins A, B and C are rather common, only a few foods contain the important vitamin D.

Foods	A	B	C	D
Apples	---	x	x to xx	xx
Asparagus	---	v	xxx	
Avocado	---	x	xx	x
Bananas	---	xxx	x to xx	xx
Beans (dry or canned)	---	x	xx	
Beans (string)	---	xx	xx	xx
Beets	---		x	x
Bread (white)	---	?	x	
Bread (whole wheat)	---	x	xx	?
Butter	---	xxx		x
Buttermilk	---	x	xx	xv
Cabbage (raw)	---	xx	xxx	xxx
Cabbage (canned)	---			xx
Carrots (raw)	---	xxx	xx	xx
Cheese (milk)	---	xx to xxx		
Cheese (cottage)	---	x		
Cod liver oil	---	xxx		xxx
Corn (white)	---	x	xx	
Corn (yellow)	---	xx	xx	xv
Cream	---	xxx	xx	
Eggs	---	xxx	x	?
Fish	---	xx	x	xx
Grapefruit	---	?	xx	xxx
Lemon juice	---		xx	xxx
Lettuce	---	x to xx	xx	x
Liver	---	xx to xxx	xx	xv
Milk (unpasteurized)	---	xxx	xx	xv
Milk (condensed)	---	xxx	xx	
Mutton	---	x	xx	
Oatmeal	---	x	xx	xxx
Orange juice	---	xx	xx	xx
Peaches (raw)	---	x to xx	xx	xxx
Peas (fresh)	---	xx	xx	xxx
Pineapple (raw or canned)	---	xx	xx	xx
Potatoes (white)	---	x	xx	xx
Potatoes (sweet)	---	xx	xx	xxx
Spinach	---	xxx	xx	xxx
Strawberries	---	x	x	xxx
Tomatoes	---	xx	xx	
Veal	---	x	x?	
Walnuts	---	x	xx	
Wheat (whole)	---	x	xx	x
Yeast	---			xxx

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## *Chapter Twenty-six*

# Animal-Borne Diseases

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HERE are many kinds of parasites that are capable of living in the human body. Some of them do much harm; others do very little harm. In this chapter, only the most common parasites will be considered.

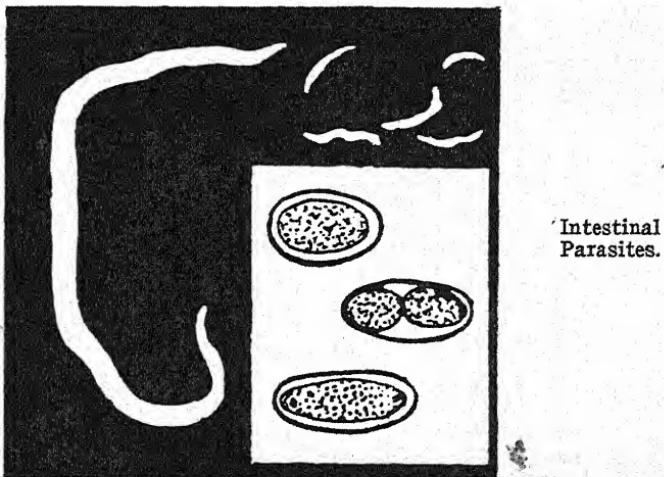
### Round Worms

Round worms have a round body, pointed at each end. They are from four to six inches long. Although they usually remain in the small intestines, yet they may enter the stomach; and sometimes crawl up into the throat. They may even get into the trachea and strangle the child. If a child has only a few worms in the intestine, these may not cause any symptoms. The usual symptoms showing that a child has worms are loss of appetite and occasional nausea. At times the child may complain of pain in the abdomen. Picking at the nose and gritting the teeth are also signs that may indicate that a child has worms. A physician, by examining a portion of the child's fæces with a microscope, can determine definitely whether or not there are round worms in the intestine.

### Treatment

If Hetrazan can be secured it is a safe drug to administer for the destruction of intestinal parasites. Directions for its use are found in the package containing the medicine.

Another method of treatment for a small child, is to give a dose of Epsom salts about noon; in the evening of the same day give a half grain of santonin. The santonin may be mixed with a little sugar to induce the child to take it readily. On the morning of the next day, give another half grain of santonin, and at noon give an additional half grain. About two hours after giving the last dose of



santonin, give another dose of Epsom salts. During the two days that the medicine is being taken, do not allow the child to eat any vegetables, but keep him on a diet of rice gruel and eggs with no butter, ghee or oil of any kind. Unless the diet is restricted, it will be impossible for the santonin to kill all the worms in the intestines.

In areas where children frequently become infected with intestinal worms, it is recommended that every child be checked for worms yearly. For although there is no pain or nausea, yet if there are only two or three worms in the intestine, they interfere with the digestion and absorption of the food, and thus interfere with the growth and health of the child.

Santonin is poisonous, and large doses should not be given to a child. While taking santonin the child's urine

will be yellow in colour, and he may have "yellow vision," but neither the yellow urine nor yellow vision is harmful, for they quickly disappear.

### How to Avoid Round Worms

These worms do not, as some people think, grow naturally in the intestines of children. The eggs of the worms enter the body with the food and drink. Intestinal worms lay large numbers of eggs, which are discharged with the bowel discharges. The eggs of the worms are eventually scattered with the faeces on the ground, in the ponds and streams, and on the garden vegetables.

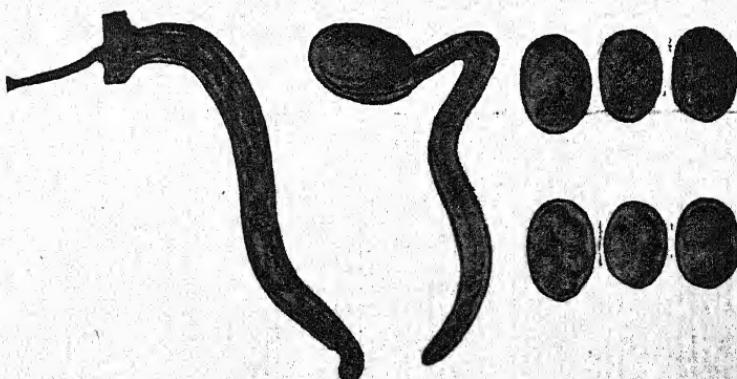
To avoid getting worms, it is necessary that only boiled water be used for drinking purposes. All vegetables bought in the market should be cooked before being eaten. Fruit should be scalded and peeled before it is consumed. Do not allow the children to put the fingers into the mouth; for there may be worm eggs and various disease-producing germs in the dirt on their soiled hands. Almost any one of the numerous articles that a child is prone to put into his mouth may have worm eggs on it.

Certain intestinal worms are found in the intestines of dogs and cats. When the dog or cat licks a child's hands, the worm eggs get on the hands. If the fingers are then put into the mouth, or food is taken into the hands, the worm eggs enter the child's mouth. Dogs and cats should not be allowed in the house, and should by no means be allowed to lick a child's face or hands.

### Hookworm Disease

In many localities nine out of every ten persons are infected with hookworms. It is one of the commonest and most easily prevented diseases known to men. In the past, the inhabitants of certain localities were thought to be lazy and worthless, but later it was found that they were weak and unable to work because of infection with hookworms. As soon as proper measures were applied for curing the disease and preventing the further spread, those who were formerly regarded as lazy and lacking in ambition became industrious, energetic people.

The hookworm is a small, round, white worm, from one-third of an inch to half an inch in length, and about the size of common sewing thread. If common white thread were cut into short pieces about half an inch long, each piece would look very much like a hookworm. These little worms get into the bodies of both children and adults. Sometimes they are few in number, only ten or twenty; but there may be as many as several thousands in the intestines at one time. They attach themselves to the lining of the bowel and suck the blood. They not only suck the blood, but also make wounds from which the blood constantly oozes. The constant loss of blood, together with the poison manufactured by the hookworms, makes the individual weak and pale. The vitality is lowered to such a degree that other diseases, especially tuberculosis, are easily contracted. Children infected with hookworm become pale and puny. Both their physical and their intellectual growth are stunted. Physical growth is stunted to such an extent that a youth of 18 or 20 may be only as large as a 10- or 12-year-old child. If a child is infected with a large number of hookworms, he will be very slow and backward in his studies.



The development of a hookworm from the egg to the fully developed parasite.

### Definite Symptoms of Hookworm Disease

Pallor of the skin, laziness, occasional pain in the region of the stomach, together with mental laziness, and the habit of eating dirt or lime, are some of the commonest symptoms that enable one to tell whether or not a child or an adult has hookworms.

The physician, by examining with a microscope a small piece of the bowel discharge, can tell for a certainty whether or not an individual has hookworms.

"Ground itch," which is an itching of the soles of the feet and between the toes, is a symptom that is manifested at the time when hookworms are passing into the body through the skin of the feet.

### How Hookworm Disease Is Spread; and How It Is Prevented

The hookworms that are in the intestines lay an immense number of eggs; these pass out with the bowel discharges and are scattered wherever the bowel discharges are scattered. The eggs develop, and in about ten days' time there is developed a small worm. These little worms are in the soil wherever the bowel discharges have been scattered. They may be on the vegetables and in the water, but the majority of people who are infected with hookworms become infected through going barefoot. The little hookworms that are in the soil get on the feet, also possibly on the hands, and the bare skin of the buttocks, and bore through the skin. After getting through the skin, they pass along until finally they reach the intestine, where they bite the inner lining of the intestine, and suck out blood.

The essential thing to be done, in preventing the disease, is to avoid polluting the soil with human bowel discharges. This requires the building and use of proper latrines. If all those who are infected with hookworms would only be careful not to defecate on the ground, but always to use latrines, the disease would soon be entirely stamped out. But as long as people defecate on the ground or in latrines where the faecal matter can be spread by rain, hogs, and chickens, or carried by flies to the houses, hookworm disease will continue to be a scourge.

The latrine should be provided with buckets that can be kept covered. These buckets should be emptied daily. The contents should not be spread on the surface of gardens, but should be buried under the soil. If it is not possible to build a latrine and have it screened so that flies cannot enter, the next best thing is to dig a hole in the ground, secure a substantial box (there should be no cracks in it large enough for flies to pass through), cut a hole in the bottom of it, place this box upside down over the hole in the ground, and bank up dirt around the lower edge of the box. A flat board larger than the hole in the box should be provided, so that the hole may be covered tight when the box is not being used. After a time the box should be moved, and the pit filled with dirt. This kind of an arrangement will prevent flies from getting at the bowel discharges, and will also prevent the bowel discharge from being scattered upon the ground.

Hookworms can live in the soil for six months or longer. Thus it is dangerous to go barefooted in a garden or field where any faecal matter has been scattered within a year.

It is very easy for any individual to avoid getting hookworms by never going about barefoot, by not digging in the soil of the garden or field with the bare hands, and by never drinking unboiled water, or eating raw vegetables that have not been thoroughly scalded with boiling water.

It is possible that children who go about with the whole body naked or with only the buttocks exposed, may get hookworms by sitting upon the ground.

### Treatment

The following treatment for hookworms is taken from "Health Bulletin" No. 1, written by Drs. P. A. Maplestone and A. K. Mukerji, of the Tropical School of Medicine of Calcutta.

Tetrachlorethylene can be safely given to the debilitated, to young children and even to women in advanced pregnancy.

The mode of administration is simple. The adult dose is 4 cc. with correspondingly smaller doses for children.

The dose is shaken up with a dose of Epsom salts (4 to 8 drachms—teaspoonful) to which 10 minims of oil of Chenopodium have been added and swallowed as a single draught. The patient may complain of dizziness. If the salts act well there is a bowel movement within two or three hours, after which discomfort, if any, passes off. Some patients complain of nausea which persists for some time. The restriction of food the day before is not necessary, and the drug is best administered in the early morning on an empty stomach, and no food is allowed until there has been a satisfactory bowel movement. The dose of salts is repeated after three hours if necessary.

This dose is practically non-injurious to heart, kidneys, or liver, and the patient is fit to resume his activities in the afternoon.

In light infections one treatment is all that is necessary. In moderately heavy infections two or three treatments at ten-day intervals may be necessary. In severe cases four or rarely five treatments may be required.

There are some pellets called Crystoids, which are easy to take. They are in packets of five capsules or tablets. Instructions for their use and dosage for various ages are included in the package.

In areas where there is extensive hookworm infestation we recommend a repetition of the treatment every six months.

### Threadworms

Threadworms are small white worms about one-third of an inch long. They are found, as a rule, only in the lower end of the bowel, where they cause much itching and irritation just within the anus and about the anus. These worms are passed with the faeces. They also crawl out of the bowel into the clothing. In female children they may crawl into the vagina and cause itching and a watery discharge. These worms are most commonly found in weak, dirty children.

### Treatment

In order to get rid of these worms the following treatment should be given:

Gentian Violet (enteric coated capsules).

For children: 1/6 gr. 3 times daily with food for eight days—rest one week and repeat.

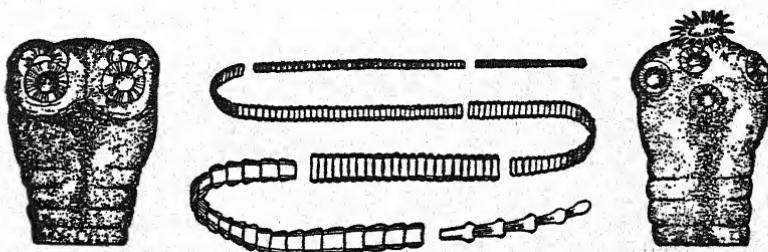
For adults: 2 of  $\frac{1}{2}$  gr. or .03 gm. capsule 3 times daily with food for eight days. Rest one week and repeat.

To relieve the itching, apply about the anus a little ointment made by mixing five drops of carbolic acid in two teaspoonfuls of vaseline.

If the child scratches or rubs about the anal region, the eggs of the threadworms will get on the fingers and under the finger nails. It is therefore necessary frequently to wash the hands of a child who has threadworms. The finger nails should be kept trimmed short. The child's buttocks should be washed daily. These measures must be taken to keep the child from constantly re-infecting himself with the threadworms.

### **Tapeworms**

Tapeworms are long, thin worms that reach a length of ten to twenty feet. They are acquired by associating too



Left: Head of beef tapeworm; Centre: Body of tapeworm;  
Right: Head of pork tapeworm.

closely with cats and dogs or from the eating of measly beef and pork. Measly beef and pork is meat that has white spots in it, the white spots being the young tapeworms. If one eats such meat without first thoroughly boiling or baking it, the young worms enter the intestines and grow to a great length.

There are no very definite symptoms that will enable one to tell when a person has tapeworms. The symptoms

if any, are indigestion, griping pains; the person becomes pale, has a headache, and complains of dizziness. The only sure evidence is finding the small joints of the worm in the fæces.

### Treatment

The aim in the treatment is to expel the head of the worm; for unless the head of the worm is expelled, the worm will continue to grow. The method of treating is as follows:

During the two days preceding the treatment, no solid food should be eaten. Give only rice gruel, soft-boiled eggs, and soup. Put the patient to bed, and keep him there for a couple of days. On the morning of the first day give a dose of castor oil; and do not give any food for the remainder of that day. On the second day, for a five-year-old child, give half a dram (30 drops) of Oleoresin of male fern. It is unpleasant to the taste, and should be given mixed with some congee (rice gruel). In two or three hours' time give another half dram of the male fern. The patient must, during all this time, be kept lying quietly in bed. Four or five hours after taking the second dose of male fern, a large dose of castor oil should be given. When the child's bowels move, receive the bowel movements in a clean vessel containing warm water, in order that it may be seen whether the head of the worm has been expelled or not.

The prevention of tapeworm infection is dependent upon disinfecting or burying all human faecal matter, and in cooking thoroughly all meat used for food. Since dogs and cats harbour tapeworms in their intestines, they should not be allowed in the houses; and on no account should they be allowed to lick the faces or hands of the children.

### The Trichina

This is a worm that is contracted by eating pork. They do not remain in the intestines, but pass to the muscles and cause pain. There may be some fever. There is pain in the muscles of different parts of the body. The pains are intensified by moving the limbs, but there is no pain in the

joints. The muscles are tender to pressure. There is also swelling under the eyes, and shortness of breath.

There is no treatment that is very efficacious. Give castor oil and a daily enema to help in getting rid of any of the worms that may be in the intestines. There is nothing that can be done to get rid of the worms that are in the muscles throughout the body. To avoid contracting the disease, it is only necessary to forego the eating of pork.

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## *Chapter Twenty-seven*

# Diseases of the Nose and Throat

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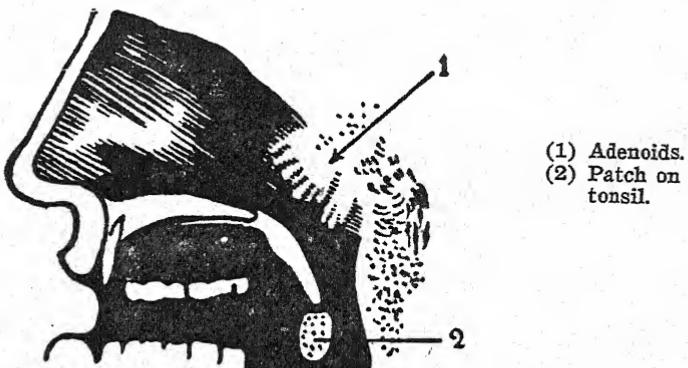
### Tonsils and Adenoids

RUNNING nose, sore nose, snuffling, sores about the mouth and nose, red eyes, dullness in studies, snoring, sleeping with the mouth open, putting the hands to the ear as though the ear ached, staring with open mouth—these are some of the symptoms manifested by mouth-breathers. Breathing through the mouth is, in most instances, due to adenoids or large tonsils. Children who are poorly nourished and who live in unhygienic surroundings, are very liable to develop adenoids.

Adenoids grow from the back part of the throat where the nose and throat join. They are shaped like a little head of cauliflower, coloured red. They are somewhat similar to the warts that grow on the hands. They hang from the back part of the nose and stop it up, causing the child to breathe through its mouth. (See illustration on next page.) When air is breathed through the mouth, much dust and many more germs are taken into the body than when air is taken through the nose.

Have the child open its mouth, press its tongue down with the handle of a spoon, and see if the tonsils project out into the throat. When tonsils are not diseased, they do not project out into the throat, and they have the same pink colour as the surrounding parts of the throat. The enlarged tonsil is of a deep red colour, or it may be covered

with patches of white material, or at times there is yellow pus on it. If the tonsil becomes enlarged suddenly, the child complains of sore throat, and has fever and headache. The pain in the throat is aggravated when food or drink is swallowed.



Examine the child and see if there are some lumps under the skin in the neck and back of the ears. These are enlarged glands. They always mean that there is some poison or irritation in the nose, throat, ears or teeth, which should be removed at once in order to keep the rest of the body well.

Large tonsils and adenoids hold poisonous germs that may be carried by the blood to the heart and cause heart disease; or to the joints and cause rheumatism. The germs in the tonsils and adenoids are also carried to other parts of the body, and cause other diseases. They prevent the body from growing properly, so that children with adenoids have stunted bodies. The germs from adenoids and enlarged tonsils slowly poison the child's body, so that he is slow in his studies. There is also a much greater chance of such children getting diphtheria, scarlet fever, and measles. If one of these diseases is contracted, the child usually has a severe attack, and gets well very slowly.

### Treatment

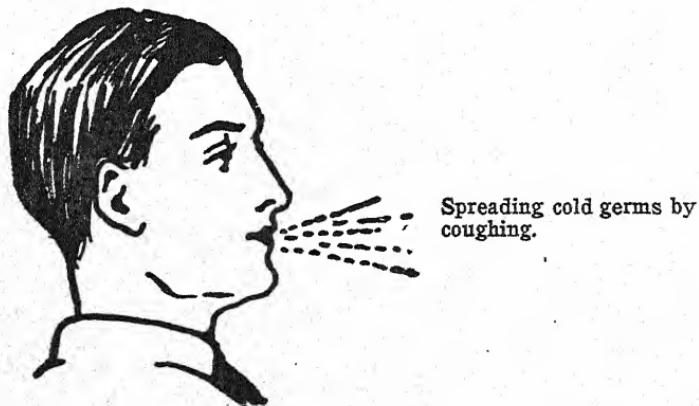
If a child has adenoids, there is but one treatment,

and that is to take him to some hospital or competent surgeon and to have the adenoids removed.

If the tonsils are not constantly enlarged, but the swelling and pain have come on suddenly, then give a dose of castor oil or Epsom salts, and apply fomentations to the sides of the neck under the jaw. Under a physician's direction, sulfadiazine or sulfathiazole may well be given, two tablets four times daily for an adult. Children will be given proportionately less. The patient must take water very freely. If the tonsils remain large, or even if they are not very large, but continually have on them patches of yellowish pus, they should be taken out.

### Colds

More people suffer from common colds than from any other single ailment. Colds are due to germs and are "catching" just the same as measles or pneumonia.



While common colds are never fatal, yet they prepare the way for such serious diseases as pneumonia, tuberculosis, rheumatic fever and deafness.

### Prevention

The prevention of colds depends upon several factors. One of the most important is keeping the body in good condition by proper diet and daily exercise. Bathing

the whole body daily with cool water, is an excellent way to keep the body in a condition of resistance against colds. Avoid contact with persons who have colds.

The common drinking cup, the towels used in common to wipe the face and hands, tobacco pipes, toys, fingers, and any object that may be contaminated by any of the secretions from the nose and mouth, are all common carriers of germs that cause colds. Living in poorly ventilated and poorly lighted rooms, breathing dusty air, exposure to cold or wet, sitting in the wind when the clothes are wet with sweat, loss of sleep and overwork—all prepare the way for one to catch cold. Those who breathe through the mouth and those who have decayed teeth and enlarged tonsils have frequently recurring attacks of colds.

### Treatment

If treatment is begun early, a cold may be cut short. When one has symptoms of an on-coming cold, such as sneezing, watering of the eyes, slight headache, and stuffiness of the nose, he should at once determine to prevent the disease from progressing. One of the best methods is to get out of doors and exercise vigorously by digging in the garden, walking rapidly, or by doing any kind of physical work. Exercise until the perspiration flows; then take a bath in hot water. After getting out of the hot water, dash a pan of cold water over the body, and dry the skin thoroughly with a dry towel.

If the cold has already run for a day or two, then take a hot foot-bath and leg-bath (see chapter 20). Go to bed after this treatment. Restrict the diet to rice gruel, soft-boiled eggs and fruit. This treatment is very efficacious in curing a cold. If there is any tendency to a recurrence of colds, or a tendency to turn to pneumonia or a very sore throat, upon a physician's advice one may take sulfathiazole or sulfadiazine, two tablets four times daily for three or four days. This is helpful in preventing the frequent complications of severe colds. Give water freely. The physician may prefer to prescribe penicillin.

### Influenza (La Grippe)

Epidemics of influenza occur every year. The symptoms are very much the same as in common colds, but much more severe. At the outset there is a stuffy nose, sneezing, watery eyes, headache, backache, a dry cough and some fever.

This is a very serious disease. It kills large numbers of old people yearly. When influenza attacks those who are already weak, it often causes death.

#### Treatment

Influenza is highly contagious. If one member of the family gets the disease, he should be careful to hold a handkerchief over the mouth or nose when coughing or sneezing. He should expectorate into pieces of paper, which can afterward be burned. He should not use the same towels, cups and eating-utensils used by other members of the family.

At the onset of the disease, the patient should go to bed, and the hot foot-and-leg bath recommended for the treatment of colds (mentioned in the former parts of this chapter) should be used. The patient should drink large quantities of water or lemonade, at least half a pint or more every hour. Keep the feet warm. It may be necessary to keep bottles at the feet filled with hot water. Restrict the diet to gruels, soups, soft-boiled eggs and fruit. For the cough, use the treatment outlined in this chapter for "a cold on the chest." Use prescription No. 9 (Appendix) three times a day as a gargle. This will keep the mouth and throat clean, and thus prevent the disease involving the ears and causing deafness.

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## *Chapter Twenty-eight*

# Diseases of the Chest

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### Pneumonia

PNEUMONIA is a disease of the lungs caused by the pneumococcus germ. The disease usually begins suddenly with a severe chill. The temperature rises quickly and there is pain in the chest. There is a short, dry, painful cough, and the rate of breathing is greatly increased. The patient lies on the right or left side, and not on the back. The face becomes flushed, especially one or both cheeks; fever blisters usually appear on the lips. The sputum expectorated is tinged with blood. After the fever has continued high for several days, there is an abrupt drop, usually accompanied by an abundant sweating. Following this the patient feels more comfortable, and unless some accident occurs, will continue to improve, and will recover in two or three weeks. Some die before the drop in temperature. Three or four out of every ten who contract pneumonia formerly, died of the disease. Those who are given to using intoxicating liquors freely, experience more difficulty in recovering from an attack of pneumonia.

### Preventive Measures

The germs of pneumonia are distributed widely. We cannot escape them; but if the body is kept strong and

healthy, the pneumonia germ cannot damage it. The natural power of the body to resist disease germs is weakened by the use of any form of wine or tobacco; lack of proper food, or too much food; living in dark, poorly-ventilated houses; sleeping with doors and windows closed, or the head covered; sitting humped over; and by catching cold.

Pneumonia is spread through the discharges from the nose, through the sputum and from coughing and sneezing. Pneumonia may also be contracted by using a drinking cup that is used by others, and by breathing dusty air on the streets, or the dusty air caused by sweeping the house.

### Specific Treatment

Deaths from pneumonia have been reduced to a very small figure since the introduction of the sulfa drugs and, more recently, penicillin. The sulfa drugs, sulfathiazole and sulfadiazine, are very effective and are available in even the more remote medical dispensaries. These drugs should be given only on order from a competent physician. The fever drops within twenty-four to forty-eight hours. The medication should ordinarily be continued for at least three days following the drop in temperature. Very frequently the medicine is stopped as soon as the temperature falls with the result that a few days later a relapse occurs which may be more serious than the first attack. Penicillin is now available in all reputable medical centres and is more potent as a weapon against pneumonia than the sulfa drugs.

The patient should have plenty of fresh air, his feet should be kept warm and his bowels open by light cathartics or enemas. Lemonade, lime juice or plain water should be given freely to drink. The food should be liquid, such as rice gruel, soups or eggs, either soft boiled or raw.

The patient should expectorate into pieces of paper or old cloth, and these should all be burned.

### Pneumonia in Children

The treatment of pneumonia for a child is very similar to that for an adult, outlined in the first portion of this chapter. The child should be in a place where there is a free vent of air. Reduce the amount of food that the child

has been accustomed to take. Keep the feet warm, the same as outlined in the first portion of the chapter. If the above medications are not available, mustard-plasters may be used over the painful part of the chest. Use only one part of mustard to six or seven parts of flour. Mix with hot water, and spread on a thin layer of cloth. Apply this to the skin. As soon as the skin is well reddened, the mustard plaster should be removed. It may be re-heated and applied again for a few minutes in the course of four or five hours. The child must be given all the water that he will drink; or better, give water containing lime or lemon juice. Give a small warm-water enema daily. If the child coughs continually, but does not raise any sputum, and if the cough prevents sleeping, prescription No. 18 in the Appendix may be given. In all cases of pneumonia it must be borne in mind that the best defence against this disease is in the use of the sulfa drugs or better yet, penicillin.

### **Following Pneumonia, Guard Against Tuberculosis**

Following pneumonia, either in a child or an adult, tuberculosis is very common. It is important, therefore, that a pneumonia patient should not leave his bed and begin working or going about until he feels well and strong. It is also especially important to guard against sleeping in a room with the windows and doors shut. Take deep-breathing exercises daily, according to the method outlined in Chapter 8.

### **Pleurisy**

Pleurisy is an inflammation of the thin membrane that covers the lungs and lines the inside of the chest wall. It results from a blow on the chest, or from catching cold. The first thing noticed is a chilly feeling; then some pain is felt, usually only on one side of the chest. The pain is "stabbing" and is increased by taking a deep breath, and also by coughing. There is some fever. The pain in the side is the principal symptom. The patient cannot lie on the affected side. After a few days, some fluid usually collects between the two layers of the pleura, and after that the pain is less.

### Treatment

As a rule, the fever in a case of pleurisy lasts only a week or ten days. If the patient continues to feel hot and uncomfortable every afternoon and evening for two or three weeks, it may mean that he has tuberculosis, and in that case the methods outlined for tuberculosis in the next section must be followed.

A patient with pleurisy must be kept in a room where the windows and doors can be open to let in the fresh air, but avoid a draft. Give only liquid foods. Apply a bandage or a strip of adhesive three inches wide about the chest. Have the patient breathe out, and then when the lungs are empty and the chest is contracted, apply the bandage and fasten it. This prevents free movement of the chest and reduces pain. To relieve the pain, apply also hot fomentations for twenty minutes or more every two hours. The hot water bag, wrapped in a cloth wrung out of hot water, can be applied to the chest in place of the fomentations. Keep the bowels open.

As there is danger of a pleurisy changing to an empyema, by the addition of infection to this fluid in the chest cavity, it is advisable that these patients be given the advantage of sulfa drugs or penicillin as will probably be advised by the physician. Empyema is a serious complication of pneumonia and the possibility must not be neglected.

### Tuberculosis or Consumption

Tuberculosis causes the death of someone in India every minute of the day and night. It afflicts mainly those between the ages of eighteen and forty. Since it is both preventable and curable it is of the greatest importance that all understand the symptoms, methods of prevention, and the treatment of this disease.

### Symptoms

The cure of the patient depends upon the early discovery of the disease. For this reason all should know the first symptoms of tuberculosis.

Individuals who have thin, flat chests and stooping

shoulders are very prone to contract this disease. Slow, gradual loss of weight is one of the first symptoms that many afflicted with tuberculosis show. Paleness of the skin, and at times bright red cheeks, is a rather common early sign of this disease. Frequent attacks of catarrh is another early symptom. Some who contract tuberculosis do not know that they are sick, but they get tired easily, and in the course of a few weeks they will complain of having a mild fever in the afternoon and possibly a hacking cough in the morning or evening. A little later they may have



One way in which disease germs are spread.

night sweats and notice that the sputum is red (due to its containing blood). There may, or there may not be, pain in the chest. Loss of appetite is a common early symptom. Another early symptom is change of disposition, so that one who was cheerful and very agreeable to get along with becomes irritable and easily depressed.

In the sputum it is often possible to find the germs that cause the disease (the tuberculosis bacillus). In Chapter 14 is a picture showing how disease germs look when they are magnified very highly. Whenever it is suspected

that one has tuberculosis, it is well to get a physician to examine some of the sputum to see if it contains the tuberculosis germs or not. But it should be known that many people have tuberculosis in whose sputum no tuberculosis germ can be found. Therefore if there are other symptoms of tuberculosis, the treatment for tuberculosis should be used even if no germs are found in the sputum.

The symptoms given above are the common symptoms of tuberculosis of the lungs. Tuberculosis is not only a disease of the lungs, but it also attacks other parts of the body. The disease may be in the throat, and in addition to causing the symptoms mentioned above, there is hoarseness and painful swallowing. Tuberculosis of the bones is common. The hip is often attacked, and this results in the shortening of one leg. When the disease is in the backbone, a hump or a side curve develops in the backbone. Scrofula is a form of tuberculosis seen in children. There are lumps in the neck both before and behind. The one afflicted is usually pale and not robust, and frequently has sore eyes and sore ears.

### How the Germs of Tuberculosis Get into the Body

1. By being breathed into the lungs with the air we breathe.
2. By being taken into the body with the food we eat. Many cows and other animals have tuberculosis. By eating the flesh of these animals or using their milk one may contract tuberculosis. If those who have tuberculosis handle food in the market or in the kitchen, tuberculosis germs from the nose, mouth and hands will get on the food, and by eating this food we may contract the disease.
3. By getting into the body through an injured place in the skin.

### What Must Be Done to Check the Spread of Tuberculosis

A patient suffering with consumption should know that he spreads the disease by coughing and spitting. When he coughs or sneezes, many little droplets from the nose and throat are thrown out of the mouth and nose. There are many tuberculosis germs in these droplets, and as the droplets are mixed with the air and dust, the germs are breathed into the lungs of healthy people and result in

their contracting the disease. The sputum of those who have this disease contains innumerable tuberculosis germs. It should never be expectorated in any place where it will have a chance to dry and become dust, for without question the commonest way of spreading the disease is by means of the sputum.

Those who have the disease should never cough or sneeze without holding a cloth or a paper before the mouth and nose. If paper is used, it should be burned afterwards. If a cloth is used, it should be kept for this purpose and should not be used as an ordinary handkerchief. It should either be burned after use, or else boiled.

One who has tuberculosis should not handle the food that is to be eaten by other people.

One who has this disease should never swallow his sputum. If this is done the disease germs begin to grow in the intestines and are almost sure to quickly cause death.

### **How to Avoid Contracting Tuberculosis**

All city dust contains tuberculosis germs. It is unavoidable that everyone will sometimes get tuberculosis germs into the body, but it is known that when the body is strong and healthy, and the nose is free from colds, the blood can destroy a few tuberculosis germs. If the body is weakened by poor or insufficient food, overwork, or dissipation of any kind, the body loses this power to destroy germs. People who use intoxicating liquor in any form are more likely to get tuberculosis than others, and having once contracted the disease there is very little hope of recovery. Tobacco using injures the lungs and throat, and prepares the way for one to contract consumption very easily.

When one lives where the houses are built close together, as in cities or towns, there is much danger of contracting tuberculosis.

Every room should have windows to let in light and air and sunshine. All should sleep with the windows open.

It is dangerous to use any cup, spoon, dish, towel or wash pan that has been used by one who has tuberculosis, unless the article has been boiled since the sick person used it. Tuberculosis may be spread by the use of meat and milk from animals infected with tuberculosis, and therefore

before eating meat it should first be cooked thoroughly, and milk should be boiled before using.

People who work at certain trades are very liable to contract consumption—such trades as those in which the worker must breathe dusty or smoky air; for example, cigar and cigarette makers, stone-cutters, and workers in rice-polishing mills. Tuberculosis is very common among those who sit bent over, as tailors, hat weavers, basket weavers, and type-setters. Many students in the schools and colleges contract tuberculosis because they sit bent over their study tables much of the time and do not take exercise out of doors daily.

### How to Cure Tuberculosis

Tuberculosis is curable. When anyone has contracted the disease, the earlier the treatment is begun the more certain it is that he can be cured.

The following medication is proving helpful to those suffering with tuberculosis: Intra-muscular injections of streptomycin 1 gm. daily ( $\frac{1}{2}$  gm. morning and  $\frac{1}{2}$  gm. evening) for 42 days. Along with this give P. A. S. tablets 4-6 three times daily. After this course of treatment if the tubercular symptoms continue, after two months the entire course may be repeated.

The most important factor in the treatment of tuberculosis is to increase the bodily strength, so that the body itself will resist and gradually destroy the disease germs. This is a slow process; therefore one who has the disease should know that he cannot get well in a week or two. The best means of increasing the bodily strength and of curing the disease is plenty of fresh air all the time, plenty of good food, out-of-door life, rest and freedom from worry.

Wherever possible it is advisable to go to a tuberculosis hospital. In several of the large cities, dispensaries are conducted especially for the treatment of tuberculosis patients. In some of these dispensaries advice and medicine are given without charge to poor people.

In case the consumptive patient cannot leave his home, he should not lose hope because by following the instructions given below, the disease can be cured in the home.

The patient must be in a room to himself. This room should have large windows which should be kept open day and night. A comfortable bed should be provided. During the daytime the patient should be out of doors under the shade of a tree in a hammock. The patient's room must be kept clean by frequently scrubbing the floors and walls.

The patient's pillow and bedding should be hung out in the sun for several hours several times a week. Sunlight and fresh air kill tuberculosis germs.

### Diet

Perhaps one of the most important considerations in tuberculosis is the diet. Ordinarily there is a failure of appetite. To stimulate an appetite as much as possible, give vitamin B complex in liquid or tablet form daily. One teaspoonful of the liquid B complex three times daily before food is helpful. Tablets of vitamin B (5-10 mg.) given three times daily, may be used as a supplement to the B complex. All tubercular patients should receive cod liver oil or halibut liver oil. Give as liberal a diet as the patient can be persuaded to take. Milk, eggs, meat, fruits, vegetables, dahl, wheat, unpolished rice, cereals, nuts or any other wholesome foods which the patient can be persuaded to take will be beneficial. If the patient has not the capacity for a normal meal, frequent feedings in smaller amounts, or nourishing milk drinks between meals, will be helpful.

### Other Points of Treatment

Keep the body clean by frequent bathing. The clothes should also be kept clean. Keep the teeth clean by brushing them night and morning. Great care must be taken not to move about so much that it causes fatigue or a fever.

In order that others do not contract the disease from him, the patient should have his own knife, fork, spoon, cup, dishes, towels, and bedding. They should not be washed with the articles that the other members of the family use.

No consumptive patient should kiss or fondle any child, and he should never handle any food that is to be

eaten by others. Keep flies out of the patient's room, if possible, but by all means do not allow them to get at the patient's sputum, which should be kept covered.

Another important thing in the cure of consumption is cheerfulness. The one who is afflicted with tuberculosis will find that great benefit is secured by trusting in God; for God can heal all of man's diseases. If one loses hope and believes he will die, it is almost certain that he will die.

It is important that the patient's bowels move daily. Several glassfuls of water should be drunk every day in order to assist in washing out poisonous waste matters from the body.

If the cough is troublesome, the same treatment should be used as is mentioned in the part of Chapter 28 that describes the treatment for colds and bronchitis.

Sometimes those with tuberculosis have a cough in the morning. This may be stopped by drinking daily before breakfast a glassful of hot water to which has been added the juice of one lime.

If there is much fever the patient may be sponged with a small amount of cold water. Continue the sponging with cold water for half an hour or more. (See Chapter 20.)

When there is spitting of blood the patient should keep very quiet. The spitting of blood is often caused by the patient lifting something heavy, or by exercising too vigorously. If there is spitting of a large amount of blood, cloths wet in ice water should be applied to the front of the chest. The cloths should be frequently re-wet in order that they may be kept constantly cool. If no ice can be secured, the cloth may be wet with cool water and then held by two of its corners and swung back and forth in the air a few times. This will make it very cool.

After one has had tuberculosis and has apparently recovered, he should remember that there is great danger of a recurrence of the disease, and the greatest care must be taken to guard the health, and avoid all those things mentioned in this chapter which lead to contracting the disease.

### Bronchial Asthma

Asthma is a disease in which attacks of laboured breathing are associated with spasm of the bronchial muscles and congestion and swelling of the mucous membrane of the bronchial tubes. The exciting cause may be a cold, hay fever, the inhaling of dust, or the odours from animals, such as the horse or the cat. Fright or other sudden emotions may bring on an attack. A single attack may last for hours at a time, or it may return each night for several nights in succession. The patient is compelled to sit up in order to breathe. The chest and all the muscles of respiration move violently. With each expiration, there is a peculiar wheezing sound. The face becomes pale and anxious. The hands and the feet may be cold. The cough is very tight and dry, and the expectorations are scanty, tenacious mucus. After a number of hours, the patient may sink exhausted to sleep, or the attack gradually abate. Over-eating, or the use of certain foods, may bring on an attack.

### Treatment

The treatment of asthma is a difficult matter. The diet should be carefully regulated to avoid spices, meats, rich desserts, et cetera, but should contain plenty of simple nutritious elements, such as well prepared cereals and breads, vegetables and fruits. Milk may be used freely, and eggs very moderately. The diet should not be unduly restricted. Special attention must be given to the relief of constipation and flatulence. (Directions for the treatment of colds are given in Chapter 27.) The patient must lead a quiet, out-of-door life, with regularity of habits and freedom from excitement.

Of remedies that should be administered by a physician, hypodermics of belladonna, nitroglycerin, or adrenalin often give quick relief, the last especially, in doses of five to ten minimis. Adrenalin may be used in the form of a nasal spray, alone or combined with menthol or thymol and oil of eucalyptus in albolene. Amyl nitrite may give relief.

Fomentations to the chest are often helpful in easing

the difficult breathing. This may be preceded by a hot foot bath. A large, very cold compress applied to the chest gives relief in some cases. Between attacks, tonic hot and cold applications are beneficial in building up the patient's resistance and thus lessening the tendency to asthma. (See Chapter 20.)

Much investigation of the subject of bronchial asthma has been made during the past few years, from which it appears that a considerable portion of cases can be materially benefited and many practically cured by the administration of gradually increasing doses of certain protein substances to which the patient is shown to be particularly susceptible. This produces an immunity or resistance to those proteins which before acted as poisons to excite the asthmatic symptoms. The tests made on each patient will indicate which of the substances are responsible for the trouble.

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## **Chapter Twenty-nine**

# **Social Diseases**

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### **Gonorrhœa**

WHEN a man contracts gonorrhœa, there is an inflammation of the urinary passage, accompanied by a whitish or yellowish discharge. The discharge is caused by the gonorrhœa germ, and is caught by sexual intercourse with a person who has gonorrhœa. In a very small number of cases, this disease is contracted from objects, such as towels, or the seat of a toilet which is soiled by the discharges from some person who has gonorrhœa.

### **Symptoms**

The disease usually begins in from three to seven days after sexual intercourse. The symptoms are itching, smarting, or stinging pain in the urinary passage, pain at the time of urination, and a watery discharge from the urinary passage. This watery discharge soon becomes thick yellow or white. If untreated the disease spreads up the urinary tract to produce stricture of the urinary passage with resulting inability to pass urine. This is a serious complication which, if neglected, may ultimately cause death. The gonorrhœa germ is distributed through the blood stream to the joints where it produces one of the most painful conditions produced by disease. Gonorrhœa is a common cause of blindness, the infant contracting the disease from the mother at birth.

Where one member of the family has the disease there is danger of its being spread to other members of the family, this being a particularly dangerous possibility where there are small children.

### Treatment

This disease can be safely treated only by a competent physician. If the treatment is with sulfa drugs, the one of choice is sulfadiazine. This should be given, two tablets four times daily for fifteen days. During this time the patient should drink an abundance of water or, better yet, fruit juices. He should be under the observance of a physician who will watch for possible unfavourable effects of the medicine. Only by laboratory examination can it be determined that the disease has been cleared up.

The quickest results are obtained with the penicillin treatment. An intra-muscular injection of 400,000 units of penicillin is given. This is followed after twenty-four hours with a second injection. This is usually sufficient to check an acute case of gonorrhœa.

### Gonorrhœa in Women

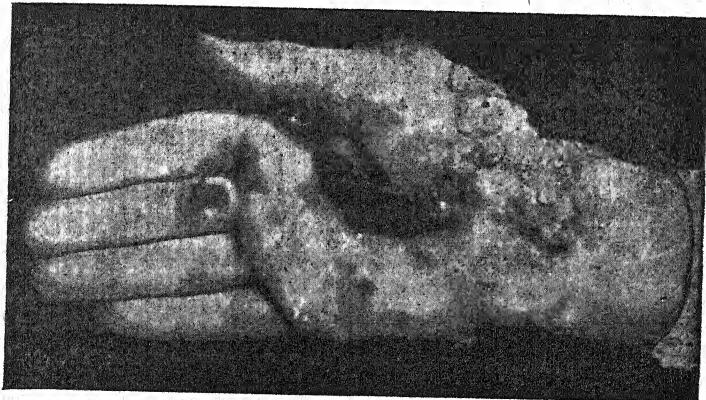
A large number of men contract gonorrhœa before they marry and later transmit the disease to their wives. The disease usually begins with smarting and painful urination. There is frequent desire to urinate, and there is a whitish or yellowish discharge from the birth canal. If a woman contracts gonorrhœa, it usually causes disease of the womb after a short time. This results in leucorrhœa. (See Chapter 30). Gonorrhœa is one of the commonest causes of sterility in women; not only this, but the disease usually causes them to suffer continually for many years. Treatment is the same as that outlined above for men.

### Syphilis

Syphilis is a germ disease that is usually acquired through sexual intercourse with a person who already has this disease. If a mother has syphilis, the disease may be transmitted to the infant in her womb before it is born. Syphilis and tuberculosis are two of the greatest scourges in the world, but syphilis is the more common of the two.

While syphilis is usually contracted by sexual intercourse, yet it may be transmitted in other ways, such as by kissing, by accidental contact with a sore on the patient's body, by the use of tobacco pipes, cups, spoons or dishes that have been used by a person who has syphilis in the acute stage.

The first symptom of syphilis is a small pimple or sore on the sexual organ, or wherever the point of infection may be. This usually appears not later than five weeks after sexual intercourse. A raw sore which feels hard follows the pimple. Along with this sore, lumps usually appear in both groins.



Skin manifestation of syphilis, showing incrustations on the hand in one variety of the secondary stage.

In six or seven weeks after the first pimple or sore appears, a copper-coloured eruption, resembling measles, appears on the body. There may be other symptoms, such as headache, nausea, and loss of appetite. There may be sore throat. Moist sores may appear in the skin in the arm-pits and about the bowel opening. The hair often falls out in patches. These symptoms do not all occur in every case of syphilis.

The third stage of the disease comes on after having had the disease for several months or several years. Deep

sores develop on different parts of the body. The nose often rots away and leaves simply a hole where the nose was. Pieces of the bone of the skull, or pieces of the bones in the parts of the body, may rot away as a result of syphilis. Many serious diseases of the brain, nerves, heart and blood vessels are caused by syphilis.

### Treatment

To determine positively whether or not a person has syphilis is of the greatest importance, since the earlier the treatment can begin, the more certain it is that a cure can be effected. It requires, in almost every case, a skilled physician to diagnose the disease. A blood test or special microscopic examination is required to learn whether the disease is present. There is no home medication for syphilis. Medicines which can be taken by mouth at home to cure syphilis are fakes.

The physician will choose one of two methods of treatment. He may use the older method proven through many years of use to be thoroughly effective though a long and tedious process. This consists of injections of arsenical compounds administered in courses alternating with bismuth injections, for a period of one to two years. The other treatment which is especially effective against syphilis in children and in newly acquired adult cases is the use of penicillin in massive doses. In the adult cases a total of four or five million units should be given in a period of ten or twelve days. Any treatment of syphilis should be checked by blood test to determine the effectiveness of the medication given.

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## *Chapter Thirty*

# Diseases of Women

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NORMAL menstruation has been described in Chapter 11. There are several abnormal conditions that are concerned with the menstrual function, such as absence of menstruation, painful menstruation, profuse menstruation, and leucorrhœa (a white discharge that is constantly present between the menstrual periods).

### Absence of Menstruation (Amenorrhœa)

The average girl begins to menstruate at about twelve years of age, but she may begin as early as nine years or she may delay until fifteen years of age. If her body is well developed and she is in good health it is no cause for worry if her menses do not begin until seventeen years of age.

The young girl suffering with tuberculosis will not begin to menstruate until the disease is cured.

Failure to menstruate may be due to an undeveloped condition of the uterus and ovaries or to a closed condition of the vagina. A physician can easily determine whether either of these is the cause.

After menstruation has begun it may cease when a change of climate is experienced or during such diseases as typhoid fever or scarlet fever, or during a cold. There is no cause for worry for this is the body's way of preserving its strength and the menstrual flow will return in due time.

### Treatment

Since the causes of failure to menstruate are so varied, the treatment in every instance is to remove the cause, if

possible. In the case of a married woman, it should be remembered that failure to menstruate is probably due to pregnancy.

The following treatment will be found useful in inducing menstruation: If the girl is poorly nourished, she should be given more and better food. She should not be compelled to work hard. Daily exercise, preferably out of doors, and eight or nine hours of sleep every night, are measures that are useful. If there is constipation this should be treated by the methods outlined in Chapter 23. In treating a girl who has never menstruated, give a hot enema to cleanse the bowel. Following this, give a sitz bath (110 degrees Fahrenheit) for ten minutes. The feet should be in hot water, and a cold cloth should be on the head. (See Chapter 20). Injections of estrogenic material may be beneficial. The hot enema and sitz bath are also useful in case of suppression of menstruation, due to cold, etc., as mentioned above.

### Profuse Menstruation

There are several causes for profuse menstrual flow. It may be caused by disease of the uterus. It often follows childbirth or miscarriage, when parts of the membranes (afterbirth) have been retained, or when the mouth of the womb has been torn. Sometimes germs have gained entrance to the womb through careless, dirty management of childbirth, or through dirty paper or cloths being used at the menstrual period. In these diseased conditions of the womb, menstruation is often painful as well as profuse.

Home treatment is difficult in these cases. It is better to go to a hospital, or to consult a physician. When this is not possible, the hot vaginal douche may be used. (See Chapter 20). The water for the douche should be as hot as is bearable, and the external genitals and thighs should be sponged with cold water following the douche. Rest in bed is necessary during the time of menstruation.

A common cause for this disorder, especially in young girls, is a disturbance of the body hormones. The doctor treats such cases by administering the necessary hormones to restore regularity and the normal flow.

### Painful Menstruation

Normally, there may be some discomfort at the time of menstruation; but if there is pain, it is due to some diseased condition. A profuse menstrual flow, mentioned above, is accompanied with pain. In painful menstruation, the pain may be in the back or in the side. Sometimes there is a feeling of pressure in the lower abdomen; or there may be sharp pains in the region of the uterus. These pains are not constant, but are intermittent.

### Treatment

It will be necessary to go to hospital, or to secure the help of a physician, in order to cure most cases of painful menstruation. The uterus is usually diseased, and requires treatment that only a physician can give.

The treatment that can be taken in the home is as follows: A few days before the menstrual period is expected, the patient should take a hot foot bath and a hot vaginal douche. The next day she may take a hot sitz bath. If she is constipated, a warm enema should be taken. (See Chapter 20 for method of using the vaginal douche, enema, etc.) These treatments are best taken just before going to bed. During the time of menstruation, fomentations or hot water bottles may be applied over the lower part of the abdomen. Drinking freely of hot water is also useful.

### Leucorrhœa

In leucorrhœa, there is a white-coloured discharge from the vagina. It is usually accompanied with weakness, backache, discomfort in the region of the uterus and some irritation about the mouth of the vagina. In treating leucorrhœa, it is best to consult a physician or to go to a hospital.

The cause may be exposure to cold, overwork, poor food, sexual excess, masturbation or disease of the uterus. Gonorrhœa is a very common cause of leucorrhœa.

The treatment will depend upon the cause. The best treatment that can be used in the home is the hot vaginal douche. Use from six to eight quarts of water at a temperature of 120 degrees Fahrenheit, eight teaspoonfuls of

boracic acid, or one teaspoonful of permanganate of potash, should be added to the water. If permanganate of potash is used, it should be added to a pint of water, and frequently stirred until completely dissolved, then add the required amount of water. This treatment should be used daily. A hot enema should be taken three times a week. (See Chapter 20 for method of giving the vaginal douche.)

### Diseases of the External Genitals

Itching, burning and sores about the opening of the vagina, are often due to lack of cleanliness. The external genitals should be bathed often. Care should be taken to bathe the creases between the folds of the labia. Itching, redness and swelling about the mouth of the vagina may be caused by masturbation, gonorrhœa, leucorrhœa, abnormal urine or by the use of coarse paper or dirty cloths for pads at the time of menstruation.

### Treatment

The cause must be removed. If the pain and soreness is due to a discharge from the vagina, the treatment must be applied to stop the discharge. If the cause is masturbation, the masturbation must be stopped.

The cause may be due to lice; if so, use prescription No. 21 in the Appendix. If there is also itching about the anus, and at the lower end of the bowel, the trouble may be due to threadworms, and the treatment outlined in Chapter 26 should be used.

It would be found helpful to bathe the itching area with prescription No. 22. After washing with this medicine, then rub on prescription No. 23 or No. 11. If there are pustules, they must be opened, and sulfathiazole ointment applied.

### Diseases of the Uterus and Ovaries

Pain in the back, bearing-down pain low down in the abdomen, swelling of the abdomen, fever, foul-smelling discharge from the vagina and various other symptoms, may all be due to some disease of the uterus or ovaries.

In any case when these symptoms continue for some time, and are not relieved by the treatment mentioned above, the woman should by all means go to a hospital or to a competent physician for examination and treatment. Some of the diseases which cause these symptoms are very serious, and, if not looked after, quickly cause death.

### Sterility

Inability to bear children may be due to lack of development of the generative organs, to diseases such as gonorrhœa or syphilis or to other serious causes. By examination a doctor can determine whether surgery or medication can remedy the difficulty. Since the cause does not always lie with the woman the doctor should also check the man. By making some laboratory tests he can determine whether or not the man is sterile.

Some cases of sterility are not due to serious disease, and these may be remedied by home treatment, as follows:

Failure to become impregnated may be due to too much sexual indulgence. Sexual intercourse should be at the most only once or twice a month, at the favourable period. (See Chapter 18).

Sometimes conception is prevented by "discharges" from the uterus or vagina which destroy the sperms. This condition is often relieved by using daily the boric acid vaginal douche. One-half ounce of boric acid in four quarts of water should be used for the douche. The water should be as hot as is bearable. At the time of sexual intercourse, and for several days following, the vaginal douche should be discontinued. The woman should remain resting in bed for several hours after sexual intercourse.

If the woman's general health is not good, she should receive treatment to build her up; she should have good, nourishing food. She should not be compelled to work so hard that she continually feels fatigued.

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## **Chapter Thirty-one**

# **Diseases of the Skin**

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### **Itch**

ITCH is caused by the burrowing of a small insect under the skin. The itch usually starts in the skin between the fingers, or in the skin of the wrists, or in the skin about the navel and breasts.

### **Symptoms**

There is itching, and as a result of scratching, blisters, pimples and red patches are formed. The disease spreads quickly from one member of a family to others in the same family.

To avoid itch, one should not sit or lie on the bed of one who has the disease. Itch may also be contracted by using the bedclothes or the body clothing or the towels of one who has the disease.

### **Treatment**

The patient should first wash the body thoroughly, using hot water and soap. Then make an ointment by mixing well three parts of sulphur in seven parts of vaseline or coconut oil. The sulphur and the oil must be well mixed. Mix on a piece of glass by rubbing the sulphur into the oil with a long, thin-bladed knife. Every night and morning, for three days, rub this into all the itching places on the body. During these three days do not change the clothing or bedding. After three days take a hot water and soap bath and put on clean clothing and use clean bedding. The soiled clothing and bed sheets must be boiled for several

minutes before they are used again. This is necessary in order to destroy the itch insects that cause the disease.

There are other medicines on the market for the treatment of itch which are not only very efficacious but are much less difficult to use. Ascabiol M & B or any Benzyl-Benzoate emulsion prepared for the purpose is good. Directions are given with the medicine.

### Lice

People who are not careful to keep the body and clothing clean, often have lice on the body and on the head. Lice can be prevented by anyone who will wear clean clothing and take care to bathe often enough to keep the body clean.

Body lice cause itching, and as a result of the scratching, sores are formed on different parts of the body. The lice are to be found on the clothing, especially in the seams of the garments. To get rid of the lice, all that is necessary is to boil the clothing for several minutes.

There is a kind of louse that inhabits the hairy parts about the sexual organs, and sometimes spreads abroad from here to other parts of the body. To destroy these lice, the affected parts must be bathed once a week for several weeks with a solution of 2 grains of corrosive sublimate in one ounce of water. Corrosive sublimate is a deadly poison, and great care must be taken in using it. Prescription 21 in the Appendix will also kill these lice.

### Head Lice

Head lice may be killed by mixing together equal parts of kerosene and coconut oil and rubbing this into the hair every evening for three days. After rubbing this oil into the hair, a cap or cloth should be put on the head. The oil should be washed off each morning with hot water and soap. The patient must be careful not to go near the stove or lamp when this kerosene and coconut oil is on the hair. If there are sores on the head they may be smeared with a little vaseline or coconut oil.

To get rid of lice eggs the hair should be washed with a solution of 1 tablespoonful of baking soda to 1 pint of

water, or 2 tablespoonfuls of vinegar to one pint of water, three times a week, and following the use of the vinegar the hair should be combed thoroughly with a fine-toothed comb.

The course of treatment should be repeated every ten days until no more lice eggs are found.

### **Bed-Bugs**

Bed-bugs not only annoy one by biting, but they also spread some very serious diseases. The best way to rid them from the clothing or bedding is by immersing the clothing in boiling water. When the bed-bugs are in the crevices of the bed, a mixture of one part of carbolic acid (or cresol or izal or sanitas or phenyle) in ten parts of water should be smeared in all the crevices and holes of the bed. Oil of turpentine will also serve the same purpose. D. D. T. spray and 10 per cent D. D. T. powder are most effective.

### **Pimples—Blackheads**

Pimples are often seen on the face, the shoulders and back. Blackheads are very similar to pimples except that they have a black spot in the top of the pimple.

### **Treatment**

Pimples are due to poor elimination and in adolescents to an excessive amount of oil in the skin. The young person should do all he can to avoid having pimples as the condition is easier to prevent than cure. He should get plenty of out-door exercise, sufficient rest, drink much water, eat an abundance of fresh fruits and vegetables, especially the green leafy kind. He should avoid fried foods, sweets and rich desserts. He should bathe daily, washing the face in a rich lather of mild soap three times daily. If pimples do appear and must be opened, do so with a clean needle and press gently, avoiding squeezing. Apply spirits of camphor until the spot has dried up. Keep the hands away from the face, thus avoiding the spreading of the infection.

### Prickly Heat

In the very hot weather, babies, and sometimes adults are bothered with a red rash, or very small blisters, on the skin. It is caused by much sweating.

### Treatment

Sponge the skin with cold water and then sprinkle on the following medication: Mix 5 grams of sulfathiazole powder with one ounce of fine corn starch. If corn starch is not available, use talcum powder.

### Eczema

Eczema occurs in patches on the skin of the body. There is a redness, itching and weeping (a fluid exudes from the itching places). Later a crust forms. Eczema sometimes causes the skin to become cracked. Eczema is most common on the face, the scalp and the folds of the skin about the joints.

### Treatment

Most cases of eczema are caused by some allergy or sensitivity. It may be due to a sensitivity to a particular food. It may be due to some toilet preparation such as soap, powder or lotion. Again it may be due to some environmental contact, such as plants, animals, or to some pets about the home. Among the common food causes are meat, milk, eggs or other animal products, wheat products, tomatoes, sea-foods and a number of others of less significance. Treatment consists of learning, if possible, what the offending article is and eliminating it from the diet or environment. By leaving off one article after another of diet, or of contact, for a period of time, it is possible to determine whether there is something identifiable causing the trouble. We will take, for example, a child who developed a rash at six months of age which has continued to become worse now for three years. No medication seems to be of value. Investigation reveals that the child's mother became ill when he was six months old. The child was placed on cow's milk which seemed to

agree with him and he has been given liberal amounts of it ever since. Removal of milk from his diet, or a change to goat's milk, miraculously clears up the condition leaving no doubt as to the cause.

Eczema rashes sometimes become infected and in such cases the use of sulfathiazole ointment is helpful. Persistent cases are sometimes benefited by the use of liberal amounts of vitamin B complex.

### **Ringworm**

Ringworm is a skin disease that may develop on any part of the body. It is caused by a germ that is somewhat similar to the mould that is sometimes seen on a plate of cooked rice that has been allowed to stand overnight.

The disease is caught from coming in contact with the body, or with the clothing, towels or bedding of some person who has ringworm. It is easily spread, and children who have ringworm on the body or on the head should not be sent to school until the disease is cured.

The ringworm begins as a small red or brownish spot and spreads out on all sides. After a time the centre of the spot may return to the normal colour of the skin. When this happens the disease presents the appearance of a ring. The itching is intense.

### **Treatment**

Apply Whitfield's ointment by light rubbing, to the part affected. In case of ringworm on a delicate skin area or on small children, use half strength Whitfield's ointment.

### **Ringworm of the Scalp**

Ringworm of the scalp is common among children. It causes the hair to turn white, or to drop out. Large crusty sores are also formed on the head. Sometimes all of the hair on the head falls out.

### **Treatment**

Ringworm of the scalp cannot be cured without cutting the hair short. The best method is to shave the affected places. After shaving off the hair, the same treatment

may be used as was recommended above for severe cases of ringworm on the body. There is one form of ringworm of the scalp that is very difficult to cure and if the above methods do not cure, a physician should be consulted, otherwise the disease will progress and cause baldness.

### Sores and Ulcers of the Skin

Children who are kept clean seldom have sores. To prevent sores small wounds should be cleansed with soap and water or washed with a solution containing some kind of disinfectant.

Persistent sores should be cleansed with warm soapy water until the scabs can be removed. An ointment such as 5 per cent sulfathiazole or a 2 per cent ammoniated mercury should be applied. Healing will be greatly hastened if the wound is then covered by a piece of cotton and bandaged. This holds the medicine on the sore and prevents the formation of scabs which may seal over an old sore and prevent healing.

Before opening a boil it is best to soften it by applying cloths wrung out of hot water. After incising the head of the boil with a sharp, clean knife, press gently away from the centre. Do not squeeze the area around a boil as this spreads the infection. A dressing of sulfathiazole ointment may then be applied.

For a large, open, raw sore, a good treatment is to apply to the sore two or three layers of clean cloth wet in a solution that is made by adding a large spoonful of salt or Epsom salts to a cupful of water. Place a piece of oiled paper over this wet cloth, and then apply a bandage over the oiled paper. Re-wet the cloth with the salty water every hour. This treatment is very effective.

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## *Chapter Thirty-two*

# Diseases of the Eye and Ear

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### Cinders and Other Foreign Bodies in the Eye

WHEN a cinder or a particle of dust gets into the eye, do not rub the eye with the finger, and do not try to wipe the particle out of the eye with a handkerchief. Have the patient lie down. Hold the eyelids open with the thumb and forefinger, and drop some boric acid solution into the eye. This will wash out the cinder or piece of dirt.

If this does not remove the cinder, then the lid should be turned. Tell the patient to look down. The lashes and edge of the lid should be grasped by the forefinger and thumb of the right hand, first making sure that the hands have been washed clean. Then press a small pencil or a small piece of bamboo against the upper part of the lid, at the same time lifting the lower part of the lid upward and outward so that the lid is turned inside out. (See illustration.) The lid may be kept in this position while the cinder, or other foreign particle, is removed with a clean cloth. After removing the foreign particle, a few drops of boric acid solution or slightly salty water, should be dropped into the eye to stop the pain.

If a small piece of lime gets into the eye, the eye should be washed with a solution made by adding a small spoonful of vinegar or lime juice to half a glassful of water.

### Inflammation of the Edge of the Eyelid—Treatment

First remove the dried crusts by bathing the lids with warm water. The loose hair should be pulled out. Then apply every night a little sulfathiazole ointment.

### Styes

A stye is a boil on the eyelid. If styes occur frequently it is well for the patient to consult an oculist and have the eyes examined, for it may be that he needs to wear spectacles.



Right: Evertting the lower lid to remove a foreign object from the eye.  
Left: Evertting the upper lid. The swab is made of a toothpick wrapped at one end with cotton. The lids are everted over a match stick.

### Treatment

Bathe the eyelid with very hot water. Pull out the hair that is in the stye, and then dip a wooden toothpick or a small sliver of wood in tincture of iodine, and insert this end of the toothpick in the small opening made by pulling out the hair. After the pus comes out of the stye, apply some of the ointment prescribed in the preceding paragraph for inflammation of the edge of the eyelid.

### Sore Eyes (Conjunctivitis)

The germs which cause sore eyes get into the eyes by getting dust and dirt in the eyes; rubbing the eyes with

is not available then twist some cotton about the end of a very thin splinter of wood. Be sure that the cotton covers the end of the splinter. Insert this carefully into the opening and twist it a few times and then withdraw it, and by so doing remove the chunks of wax. Great care must be taken not to insert the splinter of wood down into the ear far enough to touch the ear-drum, because the ear-drum is easily injured.

Deafness that has come on slowly and has persisted for a long time is usually due to disease in the nose, throat and middle ear. By looking at the illustration in Chapter 10, it will be seen that there is an opening between the throat and the ear. When one has a cold in the nose, or has sore throat, germs may pass up into the ear by forcibly blowing the nose and cause deafness. Enlarged tonsils and adenoids are also common causes of deafness. (See Chapter 27 for treatment.)

### **What to Do If an Insect or Some Other Foreign Body Gets into the Ear**

If an insect gets into the ear, it should be killed by dropping some coconut oil or peanut oil into the ear, and then the dead insect can be removed by use of the syringe mentioned in the first part of this chapter. If the insect can be seen, it may be removed by the use of a small pair of tweezers. Sometimes if a light is held near the ear the insect will come out.

To remove solid things, such as beans, pebbles, etc., turn the ear downward, grasp the ear and pull it outward and backward and rub the skin just in front of the opening into the ear. This sometimes will cause the bean or pebble to fall out. If there is a bean or some kind of seed in the ear, a little wine should be dropped into the opening of the ear to prevent the seed from swelling. If the methods mentioned above are not successful, it is best to consult a physician; for the ear may be greatly injured in an effort to get something out of it.

### **Ear-ache**

Ear-ache is usually caused by an inflammation of the middle ear that follows a cold in the nose and throat. En-

larged tonsils and adenoids cause a great deal of ear-ache. Blowing the nose very forcibly may cause ear-ache by driving the infection into the ear. Diving and surf-bathing may cause ear-ache.

### Treatment

Lie down and keep the aching ear on a rubber hot-water bag or on a bottle filled with hot water. Every two hours a little water, as hot as can be borne, may be dropped into the ear, then dry the ear with cotton. A solution of 1 per cent phenol in glycerine, warmed by setting the bottle in warm water, and dropped in the ear, often stops ordinary ear-ache. The ear should be plugged with cotton.

If the pain continues for twelve hours or more, a physician should be consulted.

### Running of the Ear

When fluid begins to run from the ear after an ear-ache, it shows that fluid has formed in the ear and has broken the ear-drum. The most immediate results in the treatment of running ears is obtained by instilling in the ear a few drops of penicillin solution every four to six hours. The most effective way to accomplish this is to make a sort of wick of cotton which can be slipped gently into the ear after thoroughly soaking it in the penicillin solution. It should be pressed lightly against the ear-drum for proper contact. This wick is easily removed by twisting a small twig or toothpick in the cotton and withdrawing it. The penicillin solution may be made by diluting the ordinary hundred thousand unit ampoule in about five times its volume of clean boiled water. In addition to this one should see a physician and receive penicillin injections.

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## **Chapter Thirty-three**

# Miscellaneous Affections

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### Sore Mouth

THE treatment of the common sore mouth of infants has been described in Chapter 21.

The sore mouth that troubles adults is often due to failure to keep the teeth, tongue and mouth clean. Ulcers form on the inner side of the lips and inside the cheeks. These ulcers show as white spots. They are very painful.

### Treatment

Keep the mouth clean by the use of prescriptions 9 and 10 in the Appendix. Any white spots may be touched with a silver nitrate stick procurable from the chemist.

### Hiccough

Holding the breath will often stop hiccough. Another treatment is to grasp the tongue and pull it out of the mouth, holding it for a minute or two. Another treatment is to drink a glassful of very hot water.

### Nose-bleed

Sometimes by simply squeezing the nose between the thumb and finger the bleeding can be stopped.

Another treatment is to hold a lump of ice against the nostril and hold another piece of ice in the mouth. A piece

of ice held against the back of the neck will often instantly stop bleeding from the nose.

Dropping into the nose very salty water will sometimes check bleeding.

If all of these methods fail, then make small bunches of absorbent cotton about the size of the last joint of the little finger. Tie a strong thread about each of these. The thread should be 6 to 8 inches long. Push these pieces of cotton up into the nose for about three inches. Put several of them into the nose to plug up the opening of the nose. Leave these pieces of cotton in the nose for thirty minutes or longer. They can be pulled out by grasping the end of the thread that has been allowed to hang out of the nose.

The patient should not lean forward as this position increases the pressure in the blood vessels of the nose. He should lean back and allow the blood to drip through the back of the nose where it can be spit out through the mouth.

### Hernia (Rupture)

Rupture is caused by a piece of the intestine passing through an opening in the wall of the abdomen. It causes a swelling under the skin. The most common locality is in the groin close to the pubes.

To cure a hernia requires the services of a physician. If by pressing on the swelling the bowel cannot be made to return to the abdomen, the patient should remain lying down, and a physician should be quickly called.

In some cases of hernia an appliance called a truss may be used. This is a band that goes around the body, and which has a hard round pad that is held firmly over the spot where the bowel comes out of the abdomen. The most satisfactory treatment is surgical. Once efficiently repaired by a surgeon, hernia gives no further trouble.

### Stone in the Bladder

Frequent and painful urination, blood in the urine, and occasionally passing very small stones in the urine are all signs of stone in the bladder.

### Treatment

Rest in bed, and drink large quantities of water containing lime juice or lemon juice. Fifteen grains of potassium citrate in a cupful of water may be taken three times daily. Hot baths are helpful. Ten grains of urotropin may be taken three times a day. If the pain is severe, it will be necessary to go to a hospital and have the stones removed by a surgeon.

### Jaundice

Yellowing of the whites of the eyes and the skin is due to disease in the gall-bladder or liver.

If there is any fever, the patient should go to bed. The diet should consist of soft or any liquid food, preferably free from fat. Drink water containing lime juice. Take a dose of Epsom salts daily. Apply fomentations over the liver for twenty minutes twice a day.

### Pain in the Joints and Pain in the Back, Rheumatism

In the treatment of any of these pains, heat is the most efficacious treatment. The hot-water bottle can be used, or the fomentation. Oil of wintergreen is helpful when rubbed into the skin over the joint. A cloth may be saturated with the oil, and laid over the painful place. Cover this cloth with a piece of oiled paper, and then apply a bandage. Avoid the use of alcohol and meat. Drink large amounts of water daily.

In the case of painful joints due to rheumatism, 15 grains of sodium salicylate and 30 grains of soda bicarbonate (baking soda) may be taken in half a glassful of water every three hours.

### Epilepsy (Fits)

Epileptic fits may be so severe that the patient falls down and froths at the mouth. In some cases the fits are very mild. The patient will, in the midst of talking or eating, suddenly lose consciousness for a half minute or more. These mild fits are very similar to fainting.

The treatment consists in making sure that there is a bowel movement daily. Do not use wine, tobacco, or meat.

Sodium bromide, 60 grains a day, may be given to an adult until a physician is secured. Drink freely of water containing lime juice and sweetened with a small amount of sugar.

It has been said that heredity is believed to play an important role as a cause of epilepsy. Alcohol, auto-intoxication, head injuries, eyestrain, intestinal parasites, adenoids, etc., in an individual of faulty nervous organization may bring on the attacks.

During an attack of epilepsy the patient should be protected from injury, the clothing loosened, and a piece of wood or cork placed between the teeth to prevent laceration of the tongue. Careful search should be made for the cause of the attacks.

### Treatment

The diet is of great importance. Meals should be taken at regular intervals, and should be small in quantity. Meat, tea, and coffee and rich pastries should not be allowed. Salt in the diet should be reduced to a minimum. The diet should consist mainly of fruit, entire cereals, well-baked toast, milk, and vegetables. Eggs, legumes, nuts and cheese should be taken sparingly.

The bowels must be kept free by diet, simple laxatives, or enemas, as required. All sources of reflex irritation, such as eyestrain, nasal polypi, enlarged tonsils, adherent prepuce, and intestinal worms must be removed.

Keep the skin active by frequent warm baths. The patient should lead a quiet out-of-door life, with plenty of physical exercise.

### Swallowing Foreign Bodies

Parents are often greatly alarmed by children swallowing pieces of money, pins, buttons, etc. These things usually pass through the body without doing much harm. Do not give a cathartic, but give bulk food, such as bread, porridge, sweet potato, or some other coarse vegetables for the purpose of making a large mass in the intestines that will carry the foreign body along out of the bowel.

### Tumours

The soft tumours that sometimes grow on the head, neck, and back are harmless and are easily removed. Any tumour that grows on the lip, jaw, or breast, is dangerous. A physician should be consulted at once. The tumour may be a cancer or a sarcoma, and the only successful treatment is its removal by a surgical operation.

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### *Chapter Thirty-four*

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## Health Laws Are Divine Laws

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AS WE have studied the various organs of the human body throughout the pages of this book, we have observed repeatedly that the body is wonderfully made. It may be likened to a wonderful machine, but it is, in fact, far more marvellous than any machine that man has ever been able to make.

Think of the brain and nervous system of man, through which his mind works, enabling him to think and reason, to plan and invent, to understand, to love, to worship. Long before man invented the telephone or telegraph, there was a wonderful telegraph system in his own body, by which messages from the brain are sent out over the nerves to every organ and muscle of the body.

Examine the delicate mechanism of the eye, through which pictures of objects are made and transferred to the mind. Man knows a little about the science of physics, but the laws of that science were wonderfully demonstrated in the human eye before man ever gained any knowledge of the subject. Photography has made great advancement in recent years, but the best camera is crude when compared with the living eye.

Consider the wonders of digestion and metabolism, by which processes food is taken into the body to give energy, to repair the wear and tear of tissue, to become brain and bone and muscle, living, moving, working, thinking. Man has never been able to invent a machine that will produce so much energy on so little fuel, or that will function so long and so efficiently with so little attention and so few repairs.

Add to these wonders the miracle of reproduction, and it is evident beyond question that animal life is altogether different from and far beyond anything that man can invent or make. Imagine a machine reproducing itself! No, it just is not done in the world of mechanics. There are "calculation" machines, machines that add and count figures, and almost seem to think; but they do not bring forth little machines like themselves to take their place when they are worn out. There are machines that look very much like human beings and imitate many human actions, but even the robot has not yet learned to bring forth baby robots.

The wonders of the human body points unmistakably to a divine origin. From this it is evident also that the laws operating in the human body—the laws of nature, the laws of health—are divine laws. Therefore, just as it is man's duty to observe the great moral law of God, so it is his duty also to live in harmony with the laws of health.

Seeing then that it is a religious duty to care for the health of the body, we ought to give diligent study to the laws of health, and teach them to our children, that we might know how to live. And having learned that it is harmful to use such things as alcoholic liquors, tobacco, opium, betal, chillies, tea and coffee, we ought to resolve never to touch them. We ought to study carefully the subject of diet, for this has more to do with health than any other one practice. We ought to train our appetites to like the things that are good for our health. If we have been using things that are injurious to health, we ought to change our habits, resolving not to be slaves to perverted appetite.

The original diet was the best. When God created man, He gave him the delicious fruits and grains and vegetables of the earth for food. And surely the God who could create such a wonderful body must have known what was the best food to nourish it and keep it in health. If we have cultivated a taste for harmful drugs and narcotics and flesh foods, why not assert our liberty from enslaving habits, and through God's grace live in harmony with nature's health laws that have been placed in our bodies?

Those who have the courage to do this will find themselves well paid in new vigorous health and keenness of

mind, and a new and satisfying self-respect which comes with the doing of what one knows to be right.

Best of all, such a course of action makes us allies with the great Creator, and puts us in touch with the grace and power of God which is able to deliver us from all sin. This, and only this, can bring peace of mind—and peace of mind is essential for health of body.

Thus through the right attitude toward God, our Creator, we may enjoy both physical and spiritual health in this present life, and may have the hope of eternal life in the future.

To those who are interested in such a future, we recommend the study of the Bible, the Word of God. In it we are promised, through Jesus Christ, a home in a land free from sin, from sickness, from death; a land of physical, mental, and spiritual health, and never-ending youth. But even here and now it will pay us well to make such a study and become acquainted with our benevolent Creator. As we become acquainted with Him and with the laws which He has placed in our bodies, we should carefully and faithfully obey those laws, for they are the laws of health and they are divine. Obedience to them is the way to health and happiness.

## **Appendix**

# **A List of Prescriptions Mentioned in Previous Chapters of This Book**

No. 1. Boric Acid Solution. Secure a clean bottle that will hold 8 ounces or more of water (a glassful or more). Put in the bottle a large spoonful of boric acid crystals. Fill the bottle with water that has been boiled. Leave the bottle to stand for a few hours before using. The boric acid will not all dissolve. When pouring from the bottle, take care not to pour out any of the crystals. As the solution is used, more water may be added until all of the crystals disappear.

No. 2. Tincture of iodine already prepared can be secured at any chemist shop.

No. 3. Argyrol solution can be secured at a chemist shop. The 10 per cent solution should be used. Argyrol is not useful if more than 30 days old.

No. 4. Boracic Acid Powder, from any chemist.

### **For Dandruff and Falling Hair**

No. 5. Mix Sulphur 2 drams (2 small teaspoonfuls) and Vaseline 1 ounce (2 large spoonfuls).

### **For Baldness**

No. 6. Mix Resorcin 20 grains, and Alcohol 5 drams, and water 5 drams.

### **For Checking Diarrhoea**

No. 7.	Subnitrate of Bismuth	2	drams
(a) Mix	Salol	1	dram
	Chalk Mixture	1½	ounces

Give a teaspoonful every three or four hours.

**Dose for a Child**

(b) Mix	{ Subnitrate of Bismuth	36	grains
	{ Salol	12	grains
	{ Chalk Mixture	4	drams

Give a teaspoonful every three or four hours.

No. 8. Burnt Alum is made by putting a piece of alum in a spoon and holding it over the fire until the alum melts and becomes white and dry.

**For a Mouth Wash and Gargle**

No. 9.	{ Carbolic Acid	1	dram
Mix	{ Glycerin	1	ounce
	{ Saturated Boric Acid solution	10	ounces

Another prescription that is good is made as follows:

Mix	{ Boric Acid	1	dram
	{ Potassium Chlorate	2½	drams
	{ Peppermint Water	12	ounces

Another good mouth wash and gargle is made by adding 1 small spoonful of salt, and 1 small spoonful of baking soda to a pint (glassful) of water.

No. 10.	{ Carbolic Acid	1½	drams
Mix	{ Alcohol	2	ounces
	{ Water	5	ounces

This also makes a good mouth wash and gargle.

**Ointment for Pustules, Etc.**

No. 11.	{ Vaseline	1	ounce
Mix	{ Sulfathiazole Powder	3	grams

**For Heartburn or Belching of Sour Fluids**

No. 12. Soda bicarbonate (baking soda), or magnesia, may be taken in doses of a small spoonful at a time.

**Ointment for Hæmorrhoids**

No. 13. Same as No. 11.

**Tooth-Powder**

No. 14.	Powdered Chalk	$\frac{1}{2}$ pound
Mix	Powdered Castile Soap	$1\frac{1}{2}$ ounces
	Sugar	1 ounce
	Powdered Orris Root	1 ounce

No. 15. For Hookworm Prescription see Chapter 26.

**For Use in an Inhaler**

No. 16.	Menthol
Mix Equal	Camphor
Parts of	Eucalyptus Oil
	Oleum Pini Sylvestris

**An Inexpensive Inhaler**

No. 17. The method of using this medicine is as follows: Secure a piece of bamboo or other hollow wood the thickness of your finger and about four inches long. Close up one end by a piece of cork or wood that has a small opening in it. Wet a piece of cloth or cotton in this medicine and put it inside the inhaler. Then put the open end of the bamboo in one of the openings of the nose and inhale (breathe). Inhale the medicine several times daily. When not inhaling, a small cork should be inserted in the open end of the bamboo tube to prevent the medicine from evaporating.

**For Dry Cough**

No. 18.	Codein Sulphate	3	grains
Mix	Ammonium Chloride	75	grains
	Syrup of Citric Acid	1	ounce
	Water	$1\frac{1}{2}$	ounces

An adult may take a small spoonful in water every three or four hours until improvement is noticed. A child may take one-third of a teaspoonful.

**For Amenorrhœa**

No. 19. Mix 4 grains of sulphate of iron and 3 grains of ovarin. Take in a capsule three times a day.

**For Chlorosis**

No. 20. Blaud's Pills. Each pill contains 2 grains of sulphate of iron.

No. 21. Blue ointment can be secured already prepared in the chemist shops.

No. 22. First make a saturated solution of potassium permanganate by adding a large spoonful of crystals to a glassful of water. It should be frequently stirred and must be allowed to stand for several hours before using. This strong solution must not be used, but 2 small spoonfuls of it should be added to 2 glassfuls of water for use as a vaginal douche or to wash sores.

No. 23. Zinc ointment can be secured from the chemist shop.

No. 24. To make brown flour gruel, put wheat flour in a clean cooking vessel and hold over the fire, stirring constantly until it is brown. Then use some of this browned flour to make a gruel. A little salt should be added to it.

No. 25. Rice Water. Put a couple of large spoonfuls of rice in a couple of glassfuls of water and boil for 3 or 4 hours. Add a little water from time to time so that there will be almost 2 glassfuls of the rice water when it is done.

No. 26. Lime Water. The method of preparing lime water is as follows: Take a lump of unslaked lime about half the size of a small hen's egg; place it in a pint of water. This will make a milky-looking mixture which will settle in a short time. When it settles pour off the clear liquid on the lime. Add another pint of water, stir with the lime, allow it to stand until the water is clean, then pour off this water. This washes out the impurities. After this take this lime, divide it into four portions and put each portion in a pint bottle, fill the bottles with boiled water—cork tightly. The clear fluid in the bottles is lime water.

No. 27. Egg Water. See Chapter 20, p. 160.

No. 28. Starch Enema. See Chapter 21, p. 170.

No. 29. Egg-Nog. See Chapter 20, p. 160.

No. 30. Jellied Eggs (Coddled Eggs). See Chapter 20, p. 160.

No. 31. Steam Inhalation Method: Take any vessel in which water can be boiled and place over a fire. Make a funnel-like tube to connect the same with the face (an ordinary towel or paper will serve the purpose). Place one end over the vessel in which is the boiling water and the other over the mouth, and inhale the steam. Oil of eucalyptus and compound tincture of benzoin should be added to the water. (See Chapter 22, p. 184.)

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