central vein, disc hyperæmic, veins tortuous, stream in them broken up. Scattered hæmorrhages of dark colour throughout fundus. Right eye always weak, disc slightly pale. R.V. $\frac{6}{18}$, not improved by glasses. L.V. Hand movements. Urine, specific gravity 1020, no albumen, blood, or sugar; no cardiac hypertrophy, very slight thickening of radial arterial wall. Dark glasses were ordered, and a mixture of potassium iodide and iron prescribed. The patient made periodical visits to the hospital, but very little change occurred in the fundus.

On October 8th, however (that is about six weeks after onset), it was noted that the left eye was in a condition of acute glaucoma, with tension + 2, cornea very hazy, very marked conjunctival and ciliary injection, small hæmorrhages on surface and in the substance of the iris, fundus not visible, vision=perception of light only. Admitted as in-patient same day, and kept under eserine, but no improvement taking place, and the eye being painful, excision was advised, but this the patient refused to have done. He was discharged November 5th, being then fairly free from pain. On March 25th, 1901, the eye was nearly quiet, pupil semi-dilated, absolute glaucoma, no perception of light, lens becoming opaque. Tension markedly raised.

CASE II.—Mrs. M. A. P., aged 66, came as out-patient August 31st, 1900. Complaint: Sudden loss of sight of left eye the day before. On examination marked thrombosis of central vein was found, with some swelling of disc and œdema of retina, but no albuminuric retinitis; urine, specific gravity 1018, no albumen, blood, or sugar; very slight thickening of arterial walls. Right eye, fundus normal. R. V. $\frac{6}{6}$, L. V. hand movements only. She was treated as above, and on October 16th she also developed acute glaucoma in left eye. Tension + 1, much dilatation of episcleral veins and a few hæmorrhages on the iris. V = perception of light only. The patient was admitted and treated in hospital for about a month, but no improvement took place; the eye gradually quieted down but no vision remained.

CASE III.—T. D., aged 59, came as out-patient August 14th, 1900. Complaint: Sudden failure of sight of left eye ten days ago. Ophthalmoscopic examination revealed marked thrombosis of central vein, swollen disc, hæmorrhages, especially abundant near disc, around which were a few white areas (?) resulting from hæmorrhages. There was no trace of macular degeneration or any other appearance of albuminuric retinitis. Right eye: Retinal veins dilated, and in places crossed and partly obstructed by rigid arteries; disc healthy, full vision; urine, specific gravity 1015, albumen a trace, no sugar; arterial walls thickened and some hypertrophy of left heart. The usual remedies were administered until October 24th, 1900, when he was admitted into hospital with left acute glaucoma (with a history of onset three days previously), the pupil being semidilated and cornea very hazy. Tension + 1, hæmorrhages on surface of iris very marked. L.V. perception of sight. Practically no improvement took place under eserine, and he was discharged from hospital on December 10th. On March 19th, 1901, he complained of increasing dimness in right eye, and on examination the disc was found to be cupped, the field being very contracted on the nasal side, R.V. = $\frac{6}{18}$. He was at once admitted and iridectomy was performed. When discharged a fortnight later R.V. was = $\frac{6}{18}$ c. − 2 cyl. ax. 90°. L.V. = Perception of light.

CASE IV.—Mrs. C. P., aged 59, came to hospital on January 19th, 1895, complaining of dimness of right eye, which had lasted a week. Examination of fundus disclosed fairly marked thrombosis of retinal vein, with some thickening of retinal arteries. Urine: Specific gravity 1010, no albumen, blood, or sugar. R. V. = $\frac{2}{60}$ c. + 2.

June 15th, 1901.—R. V. = $\frac{5}{36}$ c. + 2, hæmorrhages nearly all cleared up. She did not come to hospital again until October 30th of same year, when it was noticed that the right disc was cupped. R.V. = Perception of light only; no hæmorrhages in fundus. On November 16th right iridectomy was performed. The left eye up to this time had remained good, and L. V. was $\frac{6}{6}$ c. + 2.5. She came again to the hospital in March, 1899, complaining of dimness in left eye. L. V. $\frac{6}{6}$ c. + 2.5 disc cupped slightly. Left iridectomy was done at once, and this apparently checked the glaucoma, for her vision on July 31st, 1930, was $\frac{6}{6}$ c. + 2.5, cyl. ax. 180°.

It will be observed that the glaucoma in the last case was distinctly chronic, whereas in the others it was acute, and that in the first three cases glaucoma followed the retinal condition in about six weeks, but did not appear in Case IV for over nine months. The occurrence of glaucoma in the eye unaffected with thrombosis in Cases III and IV is remarkable, suggesting a possible causal relation between the two conditions. The presence of hæmorrhages on the surface and in the substance of the iris showed that the arterio-sclerosis was not limited to the retinal vessels, but also affected the ciliary arteries, this latter circumstance, of course, being a strong contraindication to performing iridectomy, seeing that extensive intraocular hæmorrhage is so likely to occur under these conditions.

The clinical significance of this complication in cases of thrombosis naturally lies chiefly in the direction of prognosis, which is really not at all bad in many cases of simple thrombosis, the patients often retaining some useful vision after the re-establishment of the circulation and the absorption of hæmorrhages.

The occurrence of acute glaucoma as a sequel, however, renders the prognosis extremely grave, since these cases, owing to the condition of the vessels, are such that an iridectomy does not afford much promise of success.

My thanks are due to the honorary staff of the Birmingham and Midland Eye Hospital for permission to publish notes of these cases.

REFERENCE.

1 *Archives of Ophthalmology*, March, 1900.

# REFLECTIONS ON OPHTHALMIC WORK IN THE ARMY.

BY JOHN GRIMSHAW, M.D.LOND., M.R.C.S.ENG., ETC.,
Aldershot.

IT is with pleasure that I read the annotation on spectacled soldiers which appeared in the BRITISH MEDICAL JOURNAL of September 21st, 1901. As there are various points in it which have occupied my special attention for a considerable time under favourable conditions for examining into and forming some opinions on this important question, it may prove of interest if I describe briefly my experience, and in a general way record a few impressions on the subject of defective vision in soldiers as it has appealed to me.

For over eighteen months, as civil surgeon attached to the Cambridge Hospital, Aldershot, I have had charge of the ophthalmic work of this hospital, and, as a part of my duties connected therewith, it has fallen to my lot to examine and report upon for the medical officer in charge all cases of defective vision reporting sick at this hospital. This process includes all cases sent to hospital from the various inspection rooms in South Camp for eye examination and report. Further, I reported on all soldiers admitted into the Cambridge Hospital who were invalided home from South Africa on account of eye trouble of one kind or another. This represents only a small portion of my ophthalmic work in hospital and camp, but time does not allow me to deal with my entire ophthalmic experience here in anything like a comprehensive and exact manner.

After some time, when I fell into the routine work of the military medical system, I recognised the great importance of this subject of defective vision in its relation to voluntary enlistment, and to the efficacy of the man as a fighting unit after enlistment. For the last twelve months, therefore, I have kept complete copies of my reports, and it has been my aim to make each report minutely and accurately represent the true state of the eye examined. I worked out the refraction of each eye by retinoscopy after application of homatropine cum cocaine, and afterwards checked the results, and the ability of the soldier to answer correctly, by examination with test types and trial lenses. All other methods of routine eye examination were used by me in every case, so that I could conscientiously say, on occasion, "no cause for defective vision can be found."

It is only those, perhaps, who have like myself seen the wearying and nerve-shattering effects of the "scrimshanker's" importunity upon the responsible medical officer, who can realise the value of this moral support when appealed to in the hour of trial, "Are you sure there is nothing wrong with this man's eyes, Mr. —— ?"

The amount of material I have had at my disposal can be judged by the following extract: "The work carried out by the R.A.M.C. at Aldershot since the war commenced has been enormous, but it has been accomplished with remarkable success. Some idea of this can be gathered from the fact that during the year 1900 over 10,000 patients passed through the wards of the Cambridge Hospital alone, and over 3 000 of these were sick and wounded from South Africa."

I find that in the last twelve months I have written some 250 reports of the kind described on cases of defective vision for the medical officer in charge of the Cambridge Hospital. These reports, I may add, are forwarded by this officer to the principal medical officer attached to the invaliding documents of those patients whom I have recommended for discharge on account of visual disabilities.

The cases of ametropia were:

| | | | |
|---|---|---|---|
| *Hypermetropia* + 3 D. and under (small error of + 1 disregarded) ... ... ... ... ... ... | = | 34 | |
| " Over + 3 D. ... ... ... ... ... ... | = | 54 | |
| Total of hypermetropia ... | = | | 88* |
| * Of these 88 cases 42 had more or less marked astigmatism. | | | |
| *Myopia* − 3 D. and under (small error of − 1 disregarded) ... | = | 16 | |
| " Over − 3 D. ... ... ... ... ... ... | = | 15 | |
| Total of myopia ... ... ... | = | | 31† |
| † Of these 31 cases 16 had astigmatism. | | | |
| *Mixed Astigmatism* ... ... ... ... ... ... ... ... | = | | 17 |
| Total cases of ametropia ... | = | | 136 |
| *Presbyopia* .. ... ... ... ... ... ... ... ... | = | | 12 |
| Total ... ... ... ... ... | = | | 148 |

Among non-refractive or complicating morbid conditions were: (1) Leukoma (common). (2) Sequelæ of old iritis (common)—namely, anterior synechiæ, anterior capsular opacities with more or less occlusion of pupil, posterior synechiæ—including cases of total posterior synechiæ with exclusion of pupil, followed by softening and shrinking of globe and complete loss of sight. The majority of the latter iritic class, and all the destruction of globe cases, were in soldiers invalided home from South Africa. (3) Cataracts (rare). (4) Vitreous opacities (common). (5) Fundus changes (rare) including optic neuritis, several of which according to medical history sheet followed enteric in South Africa; choroiditis and choroidal hæmorrhages; ruptured choroid: detached retina, including a remarkable case caused by lightning stroke, a description of which was read by Major Yarr before the Ophthalmological Society.

I would here like to draw attention to the number of cases sent to me diagnosed "conjunctivitis" which were really cases of iritis, and to the frequency with which I see sequelæ of neglected cases of iritis in synechiæ, etc., as above described. On several occasions I have just been in time to prevent dire consequences of mistaken diagnosis or inefficient treatment, by frequent applications of atropine. Moreover, I have reason to believe that an error of refraction (especially astigmatism and hypermetropia) is liable to lead to a mistaken diagnosis of optic neuritis. For example I will quote a case at present in my wards. Sergt. P., invalided home from South Africa suffering from defective vision, the result of optic neuritis following an attack of enteric (medical history sheet). Retinoscopy reveals simple myopic astigmatism in each eye, but no signs of optic neuritis or other morbid change in fundus or elsewhere. On examination with trial lenses:

R.V. = $\frac{6}{12}$ c̄ − 1 D. cyl. axis vert. = $\frac{6}{6}$.
L.V. do.

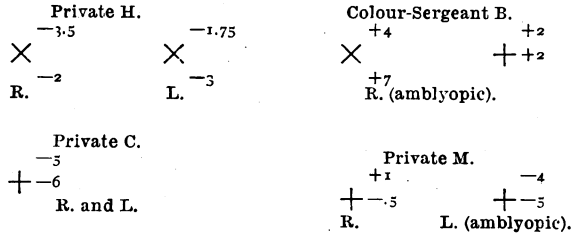
To help me to avoid certain pitfalls of eye work on entering general practice, I regularly carried a little box in my vest pocket containing discs of atropine (for iritis), cocaine (for cornea, foreign bodies, etc.), eserine (for glaucoma), and homatropine c. cocaine (for retinoscopy and fundus examination). To my box I have added fluorescin discs (for corneal ulcers). The benefits which have accrued to patient and self by the adoption of such aids to memory afford me sufficient excuse for mentioning my little device.

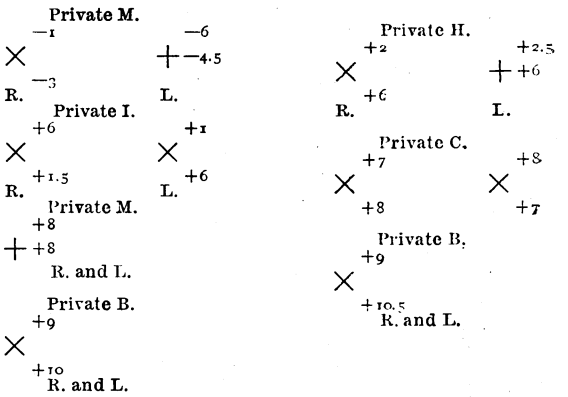
To all R.A.M.C. medical officers I would urge the invaluable help of retinoscopy in army ophthalmic work. It is indispensable; nothing can replace it as an objective visual test easy of application.

I may say that many of the cases reporting sick were ordered to do so by their musketry instructor for defective vision revealed by bad shooting. "Trial by fire" is a very excellent trial in more ways than one for the soldier, and it serves better than any conventional rule of thumb visual tests to convert his latent defective vision into total manifest.

My cases prove either neglect of the medical examiner (or his assistant) to conform with War Office regulations, or the inadequacy of the visual tests to serve as an effective barrier to the enlistment of recruits visually defective from ametropia or organic lesion. Both causes operate in permitting a large number of men to enter the army who are unfit for it through visual defects, whether of a nature to be corrected by glasses or not.

1. Is the medical examination of recruits unsatisfactory under the present system, or, at any rate, inefficiently performed? The following cases of ametropia selected from amongst many in my list would seem to point to an answer in the affirmative.




I have asked such men how they managed to pass the V. tests, and they have replied in the following fashion: "I was never examined"; "I tipped the recruiting sergeant"; "I rushed through with the crowd"; "I guessed (?) them somehow"; "I never did count the dots" (though examined). Confronted with cases of the quality and quantity here recorded, and by such explanatory statements made by men in the regular army, I am able to sympathise with Lord Kitchener in his strictures passed upon the physical unfitness of the Imperial Yeomanry and the troubles in which they involved him and his staff in South Africa.

With reference to the remark, "I tipped the recruiting sergeant," I may state that the recruiting sergeant receives 2s. 6d. for each recruit. The addition of another 2s. 6d. as a dole from the anxious would-be Thos. Atkins, would surely make recruiting a lucrative and desirable form of occupation.

It will be seen, therefore, that it is to the recruiting sergeant's advantage that the maximum number of his candidates be accepted by the medical examiner.

The tricks of the trade are well known and understood by the experienced officer. For example, the test dot card is held up before the candidate by the medical examiner, whilst the assistant covers an eye. It does not require a vivid imagination to understand the ease with which the number of dots can be conveyed by the assistant to the subject by a series of secret taps.

There are other tricks of legerdemain practised in the attempts to impose upon the examining surgeon, which are worthy almost of a "Maskelyne." Even actual impersonation of the proposed recruit is not unknown. But I am afraid there is carelessness on the part of the medical examiner of recruits, and even criminal neglect on the part of him who rises superior to the test-dot card, and credulously asks the recruit, "Are you all right?" The present army system must not be altogether exonerated from blame in the matter.

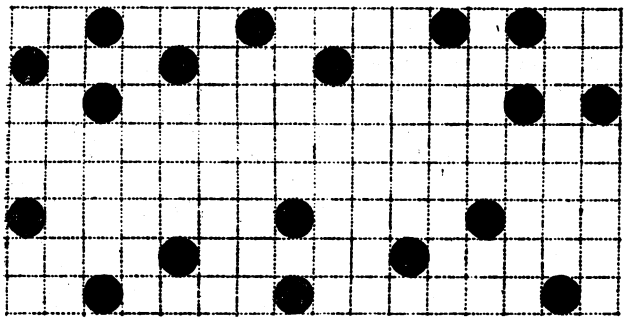
First, in these days of recruiting difficulties it is to be feared that medical examiners believe that the quality of recruits must be subsidiary to quantity, and that the adoption of the principle of "let 'em all come" would be acceptable to the recruiting authorities.

Secondly, these responsible examinations as now arranged often fall upon civilian doctors or raw R.A.M.C. lieutenants, who can scarcely be blamed for carrying their responsibility so lightly, if through ignorance or inexperience they do not realise the immediate or far-reaching results of carelessness of their recruiting acts—a carelessness which will involve financial loss to the State by enforced discharge of semi-trained men from the service, and possibly disastrous losses on the field of action through imperfect shooting, picketing, or scouting.

The best way, I think, to prevent such "unfortunate occurrences" in the examination of recruits would be to appoint consultative Boards of experienced R.A.M.C. officers specially skilled in the detection of disqualifying disabilities to examine recruits before final admission into the ranks; such a Board to have, on eye matters at least, an expert skilled by specialism in the visual disqualifications of recruits, to whom all doubtful eye cases might be referred for report.

Some such system would certainly have to be organised, if the BRITISH MEDICAL JOURNAL'S suggestion of enlarging the meshes of the recruiting net were to be adopted, for the ophthalmic expert would have to answer, amongst other questions, whether the fish caught were worth the curing? But at this stage we are confronted with the question of specialism by officers of the R.A.M.C., a question large and important, the discussion of which does not come within the range of these reflections. I need only say that such specialism is not only very desirable, but absolutely necessary if the multitudinous duties of the R.A.M.C. officers are to be performed in anything like an efficient and satisfactory manner.

2. Are the visual tests sufficiently stringent? These V. tests by means of the test-dot card are as follows:



A recruit for the regular army must be able to count these dots at a distance of 10 feet. Each eye must be examined separately.

These tests would pass a recruit for the regular army with V.$=\frac{6}{18}$ and reject one as unfit with V. below $\frac{6}{24}$. This means that a degree of 1.75 myopia (each eye) would be accepted. For the militia, volunteers, and the departmental corps, V. acuity represented by test-dot card held at 5 feet instead of 10 feet is demanded. Such a difference appears somewhat inconsistent when so many irregular troops are at present engaged on active service in South Africa.

It will be seen that the test will not exclude a hypermetrope whose compensatory accommodation is unstable enough to break down by the least constitutional debility; and, as a matter of fact, I have many records in my notes of: "I first noticed my eyes bad after enteric."

In consideration of this question it must be remembered that in shooting, the eye has to be accommodated in rapid succession between the fore and back sights of the rifle and the target. Even simple errors of refraction of +2 D. to +3 D. or −1.5 D. will render this difficult.

This test-dot card was introduced by Professor Longmore in 1860, and was based by him on the work of German oculists. No fresh edition of the test has been published by the War Office since 1870, when the then distance of 15 feet was reduced to 10 feet, a modification which was demanded by the exigencies of recruiting. The test is a rough and ready one, and is very suitable for recruits who are unable to read. It assumes that because a man can count dots at a distance of 10 feet (which I would note is a totally different thing from seeing them with any sharpness of definition) he can see a bullseye 3 feet diameter at 600 yards with sufficient precision to enable him to shoot at it with reasonable chances of success. And in this assumption there are surely possible fallacies. From test-dots to targets, from 10 feet to 600 yards, from counting dots to shooting bulls, are surely distances to leap which resemble somewhat impassable gulfs. For be it observed, soldiers do not in active warfare shoot at white bulls or blackgrounds; they shoot at men, often only part of a man, and at men also who may be indistinguishable in colour from the ground on which they stand or lie. Moreover, it is undoubtedly true that the use of guns of such long range and precision in modern warfare demand keener visual acuity in the soldier than was formerly the case. Most of the shooting, I am told, in the Boer war has approximated closely to ranges of 1,000 and 2,000 yards, and even accurate shooting at shorter ranges is vastly more important now than it used to be in the old days of the bayonet.

For Lord Roberts has said that the bayonet is an obsolete weapon of attack, and has been replaced in modern warfare by rifle fire within a zone of 200 to 600 yards, and that in future battles will, *cæteris paribus*, be won by armies which possess the best and straightest shots at this distance. From Sir Redvers Buller we get the opinion that superiority of the Boers over us in this wearisome South Africa campaign is largely because of his superior distant vision.

Everyone, therefore, must admit the desirability for each recruit of the regular army to have the raw material of visual acuity in him for the making of an efficient fighting unit, which, *par excellence*, means a first-class shot and a sharp-eyed scout. These visual tests are insufficiently stringent to serve in barring men from entering the army who do not possess that excellent vision necessitated by these two all-important functions of the modern efficient soldier: and my experience goes to prove that men in the army are waking up to the importance of good vision, as seen by their anxiety to have defects corrected by glasses (or otherwise). Officers have consulted me respecting their eyesight preparatory to going through their course of musketry at Hythe, who have had errors of refraction as low as — 1.25 D. and — 1.5 D. myopia.

A few days ago Lieutenant P., R.H.A., consulted me about his eyes. He had recently returned from South Africa, and when there his attention was drawn to his defective distant vision, and the need for its correction. Correction (after retinoscopy) gave:

R. V. $=\frac{6}{18}$ c̄ — 1 cyl. axis 60° $=\frac{6}{6}$.

L. V. $=\frac{6}{6}$ c̄ — 0.25 cyl. axis vert. 1 $=\frac{6}{6}$.

Sergeant P. (case previously recorded), who has been a first-class shot and instructor of musketry, is anxious to remain in the army, but is greatly concerned about his defective distant vision. Yet examination and correction shows only — 1 D. axis vert. 1 $=\frac{6}{6}$; without correction V $=\frac{6}{12}$.

Private X., H.L.I., one of the crack shots firing for his company at Bisley this year, consulted me for epiphora some weeks before the competition. He said that the watering of his eyes affected his shooting. I was able by operation to relieve his epiphora and to make his shooting more satisfactory to him.

All these cases could count their "dots" at 10 feet with ease.

Telescopic sights are now used by the artillery, and recently efforts have been made to perfect rifle fire by some such aid. All guns, small and large, are made to fire with maximum accuracy at all ranges; yet correct shooting is still dependent upon good vision, and but little attention is paid to this subject. It still seems as if the question of whether a man is of certain height or chest measurement, or whether he has varicose veins, overshadows the most important question of all, Can he see well?

By way of digression, I may state that it is somewhat astonishing and perplexing to learn from soldiers who have returned from the front the frequency with which kopjes were targets and not Boers. "Fighting all day, Sir, and never saw a Boer." "Yes, Sir, we simply blazed away at the hills on the chance of hitting a Boer or two." Such remarks as these I have often heard from our invalided South Africans, and they have compelled one to ask oneself the question whether in these days of smokeless powder and in the clear atmosphere of the veldt, the eyes of our "absent-minded beggar" were not a little to blame in his failure to spot the Boer, although cunningly entrenched.

Everyone also will, I presume, admit the necessity for the prompt discharge from the army of the man who, through ametropia (if this must remain uncorrected) or organic lesion has ceased to be an efficient soldier. Unfortunately, these visual tests cut both ways in their application, for "whatever visual disorder a N.C.O. or soldier serving in the ranks may happen to contract, so long as he is left with acuteness of vision equal to that for which recruits are tested, he must be regarded as visually qualified for military duties." Moreover, as will be seen later, the test imposed upon men who have suffered impairment of vision of one eye is more stringent in case of discharge than on entrance. It follows, therefore, that if the visual tests are ineffective in barring men with unsuitable vision, they will serve even in a greater degree to keep such undesirables in the army, unless spectacles are allowed to correct the ametropes, and the men are willing to wear them.

The advice given in my report to the Invaliding Board respecting discharge of soldiers has not always perhaps coincided with the regulation visual requirements, and when there has been a proved discrepancy between them, I cannot blame the able and responsible President of the Board, if thus placed between the "devil" of the dots and the "deep sea" of my report, he has felt bound, when evidence could be gained, to rely on the regulation standard of efficiency.

Some 80 cases, I find, of defective vision through ametropia, have been invalided from the Cambridge Hospital alone during the last twelve months. Ophthalmic surgeons may be interested in comparing these figures with the 136 cases I have recorded.

A reference to the figures given will remind the reader of these remarks, that in many of my refraction cases the error was more marked in one eye than the other; similarly, also, in cases of organic lesion. One of the questions I have frequently had to answer is, Should this man shoot from his left shoulder? For impaired visual power or total loss of vision of one eye, if the other eye be efficient, is not held to be a cause of unfitness for further military service, and under musketry regulations permission is granted (under medical certificate) to fire from the left shoulder. I may say I have no faith in the left or one-eyed soldier; I have invariably found him a dissatisfied nuisance, as well as an inefficient soldier with a perfect mania for reporting sick. Such one-eyed men are attracted by a hospital like a moth by a bright light. I know one such soldier, with one eye excised, who, much to his disgust, had failed to get his discharge. For months subsequently his life was spent in tap-room, guard-room, prison, or hospital, until finally he was sent to me from our restraint ward (where he had been detained for delirium tremens) for a report on his solitary eye. He got his report and his discharge. And in certain walks of the army—I should really say rides, for I specially refer to drivers and artillery or cavalry men—I willingly recommend such for discharge, as, in my opinion, binocular vision is essential for the safe performance of their duties.

One of the twenty South African invalids I have glassed was a one-eyed astigmatic myope, Driver G., A.S.C., left eye excised in South Africa:

$$\text{R.} \times \begin{matrix} -4 \\ -2 \end{matrix}$$

I did not ask this soldier whether he could count dots or not.

For over twelve months I have made a point of embodying in my report the results of my attempted correction of errors of refraction, and of stating whether spectacles would remedy the defect and convert the man once more into an efficient soldier. I purposely use the words "attempted correction," and this must be read in connection with my previous remark "and the ability of the soldier to answer correctly." For the "scrimshanker" is somewhat of a curio. He is apt to view the case of trial lenses with grave suspicion, and all the lenses in creation will not increase his manifest vision beyond $\frac{6}{24}$ if he thinks himself threatened by the snares of the designing medical officer. A small residuum of my cases were undoubtedly "scrimshankers," but a majority of those with causes for defective vision, I believe, exaggerated their defect in order to get their discharge.

This statement may astonish the civilian reader, but it will not perturb the army medical. He knows full well the unpopularity of the army, and the avidity with which a worried "Tommy" seizes the slightest pretext upon which to base a claim for his "ticket-of-leave." My experience is that all the king's glasses and all the king's men will not make an obstinate "Tommy" see well again under existing conditions of service and faced by the wide "open door" of exit. (*Vide* my suggestions at conclusion.)

All the South African invalids I glassed were anxious for their discharge, and it was interesting to note with what altered V. acuity the majority of these men faced Snellen's types after the magic letters P. I. (proposed invalid) had been written on their sheets.

Among my South African invalids was a Cambridge University undergraduate who had enlisted in the evil days of adversity, and desired his discharge when the clouds had rolled away. He had apparently no cause for defective vision excepting + 1 D. hypermetropia. Visual acuity was represented by $\frac{6}{18}$. I discharged him from hospital as a malingerer, but he was at once returned on my hands; so I was tempted to enter into an unholy compact with the "Evil One" and to promise him his discharge if before leaving hospital he would tell me the truth. The result was agreeable to me (V=$\frac{6}{6}$) and likewise to him, namely, discharge by the Invaliding Board. Be it not understood by my professional brethren that I spun a yarn worthy of the hero of *The Tadpole of an Archangel*; no, I simply quoted the report of an ophthalmic surgeon consulted by my friend (with evil intent) when on sick furlough following his return from South Africa, who had diagnosed hyperæsthesia of the retina, and had ordered large blue goggles of the strength +0.75 D. In my glassing operations and in my attempts to place these army optical matters on a somewhat different footing, I have invariably had the hearty support and sympathetic co-operation of the medical officer in charge of the Cambridge Hospital. Up to date we have secured from the War Office the payment for spectacles of South African ametropes invalided on account of defective vision. At present, however, men remaining in the service must buy their own glasses. But any day I am expecting, as a result of further application, to have this arrangement altered, and Tommy I feel sure will welcome his gift of spectacles with eyes wider open than they now are.

The use of spectacles by soldiers in the ranks is not sanctioned (or prohibited) by any published regulation in the army. Each case must be decided on its own merits by the commanding officer (and, so far as I have been able to ascertain, by him alone), and to this officer my ophthalmic report respecting the use of glasses in suitable cases has therefore been forwarded by the medical officer in charge for his inspection and report.

My experience is that the commanding officer's decision whether the man will be retained though spectacled will be governed largely by common-sense considerations. "Is the man anxious to remain in the service?" "What are his duties?" "Is he worth keeping?" "Can I rely upon that man on picket or sentry-go?" "Will a pair of broken or lost glasses possibly involve me in a 'regrettable incident' when on active service?"

There doubtless does exist in our army a strong prejudice against spectacled soldiers, and this prejudice, it must be admitted, is under present conditions of service but a reasonable one. Some objections, of course, that can be raised against soldiers in the regular army wearing glasses are these. The want of present means of replacing them when injured or broken in many stations where English troops are employed. (These difficulties would prove almost insuperable when on active service out of Europe.) The interference with their utility by dust, rain, etc., specially felt by mounted troopers. But these objections to spectacles may easily be exaggerated. A large number of irregulars engaged in South Africa wear spectacles, and I am told by returned soldiers that these men are extremely careful of their glasses, realising that their lives, perhaps, depend on them.

That glasses do not prevent a man becoming a good shot, likewise the prevalence of their need amongst men for shooting, is seen in the fact that some 25 per cent. of our crack marksmen at Bisley wear spectacles. At present in our regular army the regulations regarding musketry instruction provide that "short-sighted men may when firing wear glasses"; but no soldier is allowed to wear spectacles on parade without the official consent of his commanding officer. Only this last week the following case was sent to me for examination and report: Gunner S., R.H.A., failed to count dots on re-examination before being drafted to India: R. and L. V.=$\frac{6}{18}$. Retinoscopy revealed simple myopic astigmatism.

R. V. c.—2.5 cyl. axis 30° } = $\frac{6}{6}$ (part'y).
L. V. ,, ,, }

I recommended that he be allowed to remain in the service and to wear spectacles regularly. The man bore a good character, and was anxious to proceed to India. Under these conditions the commanding officer without hesitation consented to the man's wearing glasses and to his despatch to India.

My experience has led me to believe that there are a large number of ametropes in the army who ought to be "glassed"

and are not, but who would gladly avail themselves of artificial visual aid if they knew that "Lieutenant" A. or "Captain" B. was sufficiently a "doctor" to know how to examine their eyes, and if the War Office were willing to pay for the spectacles.

Army authorities are at present faced by two sets of difficulties. (1) Greater demand for good vision in our men by modern conditions of warfare; (2) the old, old recruiting difficulties which I have stated led in 1870 to the visual tests being lowered. These difficulties will probably be overcome by a compromise.

Though unlearned in English or Continental literature on these important subjects, I venture to make the following suggestions:

1. Do not admit more ametropes by still further lowering visual tests unless prepared to correct their vision.

2. The examination of such ametropes by ophthalmic experts (civilian or military), and their vision and correction to be recorded on their medical history sheets. Such action would be necessary not only to treat the "scrimshanking and discharge" stages of a soldier's *folie circulaire*, but to render easy the replacement of broken or lost glasses.

3. Opticians to be officially appointed whose duty it would be to keep an exact record of glasses supplied, to check the regimental data.

4. The distribution of recruits according to their sight to branches of service not necessitating keen vision or otherwise. If the visual tests were lowered, it would be of paramount importance to separate the "hewers of wood and drawers of water" from the soldier who proposes to become a good rifleman, cavalry man, or artillerist.

5. To support discipline, and to lessen the responsibility of medical officers by inflicting summary punishment—by court-martial and under the certificate of the ophthalmic surgeon—on soldiers afflicted with *folie circulaire* of above type.

6. To encourage the correction of ametropia by granting spectacles to soldiers free of cost. I never could understand why free spectacles were given to South African invalids conditional on their discharge from the army. I should have thought that a non-discharge was a more rational condition. The War Office grant artificial teeth to men who are likely to become efficient soldiers and who are willing to remain in the army. Why not spectacles?

7. Official encouragement to R.A.M.C. officers to specially qualify themselves in ophthalmic work, such special qualification to be rewarded with corresponding increase of pay.

8. The appointment of civilian consultants in certain military centres or districts to co-operate with the R.A.M.C. officers as occasion demanded or rendered desirable.

9. Special arrangements to be made whereby spectacles lost or broken can be replaced, and for ensuring suitable glasses being always available on occasions of need. This applies specially to men abroad or on active service.

Respecting the recent proposals made for reform of R.A.M.C., my remarks on "specialism" by medical officers of this corps were written before publication of these proposals. I have long advocated this and a closer union of the civil and military branches of our profession. Twelve months ago a special department of the "ear, nose, and throat" was established at my request at the Cambridge Hospital. I have charge of this, and am taking notes for publication of "reflections" on this work in the army.

## AMBULATORY TREATMENT OF A RUPTURED TENDO ACHILLIS.*

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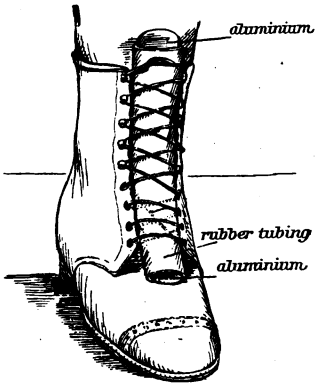
### A Personal Reminiscence of the South African Campaign.

Whilst proceeding to South Africa in advance of the Welsh Hospital, on board the R.M.S. *Tantallon Castle*, I had the misfortune to rupture my right tendo Achillis on March 14th, 1900, when hopping on tip-toe during physical drill before breakfast. By a wise provision—unappreciated by the writer until his accident—the hopping stage of the drill is not reached until an amount of strength is used up, which prevents one doing the hop after the fashion of a *première danseuse*. Unfortunately for me, I got on deck when the hopping stage of the drill had been reached, and I joined in, fresh and vigorous, when at the first turn round the deck the breaking strain of the tendon was reached with unexpected suddenness, which rendered the foot utterly helpless. I felt my heel drop on the boards, accompanied by a loud sound like the snap of a broken 'cello string, and followed by a sudden dull pain and a disagreeable warmth near the heel. Whether the sound was conveyed through the bones, the air, or both, I cannot decide, but the sound was to me very loud indeed. On examination, there was the usual deep gap, admitting easily the ball of my thumb, which is seen after tenotomy of the tendo Achillis.

The steward brought me a bucketful of seawater—the traveller's panacea for strains and sprains—into which I plunged my maimed limb, while I experienced a melancholy awakening of the surgical traditions of treatment of similar lesions. The first picture which greatly worried me was that of the stereotyped extended foot in a slipper with pointed toe, and a heel-strap attached to a collar, fixed to the thigh above the bent knee; it presents itself in surgical textbooks of many countries with a persistence that for the moment quite haunted me, for, being a civilian surgeon *en route* to a great war where plantigrade progression would probably be a necessity, I concluded that such treatment was fundamentally wrong. The next and more modern picture was that of a leg and foot in plaster-of-paris, with its owner using a pair of walking-sticks, which would effectually doom him to a rest in Capetown; this method of treatment was also unacceptable to me; whilst the last picture of all was introduced to me by a brother surgeon on board in the up-to-date fashion: "Let me cut down and tie the ends together; it is the very best possible method." I must confess I did not fully appreciate the value of the advice, for I immedietely thought of all sorts of possible pyogenic tragedies.

I decided very soon to lay aside the usual methods of treatment, my guiding principle being *che va piano va sano, che va sano va lentano*. The treatment I adopted until I arrived in Capetown was massage of the leg night and morning, and the application of cold-water bandages. I managed to hobble along fairly well by rotating outwards the whole of my lower limb, and using my adductors to advance the foot. By this method one can with care use the foot as an inanimate prop without extending or flexing the ankle-joint. After arriving in Capetown, and trying a variety of splints for restraining ankle movements, I hit upon the splint which is represented in the diagram, and which I got from Mayer and Meltzer's




local branch. It is an aluminium spatula moulded to the shape of the bend of the ankle; it was pushed into a very thick indiarubber tubing, which acted not only as padding, but also kept the splint in its place by preventing the aluminium moving downwards under the boot lace. It is necessary for the comfort of the patient to carry out the details illustrated in the diagram, one of these being that the boot lace should be placed right round the lower part of the

* Read before the South Wales and Monmouthshire Branch of the British Medical Association at Merthyr Tydfil.