Clinical and other Notes.

THE SOLDIER'S VISION.

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Some years ago the writer ventured to submit a plea for an improved visual test for recruits, in which the inadequacy of the "dot" test was pointed out.¹ The dot at 10 feet corresponds to a 3-foot bull's eye at 600 yards; each dot being about three-sixteenths of an inch in diameter, and being read at a distance of 10 feet, is approximately equivalent to 20/20 on Snellen's types. The old test lacked the advantage of taking into account the visual acuity of the person under examination, in the same way that Snellen's test does. By visual acuity or sharpness of vision is meant the power which the eye possesses of distinguishing the shape and form of objects; and it was found that a man with defective vision was able to count the dots at 10 feet, although their edges might appear to him hazy and indistinct, and he merely saw so many smudges on the card. In the same paper it was advocated that the vision of each eye should be recorded on the man's medical history sheet, thus constituting a permanent record of the condition of his refraction at the time of enlistment. The dot test has since been abolished, Snellen's types have been substituted, and the recruit's refraction on enlistment is entered on his medical history sheet, but there is still scope for further improvement which, it is submitted, can be carried out without any additional expense, and with much material benefit to the nation.

The standard we have adopted requires a minimum vision of 20/40 on Snellen's scale, or one-quarter of normal vision; this is practically the same as the former standard, except that visual acuity is now taken into consideration. We also take a man with one-sixth of normal vision in one eye, provided he has full vision (20/20) in the other. From a military point of view, the vision of one eye only (the shooting eye) need be considered. Compared with the requirements of the regular services of foreign armies our standard is a low one.² The United States Army demands full normal vision; France, Germany, Austria, and Belgium require 20/40; Italy and Japan 20/50, as the minimum vision of the weaker eye. Switzerland and Belgium require that the right eye, in cases of anisometropia, shall have the better vision; while in the other countries enumerated no stipulation is made as to which is to be the better eye, and the soldier is permitted where necessary to shoot from the left shoulder. All foreign army regu-

¹ Journal of the Royal Army Medical Corps, vol. v., No. 6, 1905.
² Archiv. de Med. et Ph. Mil., September, 1908.
lations dealing with defective vision, with the exception of the Italian, recommend the use of corrective lenses. As binocular vision is not necessary for good shooting, our object should be to get men with good sight in one eye, and where the vision is defective to correct it to normal, or as near the normal as possible with suitable glasses.

In our army we take a recruit who can read 1/6 Snellen or better with each eye separately without glasses, we record his vision, and we do no more. The writer, however, submits that we should go a step further, and estimate accurately the refraction of every recruit whose vision is below normal, prescribe suitable glasses, supply them to the soldier on payment, and enter the correction on the medical history sheet, so as to avoid the necessity for a fresh examination by a specialist should the glasses become broken or lost. From the point of view of vision the army may be divided into (a) shooting corps, including the cavalry and infantry of the line and the gunners of artillery, and (b) non-shooting corps, comprising the drivers of artillery and of Army Service Corps, and the men of all departmental corps, who are not required to shoot on service. Men who with or without glasses cannot read 1/6 on Snellen's types corresponding to full normal vision should not be permitted to serve in cavalry or infantry of the line where perfect vision is essential for good shooting, scouting, and signalling. Men with indifferent sight are not only of little offensive value in their own fighting line, but may be a source of potential danger to their own comrades. Such men (and the percentage who cannot be corrected with glasses will be very small) can be more profitably employed in other branches of the army, for example, in the departmental corps, or as drivers in the artillery or Army Service Corps. For shooting corps none but men with the best vision should be accepted. A recruit who is anxious to enlist will make every endeavour to see with the correcting glasses, whereas a man with twelve or eighteen months' service, who is tired of soldiering and whose vision to commence with has been defective, very often will not admit any improvement with glasses. Such a man will either have to remain as an encumbrance to his regiment and a source of perpetual worry to the musketry instructors, or will have to be invalided from the Service as medically unfit. Men with astigmatism should ipso facto be rejected for shooting corps; cylindrical glasses are expensive, often difficult to replace when broken, and it is doubtful whether a man with any marked degree of astigmatism can ever be made a good shot.

Myopia is permitted in all Continental armies, and the correction for it is prescribed in almost all except our own. Hypermetropia is recognised by the German, French, Austrian and Swedish armies, but the soldier is obliged to wear correcting lenses. The cost of ordinary spherical lenses is small, and the expense to the soldier would be a trifle.

Under the new musketry regulations soldiers will in future be classified from a shooting point of view, on the results of firing fifty rounds of
ammunition (instead of ninety-five as heretofore), fifteen of which have to be fired in the space of one minute. This minute is a critical period in a soldier’s military career, as on it the award of his proficiency pay depends; and it is obvious that a man who is not in the possession of normal vision, either natural or artificial, will find it extremely difficult to qualify for his Service pay. As regards shooting from the left shoulder this new rapid practice becomes an impossibility for a man who through visual defect is obliged to shoot from his left shoulder, owing to the position of the magazine bolt on the right side of the rifle; every time the bolt is drawn the rifle will have to be shifted from the right to the left hand. The remedy for this condition of affairs would appear to be the issue to all shooting units of a proportion (say 1 per cent.) of left-handed rifles with the bolt on the left side.

In carrying out the details of the proposed innovation, it is not suggested that any additional work should be thrown on recruiting medical officers, beyond furnishing the specialist in ophthalmology of the district or command with particulars of all recruits whose vision is below normal. The ophthalmologist should then at regular intervals visit every depot and examine the vision of such men, correcting them where possible to normal with suitable lenses, and recommending the transfer to departmental or non-shooting corps of astigmatics, and of others whose vision does not admit of full correction. This procedure may at first sight seem somewhat roundabout, but in reality it is considerably less so than our present system, whereby a recruit who reads \( \frac{5}{4} \) or better is enlisted, provided he satisfies all other requirements. He is then sent to his unit, and after an interval of from three to twelve (in the case of recruits sent abroad without firing their course of musketry) months, he commences his musketry course. After the lapse of a further period, men who fail to shoot accurately are suspected by their instructors of having defective vision, and are then, and then only, sent to the eye specialist to have their vision fully tested and corrected.

Recruits for the shooting corps, therefore, who do not possess normal vision should only be accepted conditionally on their passing a further sight test at the regimental depot; and in the event of their not subsequently fulfilling the requirements they should have the option of transferring to a non-shooting corps. Until the adoption of some such measures as those indicated, the writer submits that the country is not receiving full value from its army.