who could be selected as fit for some form of military service after correction amounted to more than one-half of the total of cases of defective sight.

(c) Only sixty-five cases were classed as unfit for any form of military service as a result of myopia.

2. *Hypermetropia*.—Cases included under this heading were again divided into classes (a), (b), and (c), as in the case of myopia. Before, however, commenting on these figures certain explanations should be made. It is obvious that a large number of men having slight degrees of hypermetropia would pass the War Office standard for general service, and therefore were not referred for special ophthalmic examination. On the other hand, a considerable proportion of cases included under the head of amblyopia were those in which one eye was amblyopic as a result of hypermetropia, and in many cases associated with strabismus. It will be seen, therefore, that the figures given do not afford an exact statement as to the incidence of hypermetropia among adult males in the same way as myopia. We may now deal with the subdivisions mentioned above:

(a) Only 123 cases were placed in the higher categories (B 1 or C 1) after the correction with convex glasses, and when this is compared with the similar figures under the heading of myopia, it appears comparatively insignificant. The fact is, as already explained, that most of the lower forms of hypermetropia are not likely to be a hindrance to general service even without the use of glasses. This no doubt accounts for the fact that the Continental armies seem to pay little attention to hypermetropia. If it is small it is of little significance; if it is high, the use of glasses is not likely in many cases to render the individual fit, at least for shooting units.

(b) A rather higher proportion of cases, 153 in all, were placed in the lower categories (B 2, B 3, C 2, C 3), in which great accuracy of vision may not be required, or in which clerical work could be performed with suitable correction.

(c) Only two cases were definitely classified as unfit on account of high hypermetropia. This is explained partly by the fact that even in the higher forms of hypermetropia examined the men were in most cases fit for some sort of military service with correction. It must also be remembered that some of these were included under the head amblyopia.

3. *Amblyopia*.—This heading is of no scientific importance, though it cannot be omitted from notice, as it helps to explain the inadequacy of the figures included under hypermetropia. By far the larger proportion of these were cases in which one eye was amblyopic as a result of hypermetropia, a few being due to myopia, and in many cases the amblyopia was associated with strabismus. No case of toxic amblyopia was noted.

4. *Corneal Opacities*.—One hundred and forty-one cases were recorded of opacity of the cornea in which this condition produced serious defect of vision in at least one eye, and it was only in a small number that both eyes were affected. Cases of obvious total blindness from corneal or other defects did not appear before the Board. Some cases of interstitial keratitis and of corneal ulcers still in an active stage were included in this series.

5. *Traumatic Cataract*.—This accounted for 119 cases, most of which had undergone some operative procedure. In nearly all cases there was no useful vision in the damaged eye, but the eye was quiet, and if the other eye had good visual acuity they were accepted for modified service.

6. *Congenital Cataract*.—This condition accounted for 44 cases.

7. *Enucleation of Eyeball*.—There were 76 cases in which one eye had been removed, usually, if not in all cases, as the result of injury.

8. *Fundus Defects*.—There were 20 cases of choroidoretinitis, 9 of detachment of retina, 6 of retinitis pigmentosa, and 11 of progressive optic atrophy. Defects due to myopia are not included under this heading. Probably there were numerous minor defects not seriously affecting vision, or at least in which the minimum requirements of the army were satisfied, so that there was no call for detailed examination.

9. *Night Blindness*.—In addition to the cases of retinitis pigmentosa there were three cases of night blindness in whom no fundus disease could be detected. These were cousins belonging to a family in which the condition only affected males and had been transmitted through females

from grandparents, the intermediate generation having been omitted. There were also three brothers with high myopia, one of whom had also some lens opacity, who had to be led from their work after dusk.

10. *Iritis*.—Iritis, whether recent or of old standing, was only recorded in six cases.

11. *Nystagmus*.—So-called "congenital nystagmus" was responsible for most if not all of the twenty-one cases included under this heading. There was associated defect of vision, and, owing to the exceedingly unsatisfactory results of the enlistment of men suffering from this condition, they were classed as unfit. No instance of "miner's nystagmus" was seen, there being no mining districts in the area.

12. *Miscellaneous*.—Among other defects there were two cases of vitreous opacity, one case of chronic glaucoma, and two cases of ocular paralysis associated with diplopia and other symptoms which rendered them unfit for any military service.

A METHOD OF SUPINATION BY PLASTER.

BY

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At the Military Orthopaedic Hospital, Shepherd's Bush, we see numbers of cases of gunshot wound of the upper limb in which the forearm is held more or less in a position midway between pronation and supination, and passive supination is impossible. This condition is due to the habit of putting up such cases originally either on an internal angular splint or even on a Thomas extension splint without due regard to the preservation of supination, which is notoriously the most difficult movement to restore. I have recently devised a simple and effective means of treating these cases by means of plaster. The plaster is

FIG. 1.

applied over felt (previously stitched together round the limb) and consists of two parts. A few temporary stitches hold the two portions of felt together while the plaster is applied, and are then cut. The upper reaches from the middle of the arm to the middle of the forearm; the lower from the middle of the forearm to just above the heads of the metacarpal bones, a hole being left for the thumb to protrude. On either side of the interval between the two portions pieces of metal (Fig. 2) are incorporated in the plaster. These consist of metal strips $\frac{3}{4}$ in. wide and 3 in. long, one inch of which is turned up at a right angle and the other

FIG. 2.

two inches notched to ensure firmer incorporation in the plaster, the notched corners being turned up to form spikes. One of these is fixed into the radial and another into the ulnar side of the lower part, and two other pieces are similarly inserted into the inner and outer aspects respectively of the upper part. When the plaster is firmly set (next day), pieces of rubber tubing are stretched round

these two pairs of metal pieces and gradually tightened from day to day, supination being complete when the two pairs are opposite one another. If desired, pronation can be obtained by reversing the process. It will be found necessary to put extra felt padding over the head of the second metacarpal, over the lower end of the radius, and over the ulnar border of the hand. When supination is complete the arm should be kept in this position for at least three weeks to prevent relapse before massage is begun.

This method is suited to cases of adhesions in the upper and lower radio-ulnar joints, fractures of the forearm where there is danger of cross union, and disability due to contracture of soft parts.

I am indebted to Colonel Sir Robert Jones, C.B., for permission to publish this article. The photograph was kindly taken for me by Mr. F. H. Lewis.

A SIMPLE MEANS OF ASCERTAINING IF A STERILIZING HUT IS HOT ENOUGH TO DESTROY LICE AND NITS IN CLOTHING OR BLANKETS.

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THE following method was planned in the first instance with a view to its possible service to sanitary officers who had to use extemporized sterilizing chambers, but a subsequent knowledge of the working of permanent hot-air sterilizing huts in home camps suggests that it might be of assistance to officers in charge of these also. Unless an electric ventilating fan, or other efficient means of circulating the air and so causing a uniform temperature throughout the chamber, exists, a stratified condition obtains, in which the heat is too low to kill at the lower levels and needlessly high at the top. For instance, door thermometers (that is, thermometers visible through a glass panel let into the door) record only the temperature in the vicinity at the level at which they are placed, and Captain J. T. Grant's trials with maximum thermometers have shown that, while the door thermometer records 60° C., the temperature just over the floor may be only 37° C., while at 7 ft. it is 103° C. The use of maximum thermometers placed at different situations within the chamber affords a useful check upon the record of the door thermometer, but may be deceptive, as only the extreme temperature is registered, there being no indication of the length of the period to which the clothes have been exposed to it.

By the use of porcelain pots or dishes of a definite surface area, containing a given quantity of stearin or paraffin wax of a suitable melting point, a sufficiently stable relationship between the heat and period required to kill both the insects and their nits can be established. In arriving at this relation a number of experimental trials must be made, but once the quantity and surface area required for a stearin or wax of a known melting point is settled only the simplest precautions are required to ensure efficiency. It is necessary that the wax or stearin should be replaced when it gets dirty, as otherwise its melting point may be reduced, and that the pots, which may either stand or hang, are not tilted at such an angle that the surface area is altered. Even if this last condition should occur, however, it will lead to an increased temperature or period of exposure being needed to melt the stearin, so that the error would be on the safe side.

I have worked out the following quantities in relation to the temperature and period needed for the destruction of the nits of *Pediculus humanus* when enclosed in a pocket made of khaki cloth as used for army breeches in France and the home service. The samples of stearin used were supplied by Messrs. Price, Ltd., and melted at 60° C., according to the trade tests. Nits, when protected by a single thickness of khaki cloth as above described, are killed by a fifteen minutes' exposure to a temperature of 52° C. As the method pursued in practice is to place clothing or blankets in a cool, or with the second and later batches in a warm, chamber, and count the exposure period from the moment when the door thermometer reaches the stated temperature, the same procedure was followed in the trial tests. The periods quoted, therefore,

always presuppose a gradual rise up to the temperature, except in the case of the precautionary tests dealing with a quick rise to a high temperature mentioned below. In order to allow an adequate margin for contingencies, the temperature and period required for the destruction of nits is assumed to be 60° C. for thirty minutes, thus allowing as a margin at least fifteen minutes in time and 8° C. The porcelain pots used were supplied by Messrs. Price, Ltd.; they are those commonly used in the trade for samples of tallow, stearin, etc., and should therefore be easily obtainable. They are 2½ in. deep by 2½ in. in diameter; if only smaller or larger ones are obtainable the quantities of stearin used must be reduced or increased accordingly. The stearin must, of course, be melted in the pot and allowed to cool before use; 7 grams of stearin (trade melting point 60° C.) require thirty minutes at 60° C. under the conditions named, a small portion being still unmelted after twenty-five minutes; 10 grams require between forty and fifty minutes to completely melt it, only a narrow ring being melted within thirty minutes.

If two pots, one containing 7 grams and the other containing 10 grams, are placed or hung slightly below the level of the lowest garments in the sterilizing room, one can be sure, if all the stearin in the 7-gram pot is melted before the removal of the garments, that the exposure has been sufficient, both as regards period and heat; while, if all the stearin is melted in the pot containing 10 grams, it will show that greater heat or a longer exposure than was necessary has been used.

The question of the possibilities of an altered relation between the melting of the stearin and the killing of the nits with a short-period exposure to a higher temperature was tried. Nits and stearin were exposed together, and it was found that the stearin was more resistant to these conditions than the nits. For instance, when the temperature was rapidly raised from 21° C. to 80° C. within twenty minutes, the nits were killed while the 7 grams of stearin was not quite all melted. A rise to the same temperature in eighteen minutes showed the same result. A rise to 82° C. in fifteen minutes was just sufficient to melt all the stearin, the nits being killed. Again, a rise in twelve minutes to 81° C. killed the nits, but left a central disc of stearin unmelted.

Memoranda:

MEDICAL, SURGICAL, OBSTETRICAL.

MECHANICAL AIDS IN A FIELD OPERATING THEATRE.

THIS short description might have been headed "The Mechanical Orderly," as most of the devices are made with a view to releasing the services of a trained man.

Fig. 1 represents a webbing loop and a length of tent rope with runner and button. The rope is looped round bars (1½ in. water pipe is useful) placed some 7 ft. 6 in. high

FIG. 1.

but away from, the foot and sides of the table. By placing the loop round ankle or wrist the elevation and the degree and direction of traction on the limb can be instantly adjusted. A stretcher sling unknicked to its full length makes

four loops. It is specially useful in fractured thigh cases.

Fig. 2 shows a very simple arm rest made from two pieces of wood and two wide strip-iron hooks. The table portion should be 19 in. by 9 in., and the thinner piece, half of which is screwed to the under surface of the former, is 40 in. by 4 in. The thin portion goes under the top of the operating table, and the hooks then engage with

FIG. 2.