anything like a useful number of cases, or their records, for a sufficiently long time after their evacuation from France. Except when the military situation demands it, a patient is not fit for evacuation from France until he is at least fit and ready for passive movement.

In conclusion I would like to call attention again to the widespread desire of surgeons serving abroad to hear more of the ultimate results of cases which pass through their hands. Our colleagues on home service are apt to forget that some of us have been in France for four years and are consequently more or less in ignorance of many facts which they may regard as common knowledge.

SOME ASPECTS OF MILITARY OPHTHALMOLOGY.*

BY

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MILITARY differs widely from civilian ophthalmology, and varies widely, according as the work is done in training camp, at the base, or in one of the various parts of the various fields.

One of my first impressions at camp was that it was essential to have in a military hospital unit someone with a special knowledge of ophthalmology. One's first duty, the examination and classification of recruits, very definitely demonstrated this. An examination which consists only of sight testing must prove unsatisfactory. The soldier should always have a good field of vision in each eye, and his eyes should be practically free from disease. Whilst conditions are bound to change, standards of vision that have been latterly adopted seem to me fairly satisfactory. I would certainly recommend no further lowering of the standard.

Much depends upon the individual, whether he is "keen" or not. I consider a soldier who is anxious to do his duty and has only $\frac{2}{4}$ vision in each eye infinitely more useful and a better soldier in every respect than the disgruntled man with $\frac{3}{4}$ in each eye. There is also a certain proportion of men with mental amblyopia, among whom the amount of vision is not much of an indication of their usefulness. The military point of view should teach a medical officer "to size up" his patient, and considerable latitude should be allowed to the military ophthalmologist as to who "sees to shoot" and who "sees enough for ordinary purposes." If the standard of vision had been adhered to, I feel sure millions would have been saved to this country. Lowering the standard of vision will increase the number of passed recruits marked "fit for service," but it will not increase the number of bayonets, and it will very materially lower the efficiency of the army.

The Canadian Medical Service has been far in the vanguard in this respect. The appointment of an officer specially qualified in ophthalmology to a position in a field ambulance, to attend to special work in certain areas, marks a big step forward in military medicine. Unfortunately there are still many specially trained medical officers who are enshrouded in that wondrous work "administration."

Unless a soldier's vision is improved considerably by glasses he will not wear them, so that there is only one reason which warrants prescribing glasses for a soldier—namely, that by prescribing glasses you change him from an unfit to a fit soldier. To my mind there is no other excuse which warrants putting glasses on a soldier, for it is to be remembered that if a soldier can get along without glasses he will, especially since gas masks have come in vogue; and it is a grave mistake to prescribe them, for when you do you supply him with an excuse which he always has for lining up on the sick parade. A man who breaks his glasses or a man wearing glasses who complains of headaches is immediately sent away for examination, and avoids a duty which he does not wish to perform. It is to be remembered that in a soldier complaints of headaches or pains of any sort are not reliable symptoms of disease. I opened two mastoid processes in France before I found out that pain was not a reliable symptom of

disease, certainly not in a soldier wishing to get to "Blighty." Again, in the healthy out-of-door life of a soldier errors of refraction should not cause headaches. Pains in the head of all kinds, photophobia, and night blindness are frequently complained of; the actual visual defect seems to be the last complaint thought of. Amongst soldiers there is a tendency to exaggerate a natural defect, so that the estimation of the real error is by no means simple. I consider the wholesale refraction of troops and the supply of glasses to combatant forces a grave mistake. When glasses are ordered they should be as simple as possible. It is a mistake to give a soldier with normal vision lenses correcting small degrees of astigmatism and hyperopia.

During the examination for refraction a variety of defects are found, and prominent among them amblyopia ex anopsia. From observation I feel sure that I have seen cases of men who have had normal vision before proceeding to France, and who from the effects of high explosives are now men with a high degree of myopia. Patients have also been seen of very high amounts of astigmatism (5 or 6 dioptries in each eye) who in civilian life were at such work as engine drivers, where routine examination of their vision was made. They say it would have been impossible for them to have carried on their civilian work with such visual defects. I know of no explanation of this defect, except the effect of high explosives.

I have not seen an epidemic of conjunctivitis amongst soldiers and very few cases of gonorrhoeal ophthalmia. Trachoma (or ophthalmia militaris of the last century) has almost disappeared as a military disease. The importation of labour into our army from the East may, however, alter this. The absence of an epidemic of conjunctivitis and the absence of trachoma is of interest considering the condition of Europe during the Napoleonic wars. Historically it may be of interest to recall to your minds the fact that Hannibal's army was incapacitated for one winter in Italy with ophthalmia. Following the original gas attack in France in April, 1915, there were a large number of cases of conjunctivitis. Conjunctivitis has been seen associated with dysentery often enough to excite notice. Whilst in the East, recovering from dysentery, I myself developed severe conjunctivitis. This was prodromal to an acute rheumatic condition. The appearance of severe metastatic conjunctivitis preceding an acute rheumatism has been noted.

Amongst military symptoms of disease night blindness takes a prominent part. It has been met with frequently, and in a number of cases has been associated with true retinitis pigmentosa. Nyctalopia in soldiers has been put down by some as a symptom of neurasthenia. This, from observation of the cases that have come under my care, is, I think, a mistake. Functional night blindness was well recognized before the war, and nyctalopia has been reported as endemic in certain countries, especially in Russia during the lenten fasts. It seems to me that we may well attribute this complaint or disease in a certain number of cases to the exposure, hard work, and great fatigue consequent on service. There is, however, no doubt in my mind that many soldiers have heard a chum complain of night blindness with the desired result, and have then gone and done likewise. A clever malingerer finds it an easy complaint to simulate, and the simulation is hard to detect.

The result of Wassermann reactions amongst individuals of military age may be of some interest. In 105 cases of iritis the reaction was positive in 33 and negative in 72. These are remarkable figures when one considers the age of the majority of the patients and the relation between venereal disease and active service. In 4 cases of retinitis pigmentosa the reaction was negative; in 11 cases of optic neuritis it was positive in 5, negative in 6; in 7 cases of interstitial keratitis the reaction was positive in all; in 30 cases of retino-choroiditis 15 were positive and 15 negative. To my mind syphilis of the eye reacts better to treatment by inunctions of mercury than to any other.

Among, in round numbers, 3,000 ophthalmic cases admitted to West Cliff Eye and Ear Hospital I have seen two cases of sympathetic ophthalmia.

The concussion following modern explosives leads to a great variety of fundus lesions. The injuries are caused by the violence communicated through the bones of the skull, the bones of the orbit, or by air vibration—windage. One of the commonest of these lesions I have not seen described;

* Abstract of a paper read at the Oxford Ophthalmological Congress, July 12th, 1918.

it is a condition of traumatic retino-choroiditis characterized by diffuse cloudiness of the retina, numerous small exudates in the choroid, and fine dust-like opacities of the vitreous. It is identical with retino-choroiditis of secondary syphilis. It varies in degree from a very slight opacity of the vitreous to diffuse thick opacities with changes in the choroid. I have seen a large number of such cases in which I am positive the changes were due to trauma (windage).

Surgery forms one of the most interesting parts of military ophthalmology, though no occasion arises for performing many of the operations of civilian practice. One reason, and one reason alone, should form the basis for all military operative work—necessity. It is most unwise to correct strabismus, for instance, for cosmetic reasons, or to do any operations of a similar nature. If a recruit is accepted for service with a disability of this kind, and an attempt is made to correct it, he first becomes a hospital patient without being ill or wounded (in itself most undesirable), and secondly he is given the starting point for an attempt to obtain a pension. Dacryocystitis is not infrequently met with in military work, and for military purposes, and the same would hold among industrial workers in civilian life. I can very strongly recommend the West operation.

Esser, in his article in the *Annals of Surgery* (March, 1917), forecasts considerable increase in the types in which his method will be useful, and already important progress has been made. Major C. W. Waldron, C.A.M.C., first undertook charge of the face injuries service at West Cliff Canadian Eye and Ear Hospital. This service, in need of greater space, was later moved to a Canadian General Hospital, and later to the Queen's Hospital, Sidcup. Major H. D. Gillies, R.A.M.C., and Major Waldron have improved on Esser's methods, and given us a most valuable means of remedying many of the war distortions of the lids by a method of epidermic outlay as compared with Esser's epidermic inlay. Major Waldron has modified Esser's method by making the incision in the conjunctival sac instead of through the eyelid skin. Major Gillies has made two modifications of the Esser process. The first method consists in burying the graft covered mould in the subcutaneous tissues of the eyelid through an incision in the skin, and removed through that incision. By this method the eyelid skin is increased to the extent of the graft. This is especially useful in contractions following burns. The second method may be termed an epithelial overlay.

The subject of military ophthalmology is so large that I have only been able to touch here and there on some of the essential features. I hope, however, that I have been successful in drawing attention to what an essential part of military medicine ophthalmology really is.

It is to the credit of the Canadian Army Medical Service that at a very early period of the war the necessity for a special hospital was noted, and that in October, 1915, the West Cliff Canadian Eye and Ear Hospital was opened with a capacity of 105 beds. There were 3 administrative and 4 medical officers, 10 nursing sisters, and 27 other ranks. From that beginning the hospital has increased until at the present time it has an establishment of 400 beds, 12 officers, and 40 nursing sisters. There have been admitted to hospital 9,854 cases, and there have been 49,906 consultations in the out-clinic department. Here are prepared the special reports so essential for medical boards, for categorization, for pensions, and for the final disposal of men. Much credit is due to Colonel J. D. Courtenay of Ottawa, who by his initiative had a great deal to do with the establishment of the hospital. By his persistence he saw that it was properly equipped, and by his foresight made the necessary accommodation for its possible growth. The hospital was originally intended to be the head of the Canadian Ophthalmic Service, where civilian ophthalmologists would be sent for military training. Unfortunately, war is a time of changes. We are, however, practising military ophthalmology in as conservative and in as scientific a manner as possible. We have all the equipment, including library and laboratory, necessary for such work, and hope a sufficient number of civilian ophthalmologists are being trained for useful military duty. These officers will later be called on to decide many important questions: What eye injuries and diseases are due to service? What is the relation between wounds of the cranium and defective vision? Is loss of central

vision without macular changes in soldiers due to service, and is it pathological or functional? What injuries are due to "windage"? What is rational treatment for malingering, functional amblyopia, war neuroses? What is the amount of disability due to haemianopsia? All these and many other questions of a professional nature, and many medico-legal questions, must be decided by us with fairness to the individual and to the State.

A CASE OF FATAL JAUNDICE.

BY

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AMONGST the complications and sequelae which attend the administration of salvarsan or allied compounds not the least important is that of jaundice. In his paper on the treatment of syphilis Harrison¹ places jaundice twelfth in his list of clinical side-effects and states that it occurred in 0.6 per cent. of his cases. Deaths due to this cause have been recorded, and consequently we have thought the following case worthy of record.

Pte. P., aged 30, was admitted to a general hospital at 10 p.m. on April 10th, 1918, having been transferred from a casualty clearing station to which he had been admitted on the previous day. His field medical card contained the following entries: "Aching all over for two days. Profuse sweats. Tongue furred. Temperature 101°." The initial diagnosis was influenza. He was obviously gravely ill; his condition, indeed, was such that minute questioning was not feasible. However, he was able to supply the information that he had always been a strong and healthy man, but that he had contracted venereal disease in Italy in the latter part of 1917 and had been subsequently treated with "injections," details of which are given below. He was distinctly but not deeply jaundiced; he was extremely restless and, though conscious, his mind wandered at times during the examination. Vomiting was frequent and distressing, and the vomitus resembled the black vomit of icterus gravis. The lips were cyanosed and the pulse was weak (100). The temperature (97° on admission) remained subnormal throughout. There was tenderness over the liver and spleen, but no obvious alteration in the size of these organs. There were no subcutaneous haemorrhages, and no other physical signs worthy of note. The knee-jerks were present. The urine contained albumin, but no other abnormal constituent. Treatment was begun on the lines of free purgation with salines and the administration of alkalis, but the patient grew rapidly worse. He became noisy and wildly delirious, and death finally occurred on April 12th at 3.30 a.m.

Notes kindly supplied by the medical officer in charge of the patient when under treatment for syphilis provide the following additional information: When admitted to hospital on January 15th, 1918, the man was suffering from a typical hard granulating sore on the corona, which appeared at the end of December, 1917; there was general adenitis, but no other signs or symptoms. He was treated with intravenous injections of 0.6 gram of novarsenobenzol on January 15th, 18th, 21st, February 5th, 8th, 24th, 27th, and March 2nd. No reaction followed on any of these occasions. He also received intramuscular injections of metallic mercury, as follows: $\frac{3}{4}$ gr. on January 15th, and 1 gr. on each of the following dates: January 22nd, 29th, February 5th, 12th, and March 3rd. There was a suppurating bubo on January 22nd, which was reported healed a week later. On February 24th a slight stomatitis was noticed. The patient was discharged to duty on March 4th.

Thus it will be seen that there was an interval of some five weeks between the last intravenous injection and the appearance of symptoms of the fatal illness.

Post-mortem Examination.

Body well nourished; definitely jaundiced. *Post-mortem* staining present. Larynx and trachea normal, as was the oesophagus but for one small submucous haemorrhage. The bronchi contained blood clot and mucus; there was no fluid in the pleural cavities nor any evidence of pleurisy