CONCLUSION

The U.S. system works smoothly and well. There is a delay of fifteen minutes or more between cases. The cough reflex usually returns during pharyngeal and tracheal toilet. Post-operatively the patients seem to do well.

All cases, apart from the thoracic and E.N.T., are transferred to a post-operative ward next to the theatre where there is a specially trained staff. The anaesthesiologist visits this ward from time to time during the day and is on close call at any time if required. Unconscious patients are nursed in the lateral or semi-prone position.

My feeling is that the system is simple and safe, and the results good. Possibly the results are not quite so good as ours where we have doctors administering the anaesthetics and are therefore allowed a wider and more appropriate range of agents.

I do not like their extensive use of spinals.

MILITARY OPHTHALMOLOGY IN SINGAPORE AND MALAYA

BY

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Three years of ophthalmic practice for the three Services and Foreign Office staff in Singapore and Malaya from 1949 to 1952 has led to some observations which are recorded in this paper.

INJURY TO THE EYE

Seventy-seven cases of injury to the eye were admitted to the eye wards of the B.M.H., Singapore, which was approximately 16 per cent. of all ophthalmic admissions. The causes of these injuries were numerous, and no particular cause could be held responsible for any large group of cases which could be eliminated by more care and protective means.

The causes of injury to an eye may be summed up as follows:

<table>
<thead>
<tr>
<th>Case Description</th>
<th>Cases</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Injury by instruments (e.g., screwdriver, tin opener, wood chopper, knife, hammer and chisel)</td>
<td>16</td>
<td>21</td>
</tr>
<tr>
<td>2. Miscellaneous causes (e.g., blows on eye by fist, knocking into objects, struck by moving objects)</td>
<td>16</td>
<td>21</td>
</tr>
<tr>
<td>3. Sport (e.g., blow on face by football, snapping of metal bow in archery, struck by a finger whilst swimming, kick in eye)</td>
<td>13</td>
<td>17</td>
</tr>
</tbody>
</table>
4. Accidents with firearms (e.g., explosion of thunderflash, blank cartridge, premature explosion of hand grenade)  
5. Chemical burns (e.g., by brake fluid oil, unpacking crates of ammonia fortis)  
6. Car accidents  
7. By jungle growth (e.g., lallang)  
8. Enemy action

The injuries produced were:

1. Corneal wounds
2. Hyphema
3. Prolapse of iris
4. Commotio retinae
5. Vitreous hæmorrhage
6. Tear of conjunctiva
7. Laceration of eyelid
8. Corneal F.Bs.
9. Intra-ocular F.Bs.
10. Laceration of sclera
11. Traumatic cataract
12. Detachment of retina

Fifteen cases (i.e., 19 per cent.) were penetrating wounds of the eye, for which removal of an eye was necessary in five cases.

There were two types of injury which are of special interest. First, two severe injuries were caused by the snapping of the metal type of bow used in the practice of archery. If such a bow snaps when fully bent in front of the eye, the full impact of a broken end of the bow is received by the eye. In one case it caused rupture of the eye which required removal, and in another case it caused a massive hyphæma and vitreous hæmorrhage, the visual acuity only recovering to 6/18. Although a calculated risk must be taken in all sport, it is considered that two such severe injuries occurring in the comparatively very few who practise archery shows the danger of using a metal bow. Secondly, two cases of burns of the eye occurred in men engaged, on separate occasions, in the unpacking of crates containing bottles of ammonia fortis. In both cases a cork unexpectedly flew off a bottle and allowed escape of vapour which caused severe denuding of the corneal epithelium. Both cases fully recovered.

Effects of Ultra-violet Light and use of Tinted Glasses

Excessive ultra-violet light will cause lacrimation, photophobia, swelling of the conjunctiva and corneal involvement. At no time is it considered that the intensity of illumination and ultra-violet light in Singapore and Malaya is sufficiently strong to cause any serious pathological changes in the eye. The constant humidity, heat and glare will, however, produce in many people a condition of bloodshot and irritable eyes as a reaction of the conjunctiva to the climatic conditions, just as the skin will react to these conditions. It is better
to explain the cause of the symptoms to the patient, who often gains great relief by discontinuing the use of various proprietary lotions and eye drops which have, in addition, produced a chemical conjunctivitis. Castor oil drops inserted into the conjunctival sac are often found to be helpful. A mechanical conjunctivitis is nearly always produced after two or three hours in an air-conditioned room or where there are strong fans in use. This is due to excessive drying of the conjunctiva, which is then more susceptible to the trauma caused by minute particles of dust and tobacco smoke suspended in the air.

Taken by and large it was advisable to discourage the use of tinted glasses. Obviously, the soldier is at a disadvantage to be encumbered with the wearing of tinted glasses and consequent loss of sharp vision when on active operations in Malaya.Exceptions were in cases of high myopia with large pupils, persons of very fair complexion, and in drivers who were especially apt to complain of glare. Sunglasses were ordered in such cases with the advice that they should only be worn when the intensity of light produced discomfort. Cases with even a small iridectomy were found to be most intolerant to light and required boarding home to the United Kingdom.

Rayban tinted lenses are advised for use in the tropics. They are 100 per cent. effective in cutting out ultra-violet light compared with 96 per cent. effectiveness of Crookes B2 lenses. Further, Rayban lenses transmit colours and the world does not appear dull and depressing as is the case with many other makes of dark glasses. Removable shields are not recommended as they often produce distortion.

For some there is a glamour in wearing tinted spectacles, as is well illustrated by an article in a local paper headed "Glamour in Sunglasses. . . . Frames tend to be more streamlined than chunky this season. Shining black is striking. Latest sunglasses have extra lenses set into the side pieces to widen vision and protect the eyes from sidelights. Others have slots in these side pieces through which a scarf can be threaded. Smart idea in London and Paris is to have the frames of your glasses made to match your dress. . . ."

SPECTACLES AND CONTACT LENSES

The much maligned Mark III spectacles proved of great value in Malaya. Indeed, it was remarkable how many people who had not bothered to equip themselves with spectacles other than the civilian type asked for the Mark III pattern when involved in active operations in the jungle. The frames have the following advantages: (1) They are light; (2) do not easily come off; (3) are cooler to wear; and (4) are less of an encumbrance on firing a rifle than the civilian type.

It should be considered to what extent contact lenses would help a soldier on active operations. If the making of these lenses could be improved so that they can stay in place for long periods (i.e., twenty-four hours), they would be of great benefit to the soldier, who would be relieved of the frustration of wearing glasses in a hot and humid climate, and who would gain clearer visual acuity.

A patient from the Foreign Office department who had worn contact glasses
for three years in London without difficulty found she was unable to tolerate them on arriving in Singapore. There was no obvious explanation for this, but perhaps that the change in climate slightly altered the pressure of the eye, giving a change in the shape of the eyeball. It is worth while to record this case as it shows it would be necessary to have a contact lens centre in Singapore to deal with such cases if the wearing of contact lenses should, in a few years time, become general for forward troops. Further, it would be necessary to ascertain whether a change in the pressure and shape of the eyeball occurs in any considerable percentage of persons going to the different climate of the Far East, as this would affect the fitting of contact lenses made in the United Kingdom.

**Artificial Eyes**

Although a soldier in the British Army who has had an eye removed is graded non-tropical, it must be remembered that patients may be met in the tropics who do wear an artificial eye—e.g., families, Malay personnel, and civilian staff. There are no facilities in Singapore for the making of artificial eyes, but it was possible to produce them from stock eyes which were ground to fit the orbit by the dental mechanic. Even if a good match could not be obtained it prevented contracture of the orbit. There is no doubt that plastic eyes are infinitely preferable to glass eyes. The latter erode much quicker in the tropics and are soon unserviceable.

**Correction of Strabismus**

The number of children from the three Services having a squint was surprisingly high in so relatively small a child population. Thirty-three cases, ranging in age from three and a half years to eight years, were operated on for correction of strabismus.

Orthoptic treatment was not available and the routine treatment for these patients was correction of refractive error, occlusion for four to six weeks if there was not a long history, and then operation. The covering of a lens and side-piece with adhesive tape was the most practical way of occluding an eye. Directly covering the eye is more effective, but this is difficult and uncomfortable in the warm and humid atmosphere of Singapore.

It was considered that very early operation is the correct course to take in a place such as Singapore, where no orthoptic treatment is available. Indeed, many of the cases had lingered on for years, resulting in loss of binocular vision, because of the attempt to treat by a course of orthoptics. Then, owing to an unexpected posting, the treatment was postponed for three or four months, only to start again on another course of orthoptics in another strange place. All this is most disheartening for the patient, and for the parents who see little, if any, improvement and may well discontinue taking the child to hospital. Further, in Singapore and Malaya, where the patients are scattered over a vast area, it would be impossible to give a prolonged course of orthoptics unless the patient was admitted to hospital. This is not desirable for an otherwise healthy
child, besides having the disadvantage of occupying a bed for long periods. A synoptophore would, however, be useful for diagnostic purposes, and for determining the amount of fusion and binocular vision.

There were numerous cases of soldiers with an amblyopic and squinting eye. Operative treatment was only carried out in three of these cases. It was considered that the hospitalization and absence from duty is not warranted for a purely cosmetic operation unless the patient especially asks for the eye to be straightened, and it is likely that the psychological effect of this would increase his efficiency and help him in both his Army and civilian careers.

**USE OF CORTISONE, PENICILLIN, AND ATROPINE**

Cortisone was available at the end of this period and was used in four cases. In a case of acute iritis it was given by subconjunctival injection. (Two injections of 0.4 ml. of a 25 mg. per ml. cortisone acetate suspension at forty-eight-hour interval.) There was no marked immediate improvement, but the eye completely recovered. This was in contrast to the other eye of this patient, which had had a similar attack five years previously and ended in secondary glaucoma requiring operative treatment and reduction of visual acuity to 6/24.

A case of very severe corrosive burning of the cornea and conjunctiva, which had remained red and irritable for a month, showed very marked and immediate improvement within forty-eight hours of one subconjunctival injection of cortisone, and the eye was practically white within a week.

Two cases of penetrating wound of the eye were treated with gutt. cortisone, a drop two hourly, and both eyes were healed and almost white within six days. Cortisone was also applied to the uninjured eye in similar dosage as a prophylactic against sympathetic ophthalmia.

Penicillin in the form of eyedrops (10,000 units of crystalline penicillin to 1 ml. water) was frequently used for extra-ocular infections. One disadvantage in the use of this antibiotic in the tropics is that the solution must be kept cold in a refrigerator and, therefore, a patient has the discomfort of icy cold drops going on to the eye at hourly intervals. To overcome this, it was considered best to have small quantities of fresh penicillin drops prepared each day and for the solution not to be placed in a refrigerator.

One per cent. atropine solution used as a mydriatic in Asian personnel was found to be ineffective in producing full dilatation of the pupil, even when the atropine sulphate was known to be up to strength. Owing to the extra pigment in the iris in these patients, and the stronger sphincter muscle (due to constant contraction of the pupil because of the glare), it was found that at least a 2 per cent. solution of atropine was required to produce full dilatation of the pupil.
Military Ophthalmology in Singapore and Malaya

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