cases are the response of the tissues (anergy or allergy) to a tuberculous invader, but it is more than likely that the second stage in infection is a non-specific one, and that the appearances of disease of a common sort are only produced when the balance between attack and defence is so disturbed as to allow of the development of the proliferative lesions of the third stage of disease, with the characteristic tissue immunity.

Summary

An unusual case of sarcoidosis is described, with "visceralization" in the nervous system, producing Adie's syndrome. Episcleritis and uveo-parotitis occurred later in the same patient.

A general discussion of the possible mechanisms of infection is attempted, and it is maintained that conditions such as sarcoiditis represent a non-specific second stage of disease.

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AN OUTBREAK OF ACUTE GASTRO-ENTERITIS AMONG TROOPS IN A LARGE TRAINING AREA

PRELIMINARY REPORT

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In the midsummer of 1940 a few sporadic cases of enteritis of a very mild type occurred in a military camp, and despite all efforts no causal factor was discovered. None of the cases conformed to any of the known diseases with which diarrhoea of the small-intestinal type is associated. In several there was definite enlargement of the spleen, and in one case it was palpable for several weeks. It was never tender on palpation. Agglutination tests for typhoid and paratyphoid groups and tests for *Brucella abortus* gave negative results.

From the opening of the camp in the beginning of September, 1939, no case of typhoid, paratyphoid, or dysentery had occurred until this outbreak, and none has occurred since. T.A.B. inoculations had been carefully and widely carried out, and very few, if any, of the troops were not fully covered.

About the middle of September, 1940, a definite epidemic of gastro-enteritis began, and it still persisted at the time of writing (December 18). This was not limited to the military units, but existed among the civil population in the immediate vicinity, though apparently it has not been investigated by the civil authorities.

Every effort has been made to exclude the possibility that infection has been conveyed by foodstuffs, the milk supply, or the water supply. Repeated bacteriological examinations of these sources have been made, and all have been persistently negative for the typhoid group, the *Salmonella* group, staphylococci, and streptococci. Many specimens from the food served to all ranks in the camp were examined, including meat, sausage, margarine, cake, bread, and cheese. The water supply, which came

from the mains of the near-by town, was chlorinated during the period of investigation.

Among a very large number of troops about 150 reported sick, and some 30 of these had to be admitted to hospital. In addition many had had similar symptoms, but of such mild degree that they did not seek medical advice. In those cases admitted to hospital every effort was made to obtain a careful history of the illness and its opening phases, and thorough bacteriological examinations were made of the faeces and the blood in the acute phase and during the convalescent stage ten days after the onset and later. All bloods sent to the laboratory were cultured. It may be noted at once that the bacteriological examination of both blood and faeces was entirely negative. Blood counts were not done, and as we were unable to obtain specimens the vomit was not submitted to laboratory examination. The history of the illness was not constant, though 60% conformed very closely to what we can call the typical case. In such a case the patient retired to bed feeling perfectly fit. In the early hours of the morning he or she would wake up with intense and urgent vomiting, followed by diarrhoea of a very watery type. There was little malaise, and the most prominent symptoms apart from diarrhoea and vomiting were mild backache and a feeling of heaviness in the abdomen. The diarrhoea varied from a few motions a day to, in one case, twenty-six motions. The stools contained no blood or mucus; they were offensive, of the typical small-intestine type, and usually chocolate-coloured. The course of the illness in its acute stage was short. Most patients had a temperature varying from 99° to 100° for from twenty-four to thirty-six hours. A few had a higher temperature, but none over 101°, and in a few cases the pyrexia persisted for seventy-two hours. There was no prostration in any case, and immediately after the acute phase all patients complained of hunger and asked for food. Convalescence was smooth and rapid, and only a few cases relapsed. Most of those infected were fit to return to duty in about a week from the onset. During the acute stage the tongue was slightly furred; redness of the fauces was often seen; there was no skin eruption or epistaxis; and abdominal palpation revealed nothing except splashing in the right iliac fossa. The spleen was never palpable. There was no distinctive feature in the pulse rate.

Atypical cases had vomiting and no diarrhoea, or diarrhoea and no vomiting, the clinical course otherwise being similar to that of the typical case. The bulk of the cases were ambulatory. In a number of atypical cases there were prodromal symptoms of a few hours' duration. These consisted of a feeling of malaise and shivering. In a series of 76 cases 50 had diarrhoea and vomiting, 6 vomiting only, and 20 diarrhoea only. The epidemic was still prevalent at the time of writing, and a few recent cases have developed respiratory catarrhal conditions either previous to the gastro-enteritis or immediately following the attack. Whether there is any significance in this it is too early to decide.

It is as yet impossible to define the incubation period with any real accuracy, but in the light of our present experience it would appear to range from thirty-six hours to seven days. Recently the cases have occurred in such a manner as to suggest that the illness is passed from patient to patient by contact infection, and we have noticed that men sleeping in beds adjacent to known cases have developed the gastro-enteritis during what we consider to be the incubation period. There is no epidemiological evidence to suggest infection from food, water, or milk as the causal factor. The outbreak has not been explosive in character and is obviously of a protracted type.

We cannot at present do more than suggest possibilities as to the cause of this epidemic. Unfortunately we have not been able to refer to the literature on this subject. We have, we believe, excluded the common causes of acute diseases of the gastro-intestinal tract—namely, typhoid, the paratyphoids, the dysenteries, and the *Salmonella* group—and food poisoning due to staphylococci and streptococci has also been excluded. The chemical causes have not yet been excluded, and this is to be part of our further investigations.

It is possible that this outbreak is of virus origin and similar to the so-called gastric influenza, or the gastro-enteritic type of distemper in dogs or swine fever in pigs. Bloods from different cases presenting the symptoms are being examined at the Wellcome Institute, London, for the possibility of virus infection, but no results are yet available. It is hoped that this preliminary paper will stimulate investigations at other stations which may have similar outbreaks, and at a later date we hope to publish further observations and to have available the results of the work at the Wellcome Institute, together with the results of blood counts and the examination of faeces and water supply for any possible chemical cause.

We wish to thank Dr. D. T. Robinson, who has worked in the closest co-operation with us in these investigations and who has been, entirely responsible for all the bacteriological work; also Major-General W. Brooke Purdon and Colonel D. Ahern for permission to publish this preliminary note. We wish especially to stress how close and cordial are the relations between the emergency public health laboratory and the R.A.M.C. in this area.

THE REPAIR OF LACERATED EYES

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This article may be looked upon as a plea for the saving of a damaged eyeball. I hope it will appeal to all surgeons, whether ophthalmic or general.

Many of those who are injured as the result of air raids are found to be suffering from lacerated injuries, as in the recent case of a man aged 50 who had both eyes slashed across with flying glass. The left eye was literally in ribbons and had to be removed, but the right eye showed a horizontal cut across the cornea from limbus to limbus. The edges of the wound were fairly well opposed. This condition is often found among the civilian wounded, and the requisite operation should present no difficulties to an ophthalmic surgeon. The general surgeon, however, is often tempted to remove such an eye. Instead the following procedure—known as Kuntze's operation—is recommended.

Operative Procedure

The skin of the eyelids, forehead, nose, and cheeks is carefully cleansed, preferably with merthiolate solution No. 45 (P.D.), 1 in 4,000. The lids are gently held apart by an assistant and lifted from off the eyeball to avoid all pressure and the consequent squeezing out of the contents of the eyeball. A few drops of 5% cocaine and some of the same merthiolate solution are used to clean the conjunctival sac, but washing out should be avoided. On the side nearest to the wound the conjunctiva is picked up and cut with scissors, thus forming a ribbon (Fig. 1) which can be gently slipped down over the cornea and laid over the length of the corneal wound. At each side the ribbon is held in place by a suture (Fig. 2). Soft ophthalmic boric ointment with 1% atropine is laid inside the eyelids, and both eyes are bandaged

to avoid movement. A little ointment may be slipped into each conjunctival sac daily. In four to five days the sutures will cut out, and often the ribbon will retract, showing a

FIG. 1.

FIG. 2.

healed cornea. If the conjunctiva adheres to the wound this can be gently dissected off a few weeks later. The action of the eyelids helps in the separation of the conjunctiva from the cornea.

In the case mentioned above it was discovered, when the cornea was healed, that the lens capsule had been lacerated and lens matter filled the anterior chamber. This will be removed by a curette evacuation later on.

Sometimes a cornea will not heal, owing either to malposition of the edges of the wound or to the fact that the wound edges are not sharply linear. Here the procedure is the same at first as that already mentioned. Pressure of the eyelids on the damaged eyeball must not be allowed. A narrow strip of conjunctiva is again dissected more or less parallel with the wound. Using Traquair's conjunctival suture forceps—an instrument with a small horseshoe at the end of each prong (Fig. 3)—the edge of the corneal wound can be picked up and a fine needle passed from within outwards

FIG. 3.—Traquair's conjunctival suture forceps.

through the thickness of the cornea between the little arms of the horseshoe and then through the overlying conjunctival strip. The other edge is now picked up in the same way and another needle is passed through the cornea, then through the conjunctival slip, and the suture is tied. (The suture, a 12-inch piece of silk threaded at each end with a fine cutting needle, is made by Messrs. Merson of Edinburgh and is used for corneo-scleral suturing during cataract operations. It bears the author's name. If not available any fine silk—say No. 00 thickness with a No. 5 or 6 squint needle at each end—will do.) The overlying vascular slip helps the avascular cornea to repair, and thus the eye can be saved. It should be mentioned that protruding iris should be gently caught up and cut away. To avoid pressure on the eyeball Arruga's speculum should

FIG. 4.

be used. This is better than using Desmarre's separate lid retractors.

The final stage of the operation, depicted by Fig. 4, is the same as Fig. 2, but instead of a suture at each end of the slip the suture will be in the middle of the slip but not quite in the centre of the pupillary area.

The largest wound of the eye ever repaired by me was a transverse cut across the cornea and as far again through the sclera. Another case was that of a machinist who was cutting tin. A strip flew out of the machine and cut the