cases in which there is a rise in blood pressure with few symptoms—for example, severe headache, slight giddiness, or insomnia with high tension? Three have come under observation: in one the patient had slight giddy turns and headaches, and in the other two there were headaches only. The blood pressures were: (1) 204/104 (E. W. P., aged 57, May 20th, 1935); (2) 186/88 (H. J. E., aged 76, July 18th, 1935); (3) 176/104 (G. S., aged 64, April 2nd, 1935). Inquiry into the patients' diets showed that all were very big eaters; two were considerably overweight.

In view of the fact that they were fairly fit otherwise, it was decided to try the effect of a moderate reduction of diet as against the standard, which is approximately six hundred calories a day without first-class protein and fat. The effect of cutting down the diets has been, in a very short time (a few weeks only), to reduce their blood pressure to little above normal, with complete disappearance of symptoms. It is hoped that these patients will not become incapacitated at all as a result of this early treatment.

It will be interesting to observe the effect of the complete return to normal diet. Two of the three patients have not left off their work—one is an architect and the other a company secretary, both very busy men. In the event of subsequent rises in blood pressure and symptoms, a return—possibly only temporary—of diet restriction will be advised, when a similar improvement will be looked for and expected.

It may be asked whether the remedy is not worse than the disease. To those who live for their food it most certainly is. On the other hand, the diet is only for a period, six to eight weeks being the average for a severe case, and on one day out of seven the patient can eat as much as he likes. Even alcohol in moderation does not make much difference. The calorific value of the diet is the chief consideration. One patient whose blood pressure has gone down on a moderate diet consumes a bottle of whisky a week and half a bottle of Moselle.

To feel well, to work, and even to indulge in walking as an exercise—all these things are possible in the majority of cases treated by this diet, with the addition of a reasonable amount of rest. Moreover, complications, whether they be cardiac, cerebral, or renal, certainly appear, in my experience, to be minimized in 90 per cent. of the cases treated. Fortunately the results appear quickly enough to persuade the patients themselves, otherwise the diet is stopped—usually after two weeks' trial.

Concerning the 10 per cent. of failures more will be said after further study.

I should like to express my thanks to Sir Thomas Lewis for reading this note and for his valuable suggestions and comments.

The instrument used in this investigation was a "tycos," on account of its size and extreme portability. Frequent testing by Messrs. Tyco and Gardners of Hove proved its reliability.

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SCARLET FEVER: ATTEMPTED IMMUNIZATION IN A PUBLIC SCHOOL

BY

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The following record of attempted immunization against scarlet fever during an outbreak at a public school in the Easter term of 1935 may be of some interest. Scarlet fever epidemics of any magnitude are rare at a public school: in this particular school the records during seventy-three years only once show a larger total (seventeen cases). During the last fifty years there have been forty-eight cases in eighteen outbreaks, and in the last ten years five cases in four outbreaks. In fifty years the percentage of boys with a history of a previous attack of scarlet fever on entry into the school has fallen from 12 to 5.9.

In the epidemic under review there were fifteen cases of scarlet fever out of a boy population of 495—that is, 3 per cent. The first case was admitted on January 28th, and all his immediate contacts (sixteen in number) were Dick-tested. Those found positive were passively immunized with 5 c.cm. of scarlet fever streptococcal antitoxin. The same procedure was adopted with the next two cases. On February 5th fourteen contacts, and on February 8th twelve contacts, making a total of forty-two cases, were passively immunized. On the occurrence of the fourth case, on February 9th, it was recognized that the attempt to cut short the epidemic by this method had failed, the four cases being all in different houses and in three different forms. After consultation with Dr. J. Alison Glover of the Board of Education and Drs. Scott and Griffith of the Ministry of Health, it was decided to attempt active immunization of the school as a whole.

Institution of Active Immunization

Accordingly, the consent of parents was invited in a circular letter sent out on February 11th, and Dick-testing was carried out with the following results. Of 495 boys in the school 405 (81.8 per cent.) were Dick-tested, ninety (18.2 per cent.) not being tested. Of the tested boys 288 (71.11 per cent.) were positive, twenty-three (5.68 per cent.) very faintly positive (P — —), three (0.74 per cent.) "P.N." (same reaction in both arms), and ninety-one (22.24 per cent.) negative.

The faintly positive and "P.N." cases were left alone, and only the positive group were treated; forty-two of these, representing the contacts of the first three cases, had been previously Dick-tested and given serum. They were not further immunized. The remaining 246 (61 per cent.) were given four doses of scarlet fever toxin-antitoxin at weekly intervals. Of the ninety who were not Dick-tested twenty-nine boys had had scarlet fever previously (5.8 per cent. of the whole school), while permission was refused in sixty-one cases (12.4 per cent.) for various reasons.

During the process of immunization, which took about four weeks, cases of scarlet fever kept cropping up at intervals of six to nine days, until the tenth case, on March 3rd, when there was an interval of twenty-two days before the remaining five cases, the last one being caught at a general inspection on the morning of the school breaking up. No cases were reported in the holidays.

The incidence of the cases of scarlet fever after active immunization had begun on February 14th—that is, after the fourth case—was as follows. No case occurred among the actively immunized (246). Two cases occurred in boys who had been passively immunized six to seven weeks previously. Two cases occurred in those who had

Other points of interest are: (1) the large proportion of the "Franklin" (Type 5) haemolytic streptococcus in the definite scarlatinal cases (66 per cent.), and its presence in the three suspected clinical cases; (2) the failure of the active immunization to protect from subsequent tonsillitis; (3) the failure of the Schultz-Charlton test; (4) the limited protection afforded by passive immunity; (5) the suggestion that even the slightest positive reaction to the Dick test means susceptibility to scarlet fever; and (6) the readiness with which the majority of parents agreed, without pressure, to this attempt, while the boy himself was, as expected, a cheerful victim.

Since writing this report a case of scarlet fever has recently arisen (June 18th) in a boy who was a Dick-positive contact with the first case of scarlet fever last term, and who had then been passively immunized. In consequence of this case, all the available passively immunized boys of last term, thirty-two in number, have been Dick-tested again, with the result that thirty-one have been found to be positive and only one negative.

I most gratefully acknowledge my thanks to Dr. J. Alison Glover and Dr. Scott for their advice and encouragement, and to the latter for his practical help in starting the immunization; also to Dr. Pickering, without whose constant help in all the inoculations the task would have been impossible; and, lastly, again to Dr. Griffith, whose investigations were so helpful and interesting, and who has allowed me to make use of his work.

CHRONIC AMOEBIASIS AND CHRONIC APPENDICITIS

BY

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A large number of patients seen at the European Hospital, Nairobi, complained of vague abdominal symptoms, and a number of these had had their appendices removed previously. The main symptoms were: flatulent dyspepsia; biliousness; vague abdominal discomfort; occasional acute pains in the right iliac fossa, often of a dragging-down character; general malaise; headaches; backaches; joint pains. The signs usually found were: a peculiar earthy pallor; a dirty, furred tongue; an enlarged and tender liver; a thickened and tender colon.

While working among natives in the Reserves I found that signs of hepatitis predominated over others in cases of amoebic dysentery. As an enlarged liver was common to all these cases in Europeans in Nairobi, a more careful examination of stools was instituted. The system in vogue at the time, whereby a boy carried the specimens to the laboratory each day, was unsatisfactory; so eventually Dr. Tonking of the Medical Research Laboratory came to examine stools at the European Hospital. This resulted in a startling increase in the number of stools found to contain *E. histolytica*, as not only were stools examined fresh, but repeat examinations could be obtained. In five months Tonking found 125 cases positive at the European Hospital alone, while only 366 among both Europeans and natives had been reported from the Medical Research Laboratory during the previous ten years. The patients who had positive stools improved on anti-amoebic treatment, and so it was decided to treat on similar lines those patients complaining of the same symptoms and showing the same signs, but whose stools were negative. They also improved.

Differential Diagnosis

The differentiation between the so-called chronic appendicitis and amoebiasis is not difficult, providing the prevalence of amoebiasis is borne in mind. The following table gives the points of difference.

Chronic Appendicitis	Chronic Amoebiasis
Discomfort in the right iliac fossa.	Discomfort in the right iliac fossa.
Epigastric pain.	Epigastric pain.
Heartburn uncommon.	Heartburn very common.
Not relieved by alkalis.	Relieved by alkalis.
Nausea and vomiting.	Nausea common, vomiting uncommon.
Constipation.	Constipation.
Pain localized.	Pain diffuse.
The physical examination may be negative.	The physical examination is never negative.
Pressure in the right iliac fossa may cause discomfort in the epigastrium or at the site of pressure.	The pain is marked over the caecum and hepatic flexure; slight over the sigmoid.
Liver not enlarged.	Liver almost invariably affected in some degree.
Does not run in families.	Tendency to family infection.

The main points of differential diagnosis, therefore, are the presence in chronic amoebiasis of: (1) heartburn; (2) relief by alkalis; (3) enlargement of the liver; (4) the method by which the patient indicates the site of pain—in amoebiasis the whole hand is used and the site of pain varies; (5) the tendency for the disease to run in families. The enlargement of the liver is often only upwards, and percussion of the liver with the patient lying on the right side or sitting up will alone demonstrate the increase in its size. Fine crepitations over the liver between the right axillary line and the right nipple line can often be heard. The thickening of the colon is most marked over the caecum, and it is this painful, thickened caecum which is mistaken for appendicitis.

Amoebae in the stools are often found with difficulty, as not all patients will send their stools for examination daily for six to ten days. Amoebae have a periodicity which varies in different individuals, and only at these periods can amoebae be demonstrated in the stools. Further, amoebae may lie dormant for months, and it is this dormant period which is sometimes erroneously described as a cure of the condition, or used as an argument against the presence of amoebic infection.

Two typical histories illustrating the confusion between the two diseases are as follows:

CASE I

A female, aged 22, was quite well until 1930, when she suffered from indigestion and flatulence. For this her appendix was removed in March, 1930. She felt no better for it. At the end of 1930 one stool was examined and reported as negative. A test meal showed hyperacidity. She was next x-rayed for duodenal ulcer, but nothing was found. An operation was suggested, but refused. She then went to England, where further x-ray photographs were taken: a diagnosis of acute rheumatism was made. The patient was given steam baths for six months, and massage; still no improvement.

In October, 1931, she returned to Kenya, and was then having two to three attacks of acute pain daily. In April, 1933, her stools were examined and found to be full of *E. histolytica*. Treatment for amoebiasis restored her health.

CASE II

A female, aged 29, had had, in 1923, diarrhoea in Sydney, Australia, followed by constipation, soreness of the abdomen, and periodical attacks of diarrhoea. Her condition gradually got worse, until in February, 1927, she had violent abdominal pains accompanied by vomiting. The attack passed off. During the next two months she had recurrences of abdominal pain, mucus in her stools, and occasional attacks of diarrhoea. A diagnosis of colitis was made. At the end of 1927 the appendix was removed for a return of abdominal pains. She felt better after this, but the colitis continued. She next suffered from urticaria.

In 1930 the patient had pleurisy; the sputum was examined repeatedly for tubercle, but none was ever found. Later she had a maculo-papular rash, for which no diagnosis was given. In August, 1930, there was another attack of pleurisy. X-ray investigation and sputum tests were all negative, but a low fever persisted (about 99° F.), accompanied by a slight cough. In 1931 she came to East Africa, and remained well for eight months. At the end of 1931 there was another attack of colitis, associated with rheumatic pains and bad headaches. In 1933, after a further attack of colitis, the stools were examined. The first was negative, but the second and subsequent ones showed *E. histolytica*. The patient's condition improved immediately on the institution of treatment for amoebiasis.

This case also illustrates other features of chronic amoebiasis besides the appendicular type of pain. These are (a) the rashes—signs of toxæmia; (b) cough and pleurisy, which are usually present in amoebic hepatitis; and (c) rheumatic pains, probably toxæmic in origin.

Treatment

The treatment of chronic amoebiasis is not satisfactory. Emetine is the one drug that will control the condition