necessary to remove dead rats from sewer water. As rats in London are known vectors of *L. icterohaemorrhagiae* the opportunities for human infection with leptospirae must be considerable under the conditions described. Buchanan* (1927) found that the fungal slime in the East Lothian coal pits contained leptospirae pathogenic to guinea-pigs, and similar inoculation experiments with slime from London sewers might well yield positive results.

A discussion on prophylactic measures hardly falls within the scope of the present paper, but it is obviously important, as approximately only 50 per cent. of cases of leptospirosis develop jaundice, that a serological as well as a clinical investigation of sewer workers for infection with Weil's disease should be undertaken to determine the real extent of this disease: this must be considerable, since the present inquiry was only made at odd times over a period of a few weeks, and was restricted to a limited section of sewer workers employed by a large firm of London contractors.

Specific therapy in the form both of convalescent serum and of anti-leptospiral serum (B.W. and Co.) is available, and the institution of such treatment, especially if carried out prior to the onset of jaundice, should undoubtedly save life. For early diagnosis both clinical and laboratory investigations, such as the centrifugation of blood to concentrate leptospirae, are essential, and for this purpose the early centralization of doubtful cases in one hospital might prove advisable. Prophylactic leptospiral vaccines might also prove valuable in sewer workers.

Summary

1. A widespread and hitherto unrecognized focus of Weil's disease affecting the sewer labourers of London has been demonstrated.

2. Its existence for at least twelve and a half years has been conclusively proved.

3. The mode of acquiring infection and certain other issues are discussed.

I am greatly indebted to Professor Schüffner, Dr. C. M. Wenyon, Major H. C. Brown, and Colonel F. P. Mackie for their invaluable assistance, and also to Dr. R. H. Wiseman and others in connexion with certain of the case records.

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R. S. F. Hennessey (*East African Med. Journ.*, May, 1934) records an outbreak of eighty-two cases of typhus which occurred in the Western Province of Uganda in June, 1932. The general manifestations of the disease corresponded more or less closely with those of the European form of typhus. Thirty-six were males and forty-six females; sixty-three out of seventy whose ages had been recorded were between the ages of 10 and 30; practically all were peasants. There were eight deaths—a mortality of 9.7 per cent.—four of the fatal cases being males and four females. The high degree of infestation with the body louse made it probable that the insect played an active part in the transmission of the disease, and this view was confirmed by inoculation of guinea-pigs, who developed a definite form of pyrexia of from four to ten days' duration.

CASE OF SPIROCHAETAL HAEMORRHAGIC JAUNDICE (WEIL'S DISEASE)

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The rarity of Weil's disease in this country makes it worth while to publish a case which has occurred in Eastbourne.

Clinical History

A female Post Office employee, aged 23, was admitted to hospital on April 7th, 1934. The condition on admission was as follows: very considerable jaundice, enlarged glands in general, especially the left parotid, swelling of the neck, swollen tongue, erysipelatous condition of the face, which was much swollen, and general inflammation of the skin, with commencing desquamation all over, particularly of the hands and feet. There were two small bullae similar to pemphigus on the fingers. The left conjunctiva was half covered with haemorrhage, and there were haemorrhages all over the skin from the size of a shilling downwards, especially on the arms and abdomen. There was also rectal haemorrhage. The liver was enlarged, but the spleen was not felt. The temperature was 102° F. There was no "typhoid" condition, but the patient was obviously extremely ill with slight delirium.

The history was that on March 29th she had had a slight shivering fit, with backache, and gradually her legs felt heavy. Her tongue was ulcerated, and she had been vomiting and coughing up mucus from time to time. The jaundice was not noticed until the day of admission, but the swelling of the neck and of the parotid had occurred the day before. The haemorrhages had started eight days before admission, in the arms and per anum, and there was increasing pain in the back, arms, and legs, especially in the arms.

Course of the Disease

There was occasional vomiting even after the temperature became normal, which it did in two or three days. There was a gradual improvement, and desquamation became general. There was no objection by the patient to taking fats or eggs, and the digestive processes were all normal. The patient steadily recovered, leaving the hospital on May 8th. On May 16th she was convalescing with still a little trace of jaundice and faint haemorrhagic stains in the skin, and the weakness that would follow an illness of some duration. She is now (May 28th) practically well. There was no relapse. Since the symptoms appeared to point to Weil's disease, pathological examinations were made, and *Leptospira icterohaemorrhagiae* were found in the urine on three separate occasions.

In trying to trace the cause of this isolated and unusual case, it was ascertained that no animals were kept in the house, and that no rats or mice were known to exist there. There was no history of any bite from a rat or other animal, and the other causes of jaundice were excluded. The girl was healthy and enjoyed a normal life. The disease resembled the numerous cases of Weil's disease that have occurred in Holland in the last few years, particularly in Amsterdam and in Dordrecht, in which the patients had been for the most part bathing in the canals. Shortly before the onset of the illness, the patient had eaten "Dutch" tomatoes. The recorded cases in this country are very few and far between.

The patient was not given any specific treatment, as she began steadily to improve from the date of admission to the hospital. After the temperature had become normal she seemed especially to improve on a tonic which contained strychnine and nitro-hydrochloric acid.

Bacteriological Notes

Microscopical.—On three separate occasions, the first on the fourteenth day, the urine was examined for spirochaetes, and these were found. The specimens were centrifuged, and the deposit examined under dark-ground illumination, and also stained by Fontana's silver method. It was found necessary to obtain a very fresh specimen in order to observe the movements, which consisted of rotation and undulation. In stained preparations the spirochaetes were not very numerous, but about a dozen or so of these were seen, and one (the first) preparation was photographed. There was a distinct hook-like tendency at the termination of the spirochaete, but the textbook well-marked hooking was only obvious in a few specimens. It must be remembered that the urine has an action on the morphological appearances, and tends to make the organism appear somewhat atypical.

Biological.—Rather late in the disease animal inoculation of the centrifuged deposit was tried, and a guinea-pig was injected intraperitoneally. No effects were observed, the animal being killed a fortnight after injection.

A. D. Gardner¹ states that the organism occurs both in fresh and in sea water, and can be cultivated therefrom.

Dr. R. A. O'Brien very kindly consented to test to serological agglutination against the leptospira with a specimen of the patient's serum, but suitable strains are not for the moment available.

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PULMONARY TUBERCULOSIS AFTER SUNBATHS

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The decline in the annual death rate from tuberculosis of the lungs has been so steady since 1860, apart from the war years, that this disease may reasonably be expected to be rare in twenty or thirty years. While therapeutics have helped, the main cause of this magnificent improvement is to be found in the amelioration of social conditions and the education of the patients and the public in preventive measures. The relation of any change in social customs to the development of tuberculosis should be carefully watched. Towards the end of the hot summer of 1933 there appeared in our wards patients with recently developed pulmonary tuberculosis, who were heavily tanned from sunbathing. We therefore decided to make a clinical study of the relation, if any, between this hobby of sunbathers and this disease of the lungs, and we here present the results and some conclusions.

Careful inquiry in each case elicited the fact that out of sixty-six cases of pulmonary tuberculosis admitted under our care between August and December, 1933, the onset, or exacerbation, of symptoms in eleven cases followed sunbathing. Brief histories of these cases are appended, and a study of them shows that there are certain points of similarity in the development of symptoms.

Case Notes

Case 1.—A male, aged 33, admitted August 30th, 1933. In spite of night sweats in January for two weeks, he sunbathed in July. Three weeks later he noticed a cough and felt weak. Sputum positive, x ray positive, on admission.

Case 2.—A male, aged 19, admitted September 13th, 1933. Had haemoptysis in April, 1933. In the following June he sunbathed for one whole day; felt dizzy and lost appetite for two weeks. Sputum positive, x ray positive, on admission.

Case 3.—A man, aged 29, admitted September 20th, 1933. Pneumonia last year; no residual cough. Cough commenced in August, 1933, with one haemoptysis. Sputum positive. In spite of this he sunbathed at Margate for a week, but felt dizzy and sweated at night. Sputum positive, x ray positive, on admission.

Case 4.—A female, aged 20, admitted September 20th, 1933. Quite well and sunbathed during week-ends until, on August Bank Holiday, after sunbathing at Folkestone, felt short of breath and ill for the next few days. Haemoptysis ten days later, then cough developed. Sputum none, x ray positive, on admission.

Case 5.—A female, aged 25, admitted September 28th, 1933. Influenza three previous winters. Quite well till she sunbathed at Broadstairs for one week in June, and on one day had a "bilious" attack, which was attributed to excess of sunbathing. Six weeks later developed a cough. Sputum positive, x ray positive, on admission.

Case 6.—A female, aged 19, admitted November 1st, 1933. Pneumonia in January, 1933. Quite well when she sunbathed at Margate for a week in July, 1933, and felt no ill effects. In September and October dyspnoea. Sputum negative, x ray positive, on admission.

Case 7.—A male, aged 20, admitted November 3rd, 1933. Quite well while he extensively sunbathed at his home and for a week at Westcliff in August, 1933. Haemoptysis in October, 1933, first symptom. Sputum negative, x ray positive, on admission.

Case 8.—A woman, aged 26, admitted November 13th, 1933. In spite of a cough sunbathed for one week early in September, 1933. Did not feel well all the week. Five weeks later, blood-stained sputum. Sputum positive, x ray positive, on admission.

Case 9.—A female, aged 20, admitted November 22nd, 1933. Dry pleurisy 1932; cough persisted. Sunbathed on the river during the week-ends all through the summer of 1933. Haemoptysis in November, 1933. Sputum positive, x ray positive, on admission.

Case 10.—A female, aged 23, admitted December 13th, 1933. Cough since August, 1933. Sunbathed in August for one week. No ill effects at the time. Sputum positive, x ray positive, on admission.

Case 11.—A male, aged 24, admitted December 30th, 1933. Slight cough last winter. Quite well in July, 1933, when he sunbathed for a quarter of an hour each day. No ill effects noticed. Had haemoptysis in November, 1933. Sputum positive, x ray positive, on admission.

The age incidence ranged between 19 and 33, years common to sunbathing and to the production of the exudative type of the disease, which was the one present in all these eleven cases on radiological appearances. On the other hand, although there was a considerable proportion of the fibroid type of disease among the other fifty-five patients, each one of them denied indulging in sunbathing during the summer, and an absence of sun pigmentation supported their statements as far as it could. The fibroid type was present in some patients whose age was greater than the average of sunbathers, and in others who had passed the exudative stage. Many of these patients had a long history of tuberculosis, and had been deliberately warned by their doctors against the danger of sunbathing.

That the abnormal exposure of the usually covered skin surfaces to the action of the sun's rays aggravates the development of pulmonary tuberculosis is a conclusion suggested by these eleven cases and others we