

## LOUSE-BORNE TYPHUS FEVER

As briefly announced last week, the Ministry of Health has issued a note on this subject (Memo. 252/Med.) summarizing the principal facts and giving guidance on diagnosis and administrative control. The existence of louse-borne typhus fever in Europe and North Africa at the present time makes it advisable to take precautions in case the disease should reach this country through refugees, prisoners of war, or returned travellers. This memorandum deals only with the louse-borne type of typhus as it may occur in this country, but it must not be forgotten that the varieties of typhus fever carried by the tick and the flea have in the past been introduced into Great Britain. The form of typhus under consideration is carried by body lice and probably by head lice. It may occur with typical severity in a perfectly well-nourished person; mild cases may occur and are liable to be missed.

### Clinical Features

Louse-borne typhus fever is an acute infectious disease lasting from twelve to sixteen days. It is characterized by a general maculo-papular rash which may become haemorrhagic and which is invariably absent from the face. 'Toxaemia' and nervous manifestations are severe. The incubation period is usually between eight and twelve days and most commonly about ten; exceptionally it may range between five and twenty-three days. The onset is sudden, but may be preceded by malaise. Common initial symptoms are rigors, headache, pain in the limbs and back, vomiting, and epistaxis. The temperature generally rises rapidly to 103° F. or more. The patient soon develops a dull and heavy expression with flushed and congested face, swollen eyelids, and injected conjunctivae. Delirium begins very early and bronchitis is common. The tongue is furred and later tremulous, with limited power of protrusion. The patient gradually drifts into the "typhoid state," which is fully established between the third and fifth days. There may be either maniacal manifestations or mental torpor. Bronchopneumonia is a common complication. Cardiac dilatation and weakness are almost invariable and heart failure is frequent.

The rash begins on the fourth or fifth day as small red papules in the axillae, on the abdomen and chest and back, later spreading to the extremities. For a day or two the papules fade on pressure, after which they fail to do so and become dull red. They may resemble closely the eruption of typhoid fever, but in general are more numerous, and fresh crops do not appear. In some cases subcuticular lesions, which may be as large as a shilling, appear between the papules and give the effect of marbling. Ecchymoses may form upon the skin of dependent parts. In children especially the rash may be absent or may be confined to a few papules on the chest. When haemorrhagic it closely mimics that of haemorrhagic small-pox, and may be accompanied by haematemesis, haematuria, and melaena.

The temperature, after its rapid rise, remains fairly steady throughout the illness, begins to fall about the twelfth day, and returns to normal by a rapid lysis. Though some patients remain in torpor throughout, others go through a phase of nervous excitation lasting some days. The patient then either passes into a "typhoid state" or dies. The special features of this state in typhus are nightmare dreams and a tendency for the tongue to shrivel, become nearly black, tremulous, and incapable of protrusion. In the "typhoid state" the patient may succumb, or he may rapidly pass into the stage of defervescence.

### Diagnosis of Typhus

Clinically the diagnosis rests on the sudden onset with high temperature; the occurrence on the fourth or fifth day of the characteristic rash, typically absent from the face; and the striking mental condition.

About the end of the first week, and often earlier, the patient's serum develops the power of agglutinating the so-called *Proteus X* strains (Weil-Felix reaction). Samples of blood serum should be sent (1) in the London area—to any

sector pathologist of the Emergency Medical Service; (2) outside the London area—to any laboratory of the Emergency Public Health Laboratory Service, or to the bacteriological laboratory of the nearest university.

In the matter of differential diagnosis, fevers of the enteric group can be eliminated by the results of blood culture, cultures from the faeces and urine, and agglutination tests; cerebrospinal fever may be very difficult to distinguish from typhus clinically, and reliance has to be placed on the results of examination of the cerebrospinal fluid and the Weil-Felix reaction; encephalitis may be distinguished from typhus by the gradual onset, absence of rash, the paralysis, and the absence of the Weil-Felix reaction; the prodromal rashes of small-pox may resemble those of typhus, and for some time the differential diagnosis may be difficult.

### Administrative Control

Typhus fever is compulsorily notifiable to the M.O.H., who must report every case immediately to the Ministry of Health. The probability being that the disease would first be introduced into the larger aggregations of population, a number of the principal towns have been asked to organize teams for dealing with an outbreak, the personnel being provided with protective clothing and offered preventive inoculation. An illustrated description of a type of protective clothing found valuable in practice is appended to the memorandum. In view of the difficulty of diagnosis the M.O.H. is advised to arrange for the services of a medical officer conversant with the disease, resort being made to the medical staff of the Ministry of Health, or, in London, to that of the L.C.C. On application to the Ministry a mobile team from the Harvard Field Hospital Unit of the American Red Cross will be available for help in diagnosis and control in any part of England and Wales. The M.O.H. should without delay go into the question of providing hospital accommodation for cases of typhus. During the admission of a patient to hospital the staff engaged are particularly exposed to the danger of contracting the disease. Precise details are given on this important matter so that all lice may be destroyed. A special ward must be set aside for typhus patients and accommodation provided for the staff at risk.

Every effort must be made to trace the origin of the infection, and all persons who may have been exposed to risk must be freed from lice and kept under surveillance for three weeks. It may be necessary to delouse heavily infested persons a second time after an interval of ten days, to ensure the destruction of lice hatched from eggs that have survived the first delousing. Lastly, where the possibility of typhus exists every effort should be made to lessen the amount of louse infestation among the population generally. Apart from known contacts a vigorous campaign of cleaning-up of infested persons should at once be undertaken by the health authority. The powers with regard to disinfection are set out in an appendix to the memorandum.

### GALLANTRY IN CIVIL DEFENCE

The award of the M.B.E. (Civil Division) to Dr. LESLIE FREDERICK WILSON, medical officer, Civil Defence First Aid Post Service, Kingston-upon-Hull, is announced in a *Supplement* to the *London Gazette* dated November 21. The announcement reads as follows: "Dr. Wilson has spared no pains in training the staff of his first-aid post, and the high standard of duty maintained by them has been largely due to his splendid example. On one occasion, when his post was isolated by fires and blocked roads, Dr. Wilson improvised temporary hospital accommodation for a number of seriously wounded patients and treated them until they could be removed by ambulance the following day. His coolness and devotion to duty during heavy raids have inspired all with whom he has come in contact."

Dr. KATHLEEN EVELYN SLANEY (Mrs. William Bullock), medical officer, Civil Defence First Aid Post Service, Southampton, has been commended for brave conduct in civil defence.