behind him to mark the way he had come. During typhus epidemics, mourners gathered in the hut of a deceased relative to lament his fate and lice, seeking new hosts, readily found them. When a young wife became ill, she returned to her father’s village to be nursed by her female relations who, if she had typhus, acquired it in their turn. In these various ways, typhus went round and round the Transkei, and now and then spread beyond its borders.

Control measures

In dealing with typhus, it is important to raise the standard of hygiene, nutrition, and housing of the affected people. Until such a long-term plan becomes effective, a short-term policy to deal with the immediate threat must be adopted. This consists essentially of delousing the affected population. In practice, the results of steam and hot air disinfestation were disappointing, for the disease outbreak was often one jump ahead of the delousing team.

The manufacture of DDT in South Africa was begun to meet the threat of typhus during World War II. After pilot studies of the process, a large plant was built at Modderfontein near Johannesburg and its production met the needs of South Africa and some of those of the Middle East theater of war. Its use in the Transkei and neighboring territories solved many of the difficulties that had hindered the successful prosecution of antityphus campaigns in the past. The population readily made use of DDT to control not only lice but many of the other arthropod pests that bothered them.

Since the start of DDT's widespread use, louse-borne typhus has ceased to be one of the major epidemic diseases of southern Africa. There was a dramatic fall in its incidence in the year immediately following its introduction, and instead of several thousand cases only a few hundred were reported. As many have been reported in the years...
since then. The infection continues to smolder in those areas in which it once occurred in epidemic form and there have been several outbreaks, however. During the year of 1972, two such outbreaks have occurred. One was in Lesotho and was investigated by a team from our Institute. Another was near Queenstown on the borders of the Transkei. In both, the serologic tests carried out in our institute indicated that the disease was epidemic louse-borne typhus.

Resistance of the lice to DDT and other insecticides was not tested, but it is of interest to recall that one of the first instances of louse resistance to DDT was reported from Queenstown Township. Clearly this is a matter calling for immediate and thorough investigation, and this has been undertaken by the State Health Department. Both outbreaks have apparently been brought under control by the widespread use of DDT and other insecticides and the selective use of antityphus vaccine to protect medical, health, and nursing personnel.

**Endemic rickettsial infections**

In regard to the other rickettsial diseases, the incidence of murine flea-borne typhus has fallen markedly. This infection was introduced into Johannesburg during World War II and became established particularly in the areas surrounding the city's market. Its presence has not been detected in rats, which have been systematically tested for more than 10 years, and its disappearance may be related to the effect on fleas of the insecticides that have been widely used to control flies and other pests.

Q fever and tick-bite fever are both essentially rural and suburban diseases; they remain prevalent, particularly in the bushveld. There may be a slight diminution in their incidence, however, possibly because of the widespread use of highly potent insecticides for dipping cattle to rid them of their ticks.

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**E. B. Doberstyn**

Studies of louse-borne relapsing fever in Ethiopia. During the past two and one-half years the clinical research division of the U.S. Naval Medical Research Unit No. 3's Research Detachment in Addis Ababa, Ethiopia, under the direction of Dr. Jack Schmidt, has conducted studies of louse-borne relapsing fever. These studies have concentrated on antimicrobial therapy and the pathophysiology of the infection during the posttreatment crisis.

In review, louse-borne relapsing fever is caused by the spirochete *Borrelia recurrentis*, which is carried in the hemocoele of the body louse and inoculated when the insect is crushed. Following an incubation period of five to 15 days, the febrile episode begins; unless treated, it lasts for two to nine days. When the fever ends through either spontaneous remission or antibiotic therapy, the crisis takes place. This dramatic series of events includes a sudden rise in temperature, often to 42°C, accompanied by tachycardia, tachypnea, and pronounced rigors, followed by a precipitous fall in temperature (often to subnormal levels), hypotension, and, not infrequently, clinical shock and cardiac failure. Untreated, the mortality in epidemic louse-borne relapsing fever ranges from 10 to 50 per cent.

The detachment's studies of the disease have developed as an outgrowth of earlier investigations, carried out chiefly at the Haile Selassie I University Medical School in Addis Ababa, that were primarily concerned with the natural history of relapsing fever, its clinical presentation, and especially its major hemolytic and biochemical changes. Thrombocytopenia and biochemical evidence...