TUMBU-FLY DISEASE IN SIERRA LEONE.

By MAJOR F. SMITH, D.S.O.
Royal Army Medical Corps.

In Appendix No. V. (2) to the Army Medical Department Report for the Year 1898 (p. 466) is a note by myself on the occurrence of this affection among the troops engaged in the Mendi Expedition. I was at that time under the impression that the disease was uncommon, partly because a local doctor professed ignorance of it. Probably it was less common in the part of the Mendi country referred to than it is in Freetown and the Timini country. In my former note the disease was ascribed to the laying of the fly's eggs under the skin, and the suggestion was made that the insect was the *Estrus livingstonii*. The larva of the Tumbu-fly burrows beneath the skin of human beings and other animals, and becomes stationary. The cavity in which it lives is not cut off from the external air; an opening is always left, and in or near this the posterior end of the maggot lies. When mature it drops out, burrows into the ground, and becomes a pupa. The flies, from larvae placed on earth after I had forced them prematurely out of their residences in rats and dogs, appeared on the sixteenth and seventeenth day. Possibly in the case of mature larvae the period would be less.

In the human being the appearance of the lesion produced by the larva is that of a raised, reddish patch; on a clean washed skin it looks something like an urticarial wheal. At some part of this swelling will be seen a tiny opening, or a moist spot, perhaps a blackish mark, according to how much, if any, of the larva is presenting at the opening and to the stage of growth. In some cases where the skin has not been washed, pus may have exuded and scabbed around the orifice, so that the appearance is that of a broken boil. There is intense itching in and around the spot. Strong pressure towards the opening forces the larva out easily enough, so that in adults familiar with the fly the larva does not get a chance to grow very big, unless it happens to be in a part where the sufferer cannot see what is wrong. In neglected children and helpless people the larva is able to grow to its full size. In such cases there is usually suppuration in the cavity, and it is common on ejecting the intruder to see a bleb of pus follow it out.

1 The Mendi name for the fly is "Boyeh"; "Tumbu" is a Negro-Creole word.
I have not heard of any serious results from the attacks of this larva, but as affording an avenue of entry for germs, it seems likely that bad effects may occasionally follow a "tumbu" lesion.

I have found "tumbu" in men, dogs, monkeys, rats and imported guinea-pigs, and in all cases the larvae appeared to belong to the same fly. Insects developed from larvae from the dog and rat have been sent home for comparison with those which Mr. Austen obtained from a monkey.

**Mode of Access.**—Among Europeans (and they do not often get "tumbu") a usual site is the scrotum—not an easy place for the fly to reach, one would think. In negro natives the head is sometimes the place of choice, but no part of the body is exempt. Babies at breast and carried in a cloth on their mothers' backs are often afflicted with "tumbu." My first doubts as to the correctness of the accepted mode of infection by the laying of the egg or larva in the skin arose from observation of the situation of the lesions in animals. A wild rat had six "tumbus" in the bare underpart of his legs and feet; the limbs, of course, were immensely swollen. It seemed unlikely that a large fly would get the opportunity of depositing its ova in a rat's legs—moreover, the rat is generally not abroad in the day-time when the fly is out. Small pups suffer much more than adult dogs, and the larvae are all over them, but chiefly on the belly and legs. In monkeys the tail is a favourite seat of "tumbu." All the parts mentioned are those that are frequently on the ground.

On careful enquiry from my native boys, I found that, after elimination of various fairy-like modes of acquiring the disease, such as by the maggots dropping off tall trees on to the heads of persons beneath, they agreed that the ordinary and commonest manner of infection is from the ground. The information was given, without any leading question, that the flies deposit their offspring in the ground, commonly on the earthen floor of a hut, and the larvae enter the skin of the person or animal sleeping on the ground. Still, it may be imagined that the flies occasionally select a part of the body on which there may happen to be a collection of filth. Presumably the larvae require soil containing organic matter to live on, and can do without a mammal host if necessary. The larva which reaches the scrotum has probably begun life in the dirt on the underside of the closet-seat, and the scrotal rugae protect it while it is making a home for itself.

So, then, we may say, "tumbu" is one more to add to the list of the plagues of life due to want of attention to sanitary matters.