

Clinical and other Notes.

NOTES ON A CASE OF MYIASIS.

BY MAJOR W. F. M. LOUGHNAN, M.C.

Royal Army Medical Corps.

A PATIENT stationed in Belize, British Honduras, first complained of itching about both ankles. He localized the discomfort to a point immediately posterior to the tips of the external malleoli, almost in the same position in each foot and occupying an area of about two centimetres. Five days later both ankles became inflamed and swollen. The painful condition he compared to a red-hot needle being pushed into the skin behind the external malleolus, at intervals of two or three hours.

He was first treated with hot fomentations which gave him no relief. He then consulted a "local doctor" who pronounced the inflammation to be a myiasis due to the larvæ of the *Dermatobia cyaniventris* fly (Macquart), and treated the infected parts by gumming a tobacco leaf over them, which caused almost immediate cessation of the pain. This application was allowed to remain *in situ* for eight hours, after which the painful parts were squeezed, and a larva expelled from each inflamed region. The larva of this species of fly is found infecting man and animals in tropical America, and is known by different local names, notably: "ver moyoquil" in Mexico; "ver macaque" in Cayenne; "torul" in Venezuela; "una" and "berne" in Brazil; "cormollote" and "anal coshal" in Demerara.

According to some authorities the *D. cyaniventris* fly is supposed to lay its eggs on the skin of man and domestic animals, the eggs, rapidly passing to the larval stage, and penetrating the skin, causing much pain and ulceration.

Blanchard, Sureouf, and Zepeda, have shown the peculiar way this myiasis is produced. The *D. cyaniventris* fly lays its eggs on damp leaves, or in wet places where the janthiosoma mosquito is to be found.

The eggs are laid in collections which are enclosed in membrane-like cases. This cement-like membrane, which forms the coverings of the egg collections, becomes softened by moisture and adheres to the mosquito's thorax; the eggs are thus carried to the integument of man or animals, whose blood is acceptable to this species of mosquito. The eggs of *D. cyaniventris* having been deposited on the skin, pass to the larval stage, penetrate the superficial tissues, causing pain, swelling and ulceration.

REFERENCE.

CASTELLANI and CHALMERS. "Manual of Tropical Medicine," Second Edition.

ENTOMOLOGICAL NOTES.

By MAJOR J. E. M. BOYD, F.E.S.

Royal Army Medical Corps.

ON THE INCIDENCE OF MITES ON MOSQUITOES.

IT has been noticed that many mosquitoes, when caught, are infested with some species of parasite, females being usually more infested than males. Several of these infested mosquitoes have been kept under observation, in order to find out if possible, whether they suffered any ill-effects from the presence of these parasites; how the parasites became attached to the mosquito, and finally the life history of the parasite.

Some of the infested mosquitoes were kept alive in a breeding cage—these did not apparently suffer any material damage and oviposited normally. It was not possible to prove whether the life of the mosquito was shortened, when infested, but this appeared to be the case, as uninfested mosquitoes caught at the same time, certainly lived slightly longer—but there was nothing to show that they had not emerged from the pupal stage at a later date than the others. The constant drain on the body juices, occasioned by the presence of parasites, must have some effect on their health.

That these are actual parasites and not merely "passengers" was proved at the War Office Entomological Laboratory, some time ago, by Major Langrishe, D.S.O., R.A.M.C., who cut sections of an infested mosquito which showed the proboscis of the parasite piercing the body wall of the mosquito.

On separating some of the parasites from a mosquito, it was found that they were the larval stage of some species of mite.

The site of attachment is invariably on the abdomen of the mosquito; not one has been found by the writer on the head or thorax, nor have they ever been noticed by him on the larvæ or pupæ, though Colonel Alcock, C.I.E., in his book "Entomology for Medical Officers" states that they are found on the larvæ.

The largest number of these larval mites found on a mosquito was 33, on a female, others carried as many as 27, 24, 21 or less. In every case the infested mosquito was an *Anopheles maculipennis*—they were not found on *A. bifurcatus*—*Culex pipiens*, or *Theobaldia annulata*. This may be accounted for, however, by the fact that *A. maculipennis* was the species most usually collected in farms and cowsheds, though the other species were also taken in fair numbers.

The next thing to be worked out was how these larval mites became attached to their hosts. Were they terrestrial or aquatic? It was at first thought that perhaps the larval stages might be terrestrial and became attached to the mosquito in its resting place—in support of this view was the fact that the mosquito takes so short a time to emerge from its pupal case, that it is almost incredible that as many as thirty-three of these larvæ can attach themselves in the short period, but a careful examination of the larvæ proved them to be some species of hydrachnidæ (water mites).

Attempts were made to drown the larvæ without success, the mosquitoes were, however, easily drowned, the larval mites leaving the dead bodies almost

at once: kept in water containing weed, these mites moulted within a few days, but no evidence could be found of their breeding, under laboratory conditions.

Water taken from the dykes near which the mosquitoes were found, failed to show the presence of any of the mites—although they must have been present in considerable numbers.

That the incidence of these larval mites is seasonal may be seen from the following table, which gives the number of mosquitoes examined and other details:—

Month	Number of mosquitoes examined		Number infested		Total number of larval mites
	M.	F.	M.	F.	
July ..	49	950	3	51	392
August ..	76	957	1	15	74
September ..	106	1,032	0	3	18
October ..	43	781	0	1	2
November ..	3	250	0	0	0
Total ..	277	3,970	4	70	486

The subject is of considerable interest and perhaps some members of the Corps, stationed abroad, where infested mosquitoes are not uncommon, may be able to throw further light on the matter.

A METHOD OF MEMORIZING A MAP.

By MAJOR A. C. H. GRAY, O.B.E.

Royal Army Medical Corps.

In Karlsruhe Gefangenen-Lager, there was a map—a very very secret document which was handed round by stealth. It showed the way to Switzerland and home, and was the property of an officer of the Royal Air Force. In course of time it came my way.

Now our captors were fond of making sudden and surprising searchings, and a secret map was not a thing to keep about one's person. To evolve a method of committing that map to memory gave me, and doubtless many others, food for thought. There was plenty of time to think in Karlsruhe Gefangenen-Lager.

Eventually I hit upon a method of fixing in my mind some of the salient features of this map, and in case that method may be of use to others, I will try and describe it. I cannot claim much originality for the method itself, but there may be something new in its application.

A map of the country between Karlsruhe and Switzerland is no longer of such particular interest, but it may be that some may wish to fix in their minds other maps—that of the war area as a whole in Northern France and Belgium for instance.

If you can, by any method, fix certain places or features so that they can at any time be reproduced in their exact relative position to one another, you have the skeleton of a map and something definite to work on. The more places you can fix the better, but even a few are helpful.

As an illustration, take a small scale map of Northern France and Belgium (of