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HEALTH ORGANISATION.

Malaria Commission.

The Secretary of the Malaria Commission has the honour to communicate herewith to the members of the Commission a Note on

The Morphology of the External Spines of the Harpagos of a single race of A. Maculipennis Var. Atroparvus, and its value for diagnostic purposes.

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At least six varieties of A. maculipennis have been described. It is now recognized that the incidence of malaria in an area where these insects occur is markedly influenced by the variety or varieties present. The differentiation of these varieties is, therefore, important, not only from the scientific point of view but also from the practical one.

In our present state of knowledge, when eggs are available their surface pattern affords the easiest, and probably the most accurate means of differentiating the several varieties of Anopheles maculipennis. (Malaria Commission, 1934).

It has also been found that a study of the spines of the harpago is of considerable value. In a previous paper, Shute, (1935) gave a description (illustrated with photographs) of the dissected harpagos of specimens of five races of this insect. As a result of this study, Shute, (1935) the following key was drawn up:-

A. elutus. External spine blunt or round, and of almost equal width throughout its length. Its length, which is a fairly constant character, is nearly two thirds that of the apical spine.

A. maculipennis typicus. External spine blunt or round, and of almost equal width throughout its length. Its length varies greatly, being in some examples very short, in others as long as the apical spine.

var. atroparvus. External spine always very sharp and tapering evenly from base to tip. The spine is nearly always double.

var. labranchiae. External spine very sharp and tapering evenly from base to tip. The spine is usually single.

var. messeae. External spine short, medium or long, sharp, blunt or rounded. It tapers little from base to tip and when pointed it sharpens suddenly just below the tip.

Some workers include A. elutus as a variety of A. maculipennis. and not as a separate species.

It was considered that further study was necessary to ascertain what range of variation occurred in the morphology of the harpagos of these varieties.

In August 1933, adults were reared from a batch of eggs derived from a single specimen of A. maculipennis var. atroparvus which was collected from the neighbourhood of the Thames estuary. Since then this genetically pure stock has been breeding continuously in our laboratory. The mosquito population originating from this single female has now been maintained uninterruptedly for nearly four years under the experimental conditions previously described (Shute 1936).

The egg pattern was observed at different times during the period. Although some variations were noted, these were not such as to simulate the appearances seen in the other races, and therefore did not render diagnosis difficult.

While much research has been devoted to variations in the characters of the eggs in different races of A. maculipennis, comparatively little work has been done on the morphological variations in their harpagos.

The insect population available offers ideal material for a study of the latter problem; in this experiment over 100 specimens were examined. The terminalia were treated with 10% K C H, stained, dissected, and mounted in Canada Balsam.

The results indicated clearly that, with the English strain of A. maculipennis var. atroparvus studied.:-

- (1) The external spine is always very sharp;
- (2) The external spine is nearly always double, in which case both are sharply pointed.

When the external spine is double, the two portions are usually very close together, frequently superimposed, making them appear as a single spine. It is only by careful dissection and examination that their double character can be determined in many instances.

Preparations displaying the morphology of the harpagos are best made under a relatively high power of the dissecting microscope as these structures are very small.

It appears probable that these differences may hold good for var. atroparvus in other areas. If so, these characters should offer a valuable aid in diagnosing this variety where it is not possible to study differences in the eggs,

References.

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the Harpago in identifying varieties of Anopheles maculipennis".
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Description of Plate.

Figs. 1-18. show the sharp pointed character of the external spine of A.maculipennis var.atroparvus.

Figs. 19-22. show the double spine frequently seen in this variety.

The plate is not reproduced here. It will soon appear in the "Rivista di Malariologia".