LEAGUE OF NATIONS.

C.H./Malaria/269.

Geneva, December 16th, 1938.

HEALTH ORGANISATION.

MALARIA COMMISSION.

Note by the Secretariat of the Commission.

Among the problems discussed by the Reporting Committee at its meeting in October 1937 was that of the bionomics of anophelines with special reference to the differences shown by varieties of different species. As there are great gaps in our knowledge of their geographical distribution, their biology and relationship to malaria, the Reporting Committee recommended the Malaria Commission to promote the advance of knowledge in this field by extending the investigations on this problem to malarial countries where our knowledge is still in the preliminary stage.

A valuable contribution to this subject is made in the following Notes from the Pasteur Institute of Algeria.

Note on an Anatomical Detail of the Eggs of Anopheles maculipennis,

by Etienne SERGENT.

The anatomical peculiarity of the eggs of A. maculipennis which is described below does not appear to have been noted in any previous published work (it has been observed in A. atroparvus, messeae, and typicus in the Limousin, and in A. labranchiae and melanoon in Algeria).

We find at the two extremities of the upper surface of the egg in its fresh state, among the papillae (which are here smaller than on other parts of that surface), eight or nine larger papillae in a group on the tip of the egg, distinguished by a black star-shaped design with 5 to 9 broad-pointed branches, each 3 to 5 μ long.

A few moments after the egg is laid, this star-shaped design becomes more marked, and, as the egg dries, the star dilates and assumes the form of a kind of open "pore", black in colour and with deep rounded indentations on its edges.

While this change is taking place in the "pores", the other papillae remain unchanged; preparations kept in gum-arabic for several years still show the papillae clearly, as they were in the fresh state, whereas the pores have the distended aspect we have just described.

The internal diameter of these pores when fully open is from 10 to 12 μ.

Sometimes the exchorion becomes detached from the tip of the egg, and the pores then come together, constituting a kind of lump which recalls in appearance the heads of some plathelminths.

These pores, which open as the egg becomes desiccated, are similar to the scales of the lamellibranchiae, which begin to open when the animal dies. We are led to the hypothesis that the pores, which are shut or practically shut in the fresh state, act as suckers by means of which the eggs adhere to plants or round pebbles in rivers, and thus resists the current.

Note on the Egg of Hackett's Anopheles maculipennis melanoon, found on the Algerian Coast.

by Etienne SERGENT.

Hitherto we have only found Hackett's A. maculipennis melanoon (determined by the morphological characterists of its eggs) in the neighbourhood of river-mouths on the Algerian coast, particularly the mouths of the Reghaia and Boudouaou, where, in the spring, breeding-places are found in waters rendered brackish by the influx of sea-water. These two districts are still malarial*, and are about 30 and 40 kilometres from Algiers respectively.

In the district round the mouth of the Reghaia, a regular search for adult anopheles was made every week, between spring and autumn, from 1934 to 1938, in sties, byres, and stables. The females were brought to the laboratory for egg-laying. The aggs almost invariably showed features characteristic of A.labranchiae, but A.melanoon were also found, as follows:-

in 1934	=	0 A.melanoon
" 1935	=	0 "
" 1936	=	0 "
" 1937	=	17 cases of A.melanoon against 167 of A.labranchiae (10.1 per cent).
" 1938	=	1 solitary case of A.melanoon against 182 of A.labranchiae (0.5 per cent).

In 1937, when A.melanoon was more frequent**, the salt-water breeding-grounds in this district contained more sodium chloride than in other years, namely, from 3.25 to 17.32 grm. between March and July, which is the period when egg-laying is at its height. In the years previous to 1937, moreover, some of the salt-water breeding-grounds dried up as early as April.

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* Arch.Inst.Pasteur d'Algérie, Vol.XIV, No.2, June 1936, pages 109-118.

** These cases of A.melanoon were found only in May and June.

The figures published in 1936* relating to eggs of A. melanoon found in the mouth of the Boudouaou refer to the condition of the eggs some time after laying. In the fresh state, the eggs possess one feature which is not found in the Algerian A. labranchiae, nor in the Limousin A. atroparvus, typicus, or messeae so far studied; on the dark background of the upper surface, we find 4 light-coloured prolongations of the tips of the floats, highly characteristic and resembling the handle of a shepherd's crook. This feature may disappear as desiccation proceeds. At this point the exchorion appears to become detached from the upper surface, - and can thus be clearly seen.

Eggs of A. melanoon found in 1937 were of the following average dimensions, in the fresh state:-

total length	580 μ
thickness from top to bottom	170 μ
width, with floats	209 μ
length of floats	215 μ
distance from float to slender extremity	170 μ
distance from float to thick extremity	186 μ

The floats in the fresh condition, that is, with their prolongations, are larger than in the desiccated state. This explains why the above measurements do not tally with those reported in our note of 1936. In fact, the length of the floats, including the prolongations described above, is, in the fresh condition, greater than the distance between the ends of the floats and the corresponding ends of the egg. The ratio is 100:37.

The number of intercostal spaces on the floats is from 13 to 15. They are sometimes smooth and sometimes rough in surface (see photograph previously published).**

The upper surface is slightly granulated in appearance; this effect is due to the papillae***, which are small (measuring barely 4μ), rounded, and invariably dark in colour.

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* loc. cit. plate XIII, figures 16 and 17.

** loc. cit.

*** The term papillae was first used in 1935 (Arch.Inst.Pasteur d'Algérie, Vol. XIII, No.2, June 1935, page 185), to describe what were previously known as columellae.

The lower surface is also granulated in appearance, but with a finer grain. The network of hexagonal meshes is entirely absent; this feature distinguishes the eggs from those of the Algerian A. labranchiae and of the Limousin A. atroparvus, typicus, and messeae.

Note on the Races of Anopheles maculipennis found in Algeria,

by

Et. SERGENT, E. COLLIGNON, R. AMBIALET, AND R. GOUGET.

It is agreed that the most reliable characteristics for distinguishing between varieties of A. maculipennis are those connected with the morphology of the egg. Samples of female anopheles collected in various parts of Algeria (coastal belt, high plateaux, and the Saharan part of the three Departments of Algiers, Oran, and Constantine) were brought to the laboratory at Algiers. After feeding on calves' blood or rabbits' blood, these anopheles began laying. The morphological characteristics of the eggs enabled us to determine the varieties present.

A. labranchiae is ubiquitous, being found both in the marshy parts of the coastal belt and in the oueds of the high plateaux and the Sahara. One of us* has shown that there is no occasion to create a new variety in order to designate the types described by ROUBAUD as A. sicaulti, as they are only a variant of A. labranchiae.

Up to the present, only a few examples of A. melanoon have been found in the neighbourhood of Algiers, near the mouths of oueds, and then only in certain years. Both fresh-water and brackish breeding-places are found in those districts.

We have failed so far to find anywhere in Algeria A. atroparvus or A. elutus, except for a single example of A. elutus caught by our colleague G. SENEVET **near Algiers (in the Oued Smar) in late May 1930. Identification was made on the evidence of the characteristics of the nymph and of the wing of the female.

The labranchiae variety is therefore the only form of A. maculipennis to be found throughout Algeria.

(Reports of the Pasteur Institute of Algeria).

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* Arch. Inst. Pasteur d'Algérie, Vol. XIV., No. 2, June 1936, pp. 109-118.

** Arch. Inst. Pasteur d'Algérie, Vol. X., 1932, page 474.