

even after three weeks, after which they died, due, probably, to inanition from want of food supply.

Anopheles larvæ have been kept alive in bottles containing mud and water not more than one-sixteenth inch deep shewing that they can live in very shallow water.

In all the places where we found the anopheles we also found culex larvæ, though generally where anopheles are found in abundance culex are not plentiful. Rarely anopheles have been found in places where culex formed the great majority of the larvæ.

Anopheles larvæ do not bear dessication for any length of time. Larvæ six days old were put on a dry slide at a temperature of 92° F. in a breezy place and died in between 15 to 18 minutes.

Effect of heat upon anopheles larvæ:—

- (1) Larvæ—a day old—were not dead up to 3 hours when the temperature was raised up to 100° F.
- (2) Larvæ—two days old—were kept in water at a temperature of 110° F.; most of them died, but a few were alive even up to 20 minutes.
- (3) Larvæ—a day old—were kept in water at a temperature of 115° F., all died in 6 minutes.
- (4) Larvæ—a day old—were kept in water at a temperature of 115° F.—117° F.; all died in 2 to 3 minutes.
- (5) Larvæ—2 days old—were kept in water at a temperature of 117° F.; all died in $\frac{1}{2}$ to 1 minute.

Effect of kerosene oil and solution of salt upon anopheles larvæ:—

- (1) Larvæ—a day old—live from $\frac{1}{2}$ to 2 minutes in pure kerosene oil.
- (2) Larvæ—a day old—were kept in water poured over kerosene oil (kerosene oil—2" and water—2 $\frac{1}{2}$ " deep); death took place in 15 to 20 minutes.
- (3) Larvæ—12 hours old—were kept in water 3" deep, over which kerosene oil was gently poured (1 $\frac{1}{2}$ " deep); many died, but some lived even up to 3 $\frac{1}{4}$ hours.
- (4) Larvæ—three or four days old—were kept in a saturated solution of salt; all died in 15 to 20 minutes.

Anopheles pupæ.—The pupa stage lasts from 24 to 48 hours.

Anopheles adults.—All the varieties that have been examined by us do sing. It seems that the song of the males is more high-pitched than that of the females. The males have been kept alive inside bottles containing water with plantain juice for a week, while the females under such circumstances died in one to two days; on the other hand, in perfectly dry tubes the females live longer than the males, which sometimes die some hours after they are caught. The females soon after birth do not have much attraction for human blood. This was well exemplified in one case in which a large number of new-born anopheles were introduced inside a mosquito curtain with a patient suffering from intermittent fever sleeping under it. It was found next morning that all of them were sticking to that part of the curtain which was accidentally wetted by the rains. The same, we may remark here, holds good in the case of some species of culex too. Anopheles do not seem to fly to long distances from the places of their birth. They are caught in largest number sitting on the folds of black blankets; a much

smaller number is found sitting on the white walls. Generally in test tubes the males can be seen sleeping at night, while the females fly about.

ANOPHELES MOSQUITOS IN TEZPUR, ASSAM.

By CHAS. A BENTLEY, M.B., C.M. (EDIN).

Anopheles (Bentleyi).

GENERAL coloration black, with a crest of white scales on the vertex, which extend for a short distance forward beyond the base of the palpi. The distinguishing feature is the extreme length of, and the densely black scales on, the palpi and proboscis, which give the insect a top-heavy appearance.

The wings which are very darkly colored along the costal margin, have an appearance to the naked eye, which gives the idea of their having been smudged with black pigment. On examination under the microscope it may be seen that besides the arrangement of black scales on the "longitudinals" which lends itself to this impression, there is also a general darkening of the hyaline portion of the wing near the costal margin.

The great length of the palpi and proboscis may be judged by the fact that they, together with the head, measure almost the same length as the abdomen (without the thorax).

Wings.

Each wing has two cream-colored areas on the costal margin, which is otherwise intensely black. The first of these areas, which is the most distinct, occurs about two-thirds down the costa. The second one is almost super-apical and is not nearly so distinct as the other.

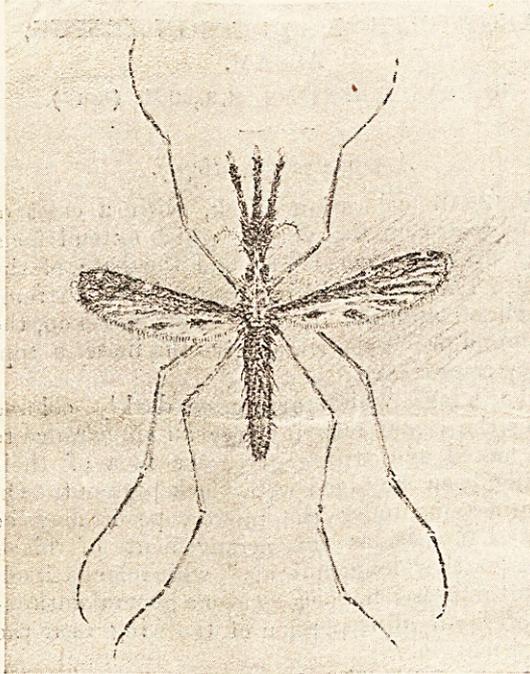
Besides these two spots, there is a distinct portion of the marginal scale fringe, which is white instead of black. This occurs just at the apex, and extends between the extremities of the 1st and 4th longitudinals.

The first, second and third longitudinals are chiefly black scaled, but here and there a few white scales may be seen, which help to produce the smudgy appearance alluded to above.

The fourth longitudinal is black scaled with a little white, except at its bifurcation, where a fairly dense collection of black scales give the impression of a spot.

The fifth longitudinal is chiefly white scaled, with a few black scales intermixed, which increase distally, finally becoming almost marked enough to call spots, at the extremities of the two branches. The fourth longitudinal is white scaled, except for two distinct black scaled spots of considerable size, one situated at its distal extremity, and the other, the most marked, about its mid length.

As I have before stated, the margin of the wing is fringed with black scales, except at the apex, where the black scales are replaced by white one.



Proboscis.—The proboscis is intensely black, being covered with thick black scales. A few white scales may be seen at the extreme tip.

The Palpi.—These, like the proboscis, are white tipped and covered with intensely black scales. These scales are so long and lie so thickly and so give a top-heavy appearance to the insect, which appears to the naked eye almost as though it possessed a large crest of black feathers.

The antennæ have segments adorned with sepia-coloured hairs.

The head is covered partly with silvery white and partly with blackish hairs. The white ones form a sort of small crest which starts from between the eyes and extends forwards some little distance over the junction of the palpi with the head.

The eyes are black.

The nape is covered with brownish black scales.

The thorax is of a general sepia tint, covered with long straggling hairs of a golden brown colour.

A sort of tuft of hairs of a slightly lighter hue, runs forwards from the front of the thorax dorsally.

The abdomen is a brownish black colour, with indistinct segmentation. It is covered with golden brown straggling hairs, which do not hide its prevailing black coloration.

The legs are a light brown above, covered with dark brown scales. On the under surface, however, they are buff coloured.

They show slight thickenings at the joints, which are hair tufted.

There are distinct yellowish white rings, apparently situated at the joints, to most of the smaller articulations of the tarsi.

The marking on the costa, the spots on the wings, the coloration of the legs and the peculiar collection of scales upon the palpi and proboscis serve to distinguish this mosquito from any of the species described in Giles' "Guats or Mosquitos."

I found this mosquito first in June, in my own bedroom. Since then I have repeatedly caught specimens of this variety, and I have also bred them up from larvæ obtained from a pool of water near a small village infected with "Kala-azar."

Besides the species of anopheles described above, I have found *Anopheles Rossii* and *Anopheles Costalis* in great abundance.

I have also found one or two specimens of a species which answers to the description given in Giles' book, of *Anopheles Superpictus*.

A History of Hospital Practice.

GASTROTOMY FOR REMOVAL OF FOREIGN BODIES (55 RUPEES) FROM THE STOMACH—RECOVERY.

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THE following case deserves to be recorded, not only on account of its surgical interest, but because of the extraordinary circumstances which led to the necessity for so serious an operation.

A powerfully built, healthy-looking little man, about 30 years of age, came to the Egerton Hospital, Peshawar on the 20th October 1901, and gave the following extraordinary story. He said he was an Afghan, that he resided in a village in Afghan territory several marches across the border, and that he was an ardent disciple of a "Mulla" (holy man) who lived in the Peshawar district. He had been in the habit of making periodical visits to this mulla with the object of receiving religious instruction in the Mahommedan faith.

Eight days before he consulted me, he said he was coming into British territory on a visit to his mulla. On arriving at a place called Dakhi (one march beyond Landi Kotal) all travellers are searched by the Amir of Kabul's order, and all property in their possession, including money, is taxed. He said a tax of three per cent. is levied on all cash in possession of travellers, and that in order to evade this tax