

On *Anopheles baezai* n.sp., from the Malay Peninsula

By B. A. R. GATER,

KING EDWARD VII COLLEGE OF MEDICINE, SINGAPORE

Larvae of this species were originally found at Pulau Langkawi by Dr. J. I. Baeza, in 1928, and in the same year I visited the locality and reared a series of adults. Larvae and adults have since been found in Johore, Singapore Island and Selangor. Dr. F. W. Edwards kindly compared some of the original material with type specimens in the British Museum.

Imago.

Similar to *Anopheles umbrosus* Theobald 1903, but the minute apical pale bands on the tarsi of the hind leg absent.

Female wing (Fig. 1) usually without the pale costal interruption near termination of *Sc*, (often found in *A. umbrosus*) it being indicated only in 10 per cent. of the specimens examined. Pale areas on wing-fringe extending from termination of *R1* half-way to or as far as *R2*, and from *R3* to *R4 + 5* (R-C-N, Christophers and Barraud). *Sc* with a pale interruption, sometimes with an admixture of dark scales, just beyond the middle; *R1* with a small area of pale scales below the pale area on *Sc*, and at its extremity; *R2 + 3* pale, with a few dark scales, a dark patch at fork of *R2* and *R3*; *R2* with a sub-terminal pale area equal in length to the terminal dark area, otherwise dark; *R3* pale proximally, dark distally; *R4 + 5* mainly pale, with scattered dark scales, a dark area at its origin; *M* pale with scattered dark scales; *Ma* pale, *Mp* with a terminal dark area; a small area of dark scales occurs at the fork of the last two veins; *Cu* mostly pale, a dark area at its origin; *Cu1* with three small dark areas, the middle one sometimes diffuse; *Cu2* with a dark area at its apex; *An* with terminal and median dark areas.

Male wing usually with a pale interruption on costa near termination of *Sc*; terminal dark areas on *Cu2* and *An* absent. *Male terminalia* differ from those of *A. umbrosus* in having two setae on the dorsal lobe of the harpago (Fig. 2) and in the processes of the ninth segment (Fig. 3) being much longer. The terminalia are similar to those found in *A. hunteri* Strickland 1916, but leaflets are present on the phallosome and appear to be similar to those of *A. umbrosus*.

Pupa.

Some differences in the size and branching of the hairs as compared with *A. umbrosus* were observed, the principal difference between the two species being found in hair No. 5 (according to Evan's notation) which is minute and simple in this species whereas it is comparatively large and carries 4 to 6 branches in *A. umbrosus*.

Larva.

Fourth instar 5 to 6 mm. long. Similar to *A. umbrosus* in general appearance, but differs as follows:—*Inner anterior clypeal hairs* (Fig. 4) finely branched at tips. *Outer anterior clypeal hairs* with 11 to 17 branches. *Posterior clypeal hairs* simple or forked on one side. *Sutural hairs* with 3 to 6 branches; *trans-sutural* simple or with 2 to 5 branches. *Antenna* (Fig. 5), length 0.281 mm., greatest breadth 0.058 mm.; antennal hair long, with 13 to 21 branches, arising at over one-third the length of shaft from the base; sabre-shaped pieces at distal end unequal in length, one sharply pointed, the other with the tip notched (Fig. 6); terminal hair slender, with 2 to 7 branches, not longer

than sword-shaped pieces. *Maxillary palp* (Fig. 7) with the cone-shaped piece longer than the finger-shaped piece which is half the length of the paired pieces. *Submedian prothoracic hairs* (Fig. 8):—inner with 2 to 5 branches, shorter than outer; central with 5 to 10 branches. *Hair No. 13* (of Puri) on prothorax with 2 to 4 branches. *Hair No. 1* on mesothorax (Fig. 9) stouter, with 14 to 21 branches, arising from a fairly conspicuous root. *Metathoracic palmate hair* (Fig. 10) small, filamentous, with 5 to 8 branches. *Pleural hairs* (Figs. 11 to 13):—on prothorax the dorsal posterior with 2 to 5 branches, the ventral anterior sometimes forked; on metathorax ventral posterior with 2 to 4 branches; projections on tubercles between anterior and posterior hairs produced into short spines on each segment.

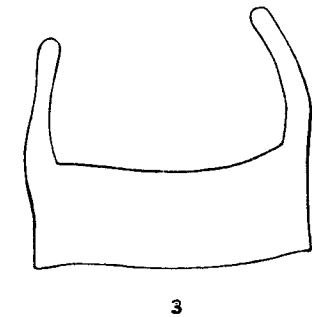
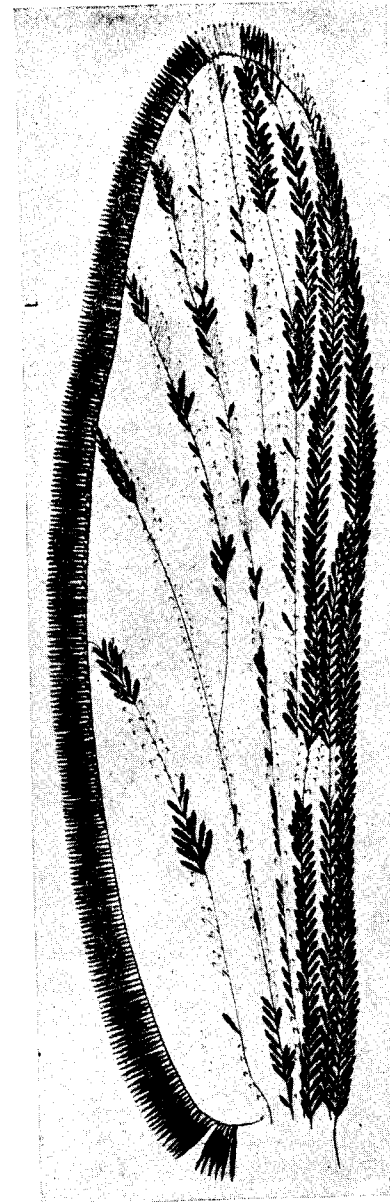
Abdominal palmate hairs (all filamentous), on I with 10 to 20 branches, on II small with 5 to 13 branches, on III to V (Fig. 14) larger with 10 to 16 branches, on VI and VII smaller with 8 to 10 branches. *Lateral hairs* (Fig. 15) on segment IV stout, long, with 7 to 10 branches; on V and VI shorter with 3 to 6 branches, on VII very small with about 5 branches. *Post-spiracular hair* with 3 to 7 branches. *Pecten* (Fig. 16) with 6 or 7 long, and 4 or 5 (exceptionally 6 or 7) short processes. Hair 0 (of Puri) on abdominal segments very inconspicuous.

Type, ♂ and ♀, larval pelt and larva in British Museum.

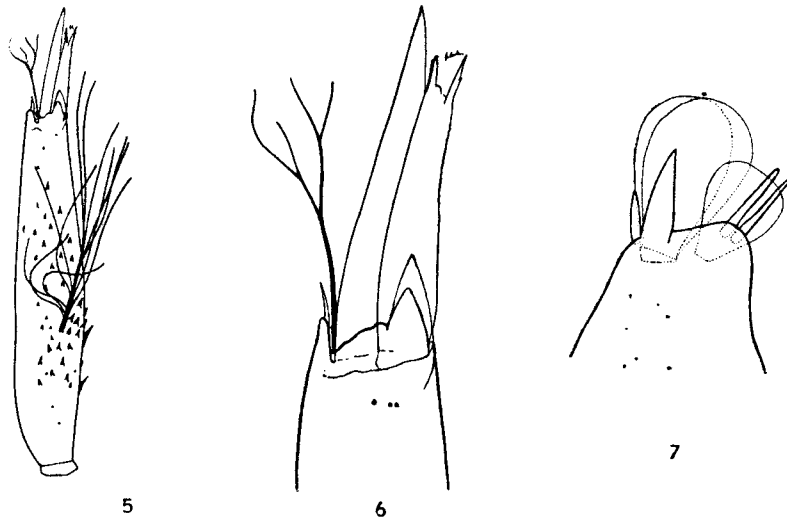
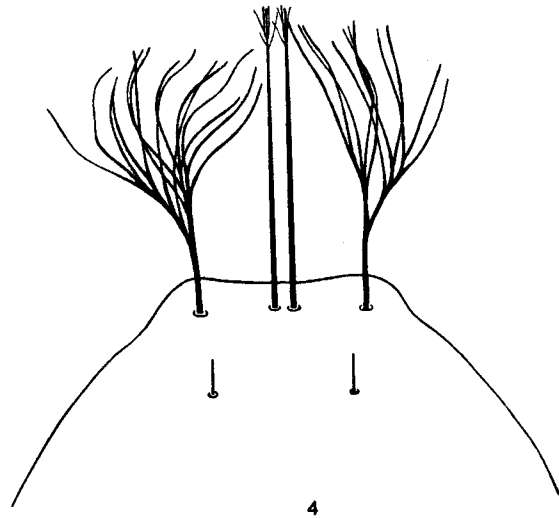
Type Locality, Pulau Langkawi, British Malaya.

In the type locality larvae were taken in stagnant pools under shade, sometimes just within the mangrove area. The water contained 250 parts chlorine (expressed as chlorides) per 100,000. Specimens taken in Johore were said to come from a tidal swamp under shade, in which the water contained 1,200 parts chlorine per 100,000. Those from Singapore were said to have been taken in water with 330 and 680 parts chlorine per 100,000. Those from Selangor were said to have been taken in a tidal drain covered with grass and coconut leaves. On epidemiological grounds there appears to be some evidence that this species may be a carrier of malaria.

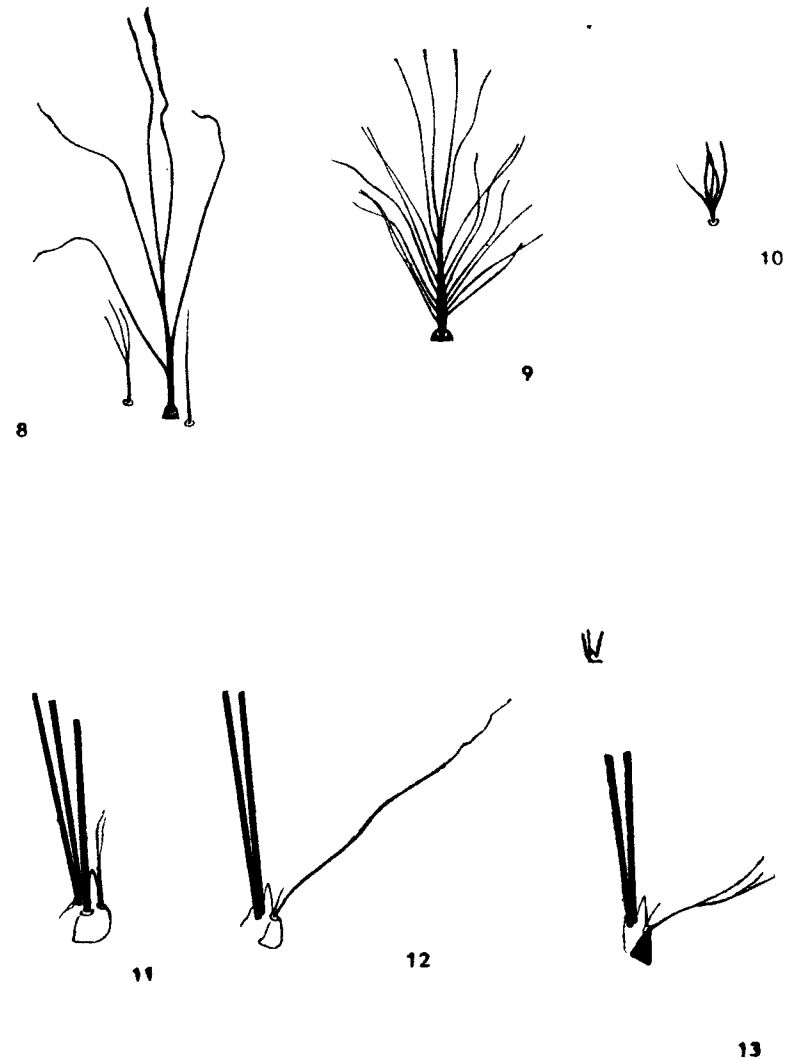
It probably has a much more extended distribution than is at present known. Specimens have been received from Selangor (*Dr. A. Devasagayam coll.*); Tanjong Agas, Muar, Johore (*Dr. G. H. Lowe coll.*) and at the 14th and 15th mile, Seletar Road, Singapore (*Dr. R. G. Spink coll.*). It is probably frequently mistaken for *A. umbrosus*, from which it can readily be distinguished in the larval stage by the branching of the lateral hair on the fourth segment.

Anopheles bæzai n. sp.

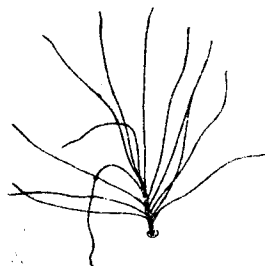
Female:—1. Wing. Male:—2. Harpago. 3. Processes of ninth segment.



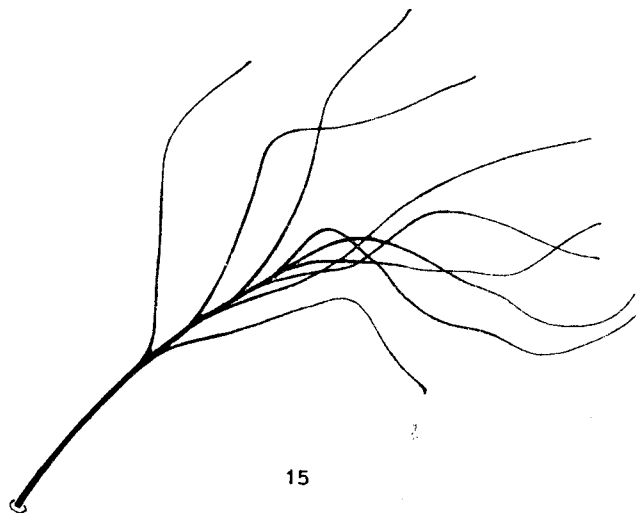
Larva:—4. Clypeal hairs.
5. Antenna.
6. Distal portion of right antenna, ventral view, cleared.
7. Distal portion of left maxillary palp, dorsal view, cleared.



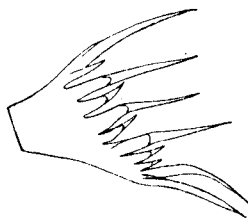
8. Sub-median prothoracic hairs, right.
9. Hair No. 1 on mesothorax.
10. Metathoracic palmate hair.
11. Bases of prothoracic pleural hairs.
12. Bases of mesothoracic pleural hairs.
13. Bases of metathoracic pleural hairs.



14



15



16

14. Abdominal palmate hair, segment IV.
 15. Lateral hair No. 6, segment IV.
 16. Spiracular pecten.

Notes on a Collection of Malaysian Tenthredinoidea (Hym.).

By RUNAR FORSIUS, *Helsingfors*

Mr. H. M. Pendlebury, Curator of the Museum at Kuala Lumpur, Federated Malay States, has kindly sent me for identification the collection of Tenthredinoidea of the Malayan Museums. I am very grateful to him for the privilege of studying this material as it has added much to our knowledge of the Tenthredinoidea of Malaysia. The collection which is chiefly Malayan comprises 135 specimens, representing 21 genera and 43 species. Many of these species seem to be new to science and ten are described in this paper. Of these, three cannot be placed in any known genus, and therefore three new genera have had to be made for their reception.

All holotypes and allotypes, and several paratypes have been returned to the Selangor Museum, and will be deposited in the British Museum, London. With permission of the authorities of the Selangor Museum some paratypes are retained in my own collection.

Unfortunately, the fauna of the surrounding countries is only superficially investigated and the descriptions of the already known species in many cases are too brief and insufficient to allow one to make satisfactory conclusions as to their relationship. My identification of some species recorded in this paper is therefore not absolutely certain.

Only the following species have, so far as I know, been recorded from the Malay States:

Tremex insignis F. Sm.

T. insularis F. Sm.

Rhopographus procinctus Kon.

"Tenthredo" coxalis F. Sm.

"Stromboceros" albicomus Kon.

Neostromboceros metallicus Roh.

The two last-mentioned species are probably synonymous.

Many other species are found in neighbouring countries, and some not yet known from the Malay Peninsula are widely distributed, and no doubt will be found to occur there also. It is to be hoped that entomologists in the Malay States may collect assiduously further material to extend our knowledge of the Malayan fauna of the Tenthredinoidea.

The Bornean fauna is better known. The collection of Bornean Tenthredinoidea in the Selangor Museum gives us additional contributions of great importance.