

Notes on Some Taxonomic Characters of Culicidae

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ABSTRACT. Methods of measuring cells of the wing and occurrence of metepisternal scales or hairs in *Malaya* Leicester and *Tripteroides* Giles are discussed. Some characters indicative of species groups within the subgenus *Coquillettidia* Dyar are noted.

Ratios of Cells to their Stems

Christophers (1933, p. 20, 21) states "the relative lengths of the two forked cells, measured along the posterior branch in each case, is the forked cell index...The length of the anterior forked cell in relation to its petiole (from the bifurcation to the cross-vein)... may be used to give a general indication of the length of the cell." Gater (1935, p. 30) says "Fork-cells are measured from the bifurcation to the end of the posterior branch (R_3 and M_2)."

In contrast, Belkin (1962, p. 551) measures cell R_2 "along projection of longitudinal axis of vein R_2 from the point of separation of veins R_2 and R_3 to the apex of vein R_2 ".

Without ever saying so, I have consistently followed Christophers but have concluded from examining specimens described by S. L. Brug and F. H. Taylor that these authors measured the ratio of the cells to their stems differently. Most authors do not indicate how they measured the cells but some appear to have measured the median length rather than either of the veins.

Uniform usage is unnecessary provided one knows how an author has made his measurements. Following Knight and Laffoon's (1970) terminology, Belkin measures $R_2:R_2 + 3$, $M_1:M_1 + 2$, whereas Christophers, Gater and Marks measure $R_3:R_2 + 3$, $M_2:M_1 + 2$. This is a plea to taxonomists to record the usage they follow as well as that of earlier authors where this is known or can be deduced.

Metepisternal Hairs and Scales

In recording hairs or scales on the metapleuron (metepisternum) of *Topomyia* spp. (Marks 1971) I stated that there appeared to be no previous records of the occurrence of hairs or scales on it. This was a regrettable

oversight of Belkin's (1962) generic description of *Malaya Leicester*"... a few erect translucent to silvery scales on metapleuron below spiracle." Among specimens in UQ from Australia and New Guinea, *M. genurostris* Leicester nearly always has 1-3 translucent or darkish small broad scales and *M. leei* (Wharton) 1-2 translucent scales; these are difficult to see except in profile.

Recently in a preliminary sorting of specimens of *Tripterooides* Giles, subgenus *Rachisoura* Theobald, in UQ, in preparation for a joint study with P. F. Mattingly, two species were found with metepisternal hairs or scales. Of two specimens of *T.* sp. near *flabelliger* Bonne-Wepster from Homejo, NWNG (coll. Assem), the female has 5, the male 2 conspicuous hairs behind and below the spiracle. Of 7 specimens of an undescribed species from Lumi, NENG (coll. Marks), one female has 3-5 semierect lanceolate or narrow scales behind the spiracle and some broad translucent scales on its rim, two females have scales on the rim only, one male has one narrow behind but none on the rim, and one male, two females appear to have no scales in either position.

Some Indicators of Species Groups within Subgenus *Coquillettidia* Dyar

Current studies of extensive series of *Coquillettidia* from Australia and New Guinea in or on loan to UQ have included comparison of these with species in the collection from other regions (kindly provided some years ago by J. D. Gillett and R. H. Wharton). Some characters were noted indicating species groups among species from outside the Australian region that I am unlikely to study further. The characters may have been noted previously but as there seems to have been little discussion of these species groups it may be useful to record my notes. The species listed include all those examined from the Ethiopian and Oriental regions and some from the Australian region.

One of several characters by which Belkin (1968) distinguished the monotypic subgenus *Austromansonia* Belkin from other members of the genus *Coquillettidia* was presence of a large patch of hairs on vein Sc below, considered a primitive character.

Of six Ethiopian species of subgenus *Coquillettidia* examined, four (*C. aurites* (Theobald), *C. fraseri* (Theobald), *C. maculipennis* (Theobald), *C. pseudoconopas* (Theobald)) have a similar large subcostal hair patch and *C. versicolor* (Edwards) has a smaller one; *C. metallica* (Theobald) has no subcostal hair patch and differs from the other five in having no mesepimeral scale patch (it also has a distinctive palmate empodium). The first five are yellowish species and Gillett (1946) showed that their larvae are similar, whereas that of the dark *C. metallica* is quite distinct. Thus there appear to be at least two species groups among Ethiopian members of the subgenus.

Oriental species of the subgenus fall into two species groups, each represented also in the Australian region. They lack a subcostal hair patch.

crassipes-group: patches of shining white scales on mesepisternum and mesepimeron; plume scales narrow; hind tibia long and slender;

male with sternum VIII produced posteriorly. Includes *C. crassipes* (Van der Wulp), *C. aureosquammata* (Ludlow), also *C. lutea* (Belkin), *C. fijiensis* (Belkin), *C. samoensis* Stone, *C. xanthogaster* (Edwards).

ochracea-group: few scales on mesepisternum, none on mesepimeron; plume scales broadish; hind tibia rather short and stout with roughened scaling; male with sternum VIII not produced posteriorly. Includes *C. ochracea* (Theobald), *C. hodgkini* (Wharton), *C. nigrosignata* (Edwards), also *C. giblini* (Taylor).

References

- Belkin, J. N. 1962. The mosquitoes of the South Pacific (Diptera, Culicidae). Vol. I. Univ. Calif. Press. 608 pp.
- Belkin, J. N. 1968. Mosquito studies (Diptera, Culicidae). VII. The Culicidae of New Zealand. Contr. Amer. Entomol. Institute 3(1): 1-182.
- Christophers, S. R. 1933. The fauna of British India, including Ceylon and Burma. Diptera 4. Family Culicidae. Tribe Anophelini. London, Taylor and Francis. 371 pp.
- Gater, B. A. R. 1935. Aids to the identification of anopheline imagines in Malaya. Singapore, Malaria adv. Bd F. M. S. 242 pp.
- Gillett, J. D. 1946. Notes on the subgenus *Coquillettidia* Dyar (Diptera, Culicidae). Bull. ent. Res. 36: 425-438.
- Knight, K. L. and J. L. Laffoon 1970. A mosquito taxonomic glossary IV. Adult thoracic appendages. Mosq. Syst. Newsletter 2(4): 165-177.
- Marks, E. N. 1971. A metapleural generic character in *Topomyia* Leicester. Mosq. Syst. Newsletter 3(1): 4-6.