

called my attention to the venational peculiarities in the Illinois specimen and suggested that it might belong to the genus *Calinemurus*. In that genus as characterized, however, the venation is even more irregular and there is a double row of intercostal areoles almost to the base of the wing (in *irregularis* a single row, with a few forked veins before the pterostigma). No one would, I think, regard the Texas specimens as sufficiently peculiar in venation to place them outside of *Brachynemurus*, for there are specimens of *B. mexicanus*, *niger*, *brunneus*, etc., also, in which one or two of the areoles nearest the radial sector are double; and it is evident that the Havana specimen is merely an example, of the species here described, in which these irregularities are carried further.

ON THE CLASSIFICATION OF THE CULICIDÆ.

BY HARRISON G. DYAR.

I have previously thought from an examination of a considerable material of culicid larvæ, that there was no character to separate the *Aëdinæ* as larvæ from the *Culicinæ*. Further research has resulted in the interesting discovery that this is only so if Theobald's classification be used. A classification proposed by Dr. Lutz¹ and quoted in R. Blanchard's work "Les Moustiques," Paris, 1905, page 619, corresponds exactly with larval characters, and is evidently the best and most natural classification yet proposed. Doctor Lutz has arrived at this happy result, not by the use of any new characters but by changing the order of importance of the old ones. The relative length of the palpi in the sexes, heretofore regarded as a character of first importance, is relegated to a subordinate place and with obvious justice. This is a secondary sexual character, one that by some systematists is not allowed to be of even generic value. It should never have been used to define subfamilies. The worthless scale characters used by Theobald are discarded and most properly so. I am speaking of primary divisions, or subfamilies, not having gone into the question of genera in this connection. The scale characters may be of use in generic definition, although I doubt it.²

¹In C. Bourroul, Mosquitoes do Brasil, Bahia, 1904.

²See the complete refutation of the value of scale characters in generic definition given by James and Liston in their admirable account of the *Anopheles* of India. "A Monograph of the *Anopheles* mosquitoes of India," by S. P. James, M. D., I. M. S., and W. Glen Liston, M. D., I. M. S., Calcutta, 1904. See pages 19-21.

Theobald's classification is as follows, thrown into dichotomous form:

- | | |
|---|------------------------------------|
| 1. Metanotum nude | 2 |
| Metanotum with chætæ | 5 |
| 2. Palpi long in the male | 3 |
| Palpi short in both sexes | ÆDEOMYINA |
| 3. Palpi long in both sexes | ANOPHELINA |
| Palpi of the female shorter | 4 |
| 4. First submarginal cell much smaller than second posterior cell | MEGARHINA |
| First submarginal cell as long or longer than the second posterior cell | CULICINA |
| 5. Metanotum with chætæ only | Genus <i>Wyeomyia</i> ¹ |
| Metanotum with chætæ and scales | TRICHOPROSOPONINA |

The genera included in Volume I are as follows; the later additional genera do not essentially affect the scheme:

ANOPHELINA—Anopheles.

MEGARHINA—Megarhinus, Toxorhynchites.

CULICINA—Janthinosoma, Psorophora, Mucidus, Eretmapodites, Stegomyia, Armigeres, Culex, Panoplites, Tæniorhynchus, Deinocerites.

(Section, without name)—Wyeomyia, Sabethes.

ÆDEOMYINA—Aèdeomyia, Aedes, Hæmagogus, Uranotænia.

TRICHOPROSOPONINA—Trichoprosopon (=Joblotia).

The following is Lutz's classification, thrown into tabular form and shorn of the superfluous descriptive terms:

- | | |
|--|--------------|
| 1. Larvæ without respiratory siphon | ANOPHELINÆ |
| Larvæ with respiratory siphon | 2 |
| 2. Proboscis curved | MEGARHININÆ |
| Proboscis straight | 3 |
| 3. Metanotum without hairs | 4 |
| Metanotum with hairs | 5 |
| 4. Palpi long in the male | CULICINÆ |
| Palpi short in the male | AEDINÆ |
| | HÆMAGOGINÆ |
| 5. Palpi more or less long in the male | HYLOCONOPINÆ |
| Palpi short in the male | DENDROMYINÆ |

With the following genera:

ANOPHELINÆ—Aldrichia, Anopheles, Arribalzagia, Cellia,

¹ So given in the table but treated as belonging to the Aèdeomyina.

Cycloleppteron, Myzomyia, Myzorhynchus, Nyssorhynchus, Pyretophorus, Stethomyia.

MEGARHININÆ—Ankylorhynchus, Megarhinus, Toxorhynchites.

CULICINÆ—Acartomyia, Bancroftia, Culex, Desvoidya, Finlaya, Gilesia, Grabhamia, Howardina, Janthinosoma, Lasiocnops, Lutzia, Mansonia, Melanoconion, Mucidus, Psorophora, Skusea, Stegomyia, Tæniorhynchus, Theobaldia.

HÆMAGOGINÆ—Gualteria, Hæmagogus.

AËDINÆ—Aëdomyia, Aëdes, Aëdinus, Deinocerites, Ficalbia, Mimomyia, Uranotænia, Verrallina.

HYLOCONOPINÆ—Binotia, Gældia, Hyloconops, Joblotia.

DENDROMYINÆ—Dendromyia, Limatus, Phoniomyia, Sabettinus, Sabettoides, Sabettus, Wyeomyia.

It will be seen that Lutz bases his primary divisions on larval characters, which is not allowable in a table for adults. The Anophelinæ should be separated on some adult character. The palpal character heretofore used is weak; but some other may be found, perhaps in the very long slender legs, or elongate thorax. The Megarhininæ are separated by Lutz on the curvature of the proboscis, which will not hold. By Theobald, the venation is used; but the character seems to me a weak one, as it consists in the relative degree of stalking of two pairs of veins only. I am inclined to throw the Megarhininæ in with the Culicinæ, where they fall near to Psorophora and Lutzia, the larvæ of these three genera being exclusively predaceous. The really strong character in Lutz's table is the presence or absence of setæ on the metanotum; the scales do not count. I think, and am supported by larval characters, that the rest of Lutz's subdivisions, based on the palpi, are weak and should be dropped. We have really only three subfamilies of the Culicidæ, definable on sound characters both as adults and larvæ.

I. ANOPHELINÆ. Adults¹: metanotum nude; palpi long in both sexes. Larvæ with sessile air tube; dorsal fan-tufts for attachment to the water film.

Genera.—Anopheles, Cella, Cycloleppteron, etc.

II. CULICINÆ. Adults: metanotum nude; palpi only rarely long in the female, usually long in the male, occasionally short in both sexes. Larvæ with an elongate air tube; no fan-tufts for attachment to the water film; anal segment with a ventral brush or rudder.

Genera.—Megarhinus, Psorophora, Lutzia, Culex, Grab-

¹ Some good adult character for the separation of the Anophelinæ can surely be found.

hamia, Howardina, Janthinosoma, Melanoconion, Stegomyia, Tæniorhynchus, Theobaldia, Hæmagogus, Aëdes, Deinocerites, Uranotænia, Verrallina, etc.

III. SABETHINÆ. Adults: metanotum with setæ; palpi short in the female, usually short also in the male. Larvæ with elongate air tube and no fan-tufts; anal segment without ventral brush.

Genera.—Joblotia, Dendromyia, Limatus, Phoniomyia, Sabethoides, Wyeomyia, etc.

I have given only the genera of which larvæ are known to me; but have no doubt that the other larvæ, when known, will prove consonant with these divisions.

Subdivision of the Anophelinæ, except generic, seems unnecessary. The Culicinæ can be divided into tribes, one the Megarhinini, to contain Megarhinus, Psorophora and Lutzia, the other, the Culicini, for the remaining genera. I see no propriety in recognizing the Aëdinæ or even Aëdini, as the character of short male palpi is not more than of generic rank and the larvæ show no differential characters whatever. The Sabethinæ need no subdivision, unless Joblotia be taken out, in many respects a unique form.

It has been shown that the Anophelinæ are distinguished by their attitude while alive; this is now given in all the text books. The Culicinæ and Sabethinæ are equally distinguishable, the latter curving the hind legs over the back far forward in a very characteristic manner, as described to me by Mr. Knab and Mr. Busck, who have seen many of the species alive.

OCTOBER 5, 1905.

The 198th regular meeting was held at the Sængerbund Hall and there were present the following: Messrs. Barber, Couden, Doolittle, Dyar, Heidemann, Howard, Marlatt, Morris, Quaintance, Schwarz, Stiles, Titus, and Webster, members; and Messrs. Boettcher, Clemons, Coleman, and Martin, visitors. In the absence of the executive officers Dr. L. O. Howard presided.

Prof. Hermann Muckermann, S. J., Sacred Heart College, Prairie du Chien, Wis., was elected a corresponding member.

Mr. Heidemann exhibited specimens and reported the capture of *Tettigia hieroglyphica* Say, family Cicadidæ, at Great Falls, Md. The species was described from Florida, and this is the first report of its occurrence near Washington, D. C.