

THE TAXONOMIC STATUS OF HAEMAGOGUS JANTHINOMYS DYAR

(DIPTERA, CULICIDAE)

By W. H. W. KOMP, *Laboratory of Tropical Diseases, National Institutes of Health, Bethesda, Maryland*

In a short article published in 1921, Dyar described briefly several new species of the genus *Haemagogus* Williston. In the introduction, he admitted that the treatment of the genus in the fourth volume of the monograph of Howard, Dyar and Knab had been inadequate. Four species were described (*equinus*, *albomaculatus*, *splendens*, and *capricornii*), and the distribution of these was stated to be much wider than is now known to be the case.

Dyar (1921) describes the peculiar method used for associating males with females, as follows: . . . "The species were classified first by the females and then a male of each supposed species was mounted for examination and figuring. The result seemed complete; but really several species passed unnoticed by this method. The disadvantage resulting from more careful examination is that some of the older species cannot be recognized at present, being described from females and no male being at hand from the type localities."

As a result of this unusual method, females entirely unrelated to the males were associated under one species name. A case in point is *Haemagogus janthinomys* Dyar, 1921. This species was described as follows:

"*Haemagogus janthinomys*, new species. Head blue, mesonotum green, abdomen dark purple, with the usual play of colors; pleura silvery scaled; abdominal lateral spots silvery, joined on the basal segments, with more or less silver dorsally on the posterior segments; legs dark violet to black, the femora white and silvery below towards base. Male proboscis thick on the basal half, the apical portion curved; palpi about one-fifth its length. Claws of female simple. The male hypopygium is figured as *capricornii*, plate 24, figure 165 of the monograph.

Types, two males, paratypes, 4 males and 3 females. No. 24335, U. S. Nat. Mus.; Trinidad, B. W. I. (F. W. Ulrich, breeding Nos. 17, 21, 22, B-1, B-3); June, 1905 (A. Buseck)."

The larva is described in the monograph under the name *capricornii* (vol. IV, 877, 1917) and also figured (Pl. 126, Fig. 438, 1912). The larvae were bred from "tree-holes."

The material in the U. S. National Museum, from which Dyar described *Haemagogus janthinomys*, proves to be a mixture of two species, *janthinomys* Dyar and *splendens* Williston. The evidence for this is presented below.

Upon examination of the 10 specimens mentioned above, it was found that the Buseck specimen is a female, mounted in balsam on a slide. The slide label bears the name "*albomaculatus*," but this has been crossed out and renamed "*capricornii*." It has not been relabeled "*janthinomys*." No locality is given on the label, which does not bear a type number. It is not part of the paratype series. This female has toothed claws on the tarsi of the front and middle legs; the postnotum is without setae.

The other nine specimens bear red labels with the Museum number 24335, and are either types or paratypes.

In order to describe each of these nine specimens, they will be given letters from A to I, to avoid confusion with numbers which may be on pins or slide labels.

Specimen A is a co-type male; the pin bears a label: "*capricornii*," probably in Dyar's handwriting, and other labels: 17.1/ Trinidad, W. I./F. W. Urich, collector/sec Slide 219. The terminalia have been removed.

Specimen B is a paratype male, numbered 17.2, collected by Urich in Trinidad. The abdomen and most of the thorax are destroyed, but the densely plumose antennae are present. No slide ticket number is on the pin, and no associated male terminalia can be found in the Museum collection.

Specimen C is a paratype male, numbered 17.3, collected by Urich in Trinidad. The pin has a slide ticket label numbered 2269, indicating that a slide of the terminalia has been made. This slide is present in the Museum collection.

Specimen D is a paratype male, numbered B-1.7, collected by Urich in Trinidad. The terminalia have been removed, but no slide ticket number is on the pin, and no associated male terminalia can be found.

Specimen E is a paratype male, numbered B-3.8, collected by Urich in Trinidad. The antennae and four legs are missing. No side label is on the pin, and no associated male terminalia can be found.

Specimen F is a paratype female, without breeding number, collected by Urich in Trinidad. Only the fore and middle legs are present, but one middle leg lacks the hind tarsi. The three remaining tarsal claws are without teeth. The postnotum bears setae.

Specimen G is a paratype female, numbered 21-1, collected by Urich in Trinidad. Only one hind leg is present, and this is without the last four tarsal segments. The postnotum is without setae.

Specimen H is a paratype female, numbered 22-1, collected by Urich in Trinidad. All legs are present, and the tarsal claws of the fore and middle legs are without teeth. The halteres are crossed over the postnotum, so that setae, if present, cannot be seen.

Specimen I is a co-type male, without breeding number. The pin bears four labels: Trinidad, W. I./F. W. Urich, collector/1464/type No. 24335, U. S. N. M. The specimen has had the terminalia removed.

Only two larval skins from the series can be found in the collection. One is of a co-type male, specimen A above; the slide bears the data: St. Ann, Trinidad, W. I./F. W. Urich/17.1/219. The other skin is of a paratype male, specimen C above; the slide is labeled: Trinidad, W. I./F. W. Urich/17.3/2269. The integument of both these larval skins is densely hairy, and the comb scales are attached to a plate. The description of these larvae by Dyar is faulty, but this matter will be considered elsewhere.

Two male terminalia, from specimens A (a co-type) and C (a paratype), are in the unit box in the U. S. N. M. collection, together with the whole female mounted on a slide, collected by Busek, mentioned above. There should be present the terminalia of specimens B (17.2); D (B-1.7); E (B-3.8), and a specimen I, without breeding number. None of the first three males bear slide tickets on the pins.

Specimen I, a co-type male, has a slide ticket number 1464, indicating that

a slide of the male terminalia had been made. A search of the collection showed that the slide had been transferred to the unit box containing specimens of *Haemagogus splendens* Williston. The original slide label bears the data: *Haemagogus janthinomys* Dyar/Trinidad, W. I./F. W. Urich/1464. The upper part of this label has been pasted over with a new label: *Haemagogus celeste* D. & N. T. The labeling is in Dyar's hand writing.

It is not known why Dyar did not mention this specimen in his description of *Haemagogus celeste* Dyar & Núñez-Tovar, 1926. All that is noted in this description is the statement: "Two males are before us, Maracay, Venezuela, November 11 and 15, 1926 (M. Núñez-Tovar)." No type specimen of *H. celeste* was designated in the original description. A lectotype of *H. celeste* has been selected by Stone and Knight (1955).

H. celeste has been shown to be a synonym of *H. splendens* Williston by Kromp, 1954. The female paratype specimen F and H of *H. janthinomys* noted above may also be *H. celeste* (-*splendens*), as they have simple claws. Paratype female G is in such poor condition as to be unrecognizable. It is impossible to identify the male specimens B (17.2), D (B-1.7) and E (B 3.8), as the terminalia have been removed, but no corresponding slides can be found. The Busck female noted above may be *H. janthinomys*, as it has toothed claws on front and mid tarsi.

Dyar never published his subsequent designation of a single type of *H. janthinomys*, which he did by labeling slide 17.1 of the male terminalia as "Type." A lectotype of *H. janthinomys* has been selected by Stone and Knight (1955).

The figure of the male terminalia of *H. janthinomys*, given as *capricornii* in the monograph of Howard, Dyar and Knab, and repeated by Dyar (1928) as *janthinomys*, are inadequate to differentiate this form from others, such as *H. capricornii* and *H. spegazzinii falco*. The shape of the claspette filament is incorrectly represented, and the mesosome is not shown. The fine spicules on the ventral surface of the mesosome, below the short pointed tip, are easily visible in the slides of the terminalia of the type and paratype male (specimens A and C above). These spicules are present in *H. spegazzinii* and its subspecies *falco*. They are well shown in a photomicrograph of the mesosome of the type, by Cerqueira.

The distribution of *H. janthinomys*, which Kumm et al. (1946) say is a synonym of *H. spegazzinii*, is very wide. It ranges from northern Argentina (Jujuy) into Bolivia, and through southeastern Brazil through the Amazon valley; Floch reports it from French Guiana, and the material collected by Urich extends its range into Trinidad. In some parts of its range, particularly northward and westward, it is replaced by its subspecies, *spegazzinii falco* Kumm et al., 1946. Kumm and Cerqueira report intermediate forms from northwestern Brazil. Galindo et al. report the subspecies *falco* from Panama and Costa Rica.

Wherever *H. spegazzinii* or its subspecies *falco* have been found, they have been associated with epidemics of jungle yellow fever. In southern Brazil, *spegazzinii* seems to be the form involved, while in Colombia, Panama, and Costa Rica, *falco* is involved. Both forms have been found infected in nature with yellow fever virus, and are probably the principal vectors of the sylvatic form of the disease.

REFERENCES

- Cerqueira, N. L., 1943. Algumas espécies novas da Bolívia, e referência a três espécies de *Haemagogus*. Mem. Inst. Osw. Cruz, 39: 1-14 (Plate III, fig. 18).
- Dyar, H. G., 1921. The genus *Haemagogus* Williston. Ins. Ins. Mens., 9: 101-114.
- , 1928. The mosquitoes of the Americas. Carnegie Institution of Washington, Publ. 387, fig. 103.
- and Núñez-Tovar, M., 1926. Notes on biting flies from Venezuela. Ins. Ins. Mens., 14: 152.
- Floch, H., 1950. Rapport sur le fonctionnement technique de L'Institut Pasteur de la Guyane Française pendant l'année 1948, p. 99.
- Galindo, P., Carpenter, S. J., and Trapido, H., 1951. Westward extension of the range of *Haemagogus spegazzini* falco Kumm et al. into Costa Rica. Proc. Ent. Soc. Wash., 53: 104-106.
- Howard, L. O., Dyar, H. G., and Knab, F., 1912. The mosquitoes of North and Central America and the West Indies. Carnegie Institution of Washington, Publ. 159, Vol. 2, Fig. 165.
- Ibid. Vol. 4, p. 868.
- Komp, W. H. W., 1954. The specific identity of two species of *Haemagogus*. Proc. Ent. Soc. Wash., 56: 49-54.
- Kumm, H. W., Osorno-Mesa, E., and Boshell-Manrique, J., 1946. Studies on mosquitoes of the genus *Haemagogus* in Colombia. Am. J. Hyg., 43: 13-28.
- , and Cerqueira, N. L., 1951. The *Haemagogus* mosquitoes of Brazil. Bull. Ent. Res., 42: 169-181.
- Stone, Alan and K. L. Knight, 1955. Type specimens of mosquitoes in the United States National Museum: I, The genera *Armigeres*, *Psorophora*, and *Haemagogus* (Diptera, Culicidae). Jour. Wash. Acad. Sci. 45: 282-289.

BOOK NOTICE

THE NATURAL HISTORY OF TSETSE FLIES, by Patrick A. Buxton. London School of Hygiene and Tropical Medicine Memoir No. 10. xx plus 816 pp., 165 text figures, 47 plates, crown quarto edition. H. K. Lewis & Co., Ltd. London. Price ???

This account of the biology of the flies belonging to the genus *Glossina* is by far the most exhaustive of any work now extant. The book includes chapters on anatomy, systematics, distribution, populations, ecology, metabolism, reproduction, relation to disease and control. Plates show typical breeding places and habitats of various *Glossina* species. Although the author admits that his detailed and local knowledge "in no way competes" with that of several field researchers upon whose work he draws freely throughout the volume, he claims a wide experience in many parts of tropical Africa in the problems of tsetse and trypanosomiasis.—Ed.