

SOME NOMENCLATORIAL NOTES ON PSYCHODIDAE (DIPTERA).¹

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In connection with taxonomic work on *Phlebotomus* it was found necessary to consult a series of recent papers by Rapp, Rapp and Cooper (1944-1946) and Enderlein (1935-1937), dealing with the family *Psychodidae*. Rapp's papers consist of a list of genera, with genotypes, for the world and check lists of the species of the world by zoogeographical regions. The generic list is compiled largely from Enderlein (1935, 1937), with some additions. Enderlein's final paper, the only one available to me, is a generic revision of the whole family *Psychodidae*, with keys and descriptions of many new genera. The following additions and corrections should be noted, though by no means all names have been carefully checked.

Phlebotomiella Meunier, 1906, Le Naturaliste (2)20 (Année 28): 103. Monotypic for *Phlebotomus tipuliformis* Meun. 1905 (Ann. Mus. Nat. Hungarici 3: 254, Pl. VI figs. 14, 15, 16). Fossil in Baltic amber. The original description and figures show an insect with wings reminiscent of *Phlebotomus*, the radius pectinately branched, but forks of R_2 and R_3 very close together and far distal on the wing. In terms of Phlebotometry, alpha and beta together are much less than gamma, while delta is a minus quantity. The antennae are *Phlebotomus*-like with a long third segment. The palpi are shown as 4 segmented, the terminal segment short. I believe either that the first segment was overlooked or the true terminal or fifth segment was lost at the time of preservation. The proboscis, although described as protruding, hardly seems sufficiently developed as shown in the figure to have belonged to a haematophagous insect. The male genitalia, although not very clearly described or figured, seem to have been quite similar to *Phlebotomus*, apparently with two terminal and a median spine on the style, terminal spines on the lateral lobes and protuberant structures of some sort on the inner aspect of the coxites. Annandale (1910) mentions the genus and doubts its distinctness from *Phlebotomus*. The name appears to have been overlooked by subsequent students of the family.

Phlebotomus Rondani 1840. The spelling of this name is still a point of contention. Loew as long ago as 1845 (Dipt. Beitr. I.) said that "the name must be Latinized but not Italianized" and changed

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the spelling from *Flebotomus* to *Phlebotomus*. As has been noted by others (Rapp 1944, Brues 1944) Rondani himself was thoroughly inconsistent in his spelling, using *Hebotomus* and *Phloebotomus* as well as *Phlebotomus* and *Flebotomus*. His spelling of other names appears to have been equally erratic, as in 1856 (Dipt. Italicæ *Prodr.* 1 p. 178) *Psychoda phalaenoides* is written *Psicoda fale-noides*. It is the writer's opinion that *Phlebotomus* is the preferable orthography, even should it be necessary to suspend the rules to accomplish this.

A number of names have been placed as synonyms or subgenera of *Phlebotomus* and since there is, at present, a tendency to split the genus into an increasing number of groups, it may be well to list the available names and synonyms here.

Philaematus Loew 1845, Dipt. Beitr. 1, pp. 8-9, figs. 14, 15. Monotypic for *P. pungens* Loew. Fossil in Copal. From the figures this is a species of *Phlebotomus*. Loew's remarks lead one to suppose that the specimens, a male and a female, are very well preserved, and that an examination of the genitalia and other structures now used for classification might enable the species to be associated with some recent subgenus. It is possible that Meunier (1905, Rev. Sci. Borbonnais, 204-209) has placed *pungens* in *Phlebotomus*, but I have not seen this paper.

Cyniphes Costa 1843. Ann. Acad. Aspir. Natural. 1: 4. With *molestus* Costa. The name is generally listed as a synonym of *P. papatasi*, but I have not seen the original publication.

Haemasson Loew 1844, Stett. Ent. Zeit., 5: 115, with *H. minutus* Lw. The insect is recognizably figured, and is without doubt a synonym of *P. papatasi*, where it has been placed for many years.

Eophlebotomus Cockerell 1920, Ann. Mag. Nat. Hist. (9), 6, 212 fig. *E. connectens* Cock. sole species. Fossil in Burmese amber. Enderlein (1937) lists this as a full genus in the Tribe *Mormiini* on p. 98 and also, as *Euphlebotomus*, as a subgenus of *Phlebotomus* on p. 109. I do not believe it is especially closely related to *Phlebotomus*, and it is certainly not a subgenus. From the available descriptions and figures, it seems to stand between the *Trichomyiinae* and *Phlebotominae*, but we know too little of its structure as yet.

Lutzomyia Franca 1924, J. Sci. Mat. Phys. Nat. Lisboa (3) 17: 10. Nom. nov. pro *Lutzia* Franca 1920, nec Theobald 1903. The type of *Lutzia* Franca was *Phlebotomus longipalpis* Lutz, hence the new name takes the same type, not *argentipes* Annan. as Rapp (1945) suggests. *Lutziola* Strand 1932, *Lutziomyia* Cordero, Vogelsang and Cossio 1928 and *Fransaia* Dyar and Tovar 1926,

were also proposed as substitute names for *Lutzia* Franca and hence take the same type.

Shannonomyia Pratt 1947, Proc. Ent. Soc. Washington 49: 86. Nom. nov. pro *Shannonomyia* Dyar 1929 (July), nec *Shannonomyia* Alexander 1929 (January) (Tipulidae). Type *Phlebotomus panamensis* Shannon.

Sergentomyia Franca and Parrot 1920. The name was proposed to replace *Newsteadia* Franca 1919 (nec *Newsteadia* Green 1902), which was proposed to include six mediterranean species considered subgenerically distinct from *P. papatasi*. Later in 1920, Franca designated *P. minutus* Rond. as genotype of *Sergentomyia*. Rapp's designation of *P. papatasi* as genotype of *Newsteadia* is quite unwarranted. *Prophlebotomus* Franca and Parrot 1921, was split off from *Sergentomyia*, without type designation, but including *P. minutus*, the previously designated genotype of *Sergentomyia*, so that the name falls as a synonym of *Sergentomyia*. Rapp's action in selecting *P. perturbans* de Meijere 1909 seems unnecessary and would probably not alter the synonymy as Theodor (1948) lists *perturbans* as an unrecognizable species, probably belonging in *Sergentomyia*. According to Theodor (1948), *Neophlebotomus* Franca and Parrot 1920, (Type *P. malabaricus* Annand. 1910) cannot be separated from *Sergentomyia*, while *Brumptius* Nitzulescu 1931, is also a synonym, being isogenotypic.

The following names were proposed as subgenera with the types indicated by original designation.

- Brumptomyia* Franca and Parrot 1921. Type *P. brumpti* Larr. 1920.
- Sintonius* Nitzulescu 1931. Type *P. hospitii* Sinton 1924.
- Larroussius* Nitzulescu 1931. Type *P. major* Annand. 1910.
- Adlerius* Nitzulescu 1931. Type *P. chinensis* Newst. 1916.
- Pintomyia* Costa Lima 1932. Type *P. fischeri* Pinto, 1926.
- Evandromyia* Mangabeira 1941. *P. infraspinosus* Mang. 1941.
- Psychodopygus* Mang. 1941. Type *P. unisetosus* Mang. 1941.
- Viannamyia* Mang. 1941. Type *P. tuberculatus* Mang. 1941.
- Pressatia* Mang. 1942. Type *P. triacanthus* Mang. 1942.
- Castromyia* Mang. 1942. Type *P. castroi* Barr. and Cout. 1941.
- Dampfomyia* Addis 1945. Type *P. anthophorus* Addis 1945.
- Paraphlebotomus* Theodor 1948. Type *P. sergenti* Parrot 1917.
- Synphlebotomus* Theodor 1948. Type *P. martini* Parrot 1936.
- Euphlebotomus* Theodor 1948. Type *P. argentipes* Ann. and Brun 1908.
- Anaphlebotomus* Theodor 1948. Type *P. stantoni* Newst. 1917.

- Australophlebotomus* Theodor 1948. Type *P. brevifilis* Tonn. 1935.
- Spelaephlebotomus* Theo. 1948. Type *P. gigas* Parrot and Schwetz 1937.
- Spelaomyia* Theo. 1948. Type *P. mirabilis* Parrot and Wanson 1939.

The paper by Theodor (1948) was, of course, not available to Rapp when he compiled his list, but Costa Lima's 1932 paper should have been consulted for the earlier names, while Mangabeira's publications all appeared several years before Rapp's list.

Tinearia Schellenberg 1803. This name is listed by both Enderlein and Rapp as valid with *Trichoptera fuliginosa* Meigen 1804 as genotype and *Ulomyia* Haliday in Walker 1856 as a synonym. Coquillett, however, (1910) designated *Psychoda alternata* Say 1824 as genotype, and placed *Tinearia* as a synonym of *Psychoda*. An examination of Schellenberg's original publication (*Genres des Mouches Dipteres, representes en XLII Planches projectees et dessinees par Mr. J. R. Schellenberg et expliquees par deux amateurs de l'Entomologie. Zurich (1803)*) indicates quite clearly that Schellenberg is responsible only for the plates and the names appearing on them. Apparently the publishers felt some sort of text necessary for they appear to have secured the services of two anonymous "Amateurs" to supply this deficiency. There seems to have been no contact between Schellenberg and the authors of the text. The authors of the text state in their introduction that they intend to follow the classification of the "immortal Fabricius." They say also that the plates were already printed before they were asked to supply the text, and hence no changes could be made in the former. The result is that the plates often bear no names, generic names only, or names different from those given in the text. In the case of the *Psychodidae* the plate XL bears the supposed generic name *Tinearia*, but no specific name. The figures are numbered 1A, a, b, c, 2B and d. The explanation of the plate is on page 23 and gives the name as *Tipula Phalaenoides* Fabr. Ent. Syst. IV p. 251 No. 85. This covers figures 1A, a, b, and c of the plate. Figures 2B and d are named as *Tipula hirta* Fabr. Ent. Syst. IV p. 251 no. 84. The plates are very poor. No mention of the name *Tinearia* appears in the text.

Since the text of this work was not by Schellenberg and the name *Tinearia* is nowhere associated with a specific name either by Schellenberg or the anonymous authors of the text, it seems that the name must be considered a genus without species. Coquillett's

designation of *alternata* Say thus is valid, since the naming of the figures in the plate without using the generic name on the plate does not restrict *Tinearia* in any way. Enderlein seems to have been unaware of the dual authorship of this work, or of the previous designation of a genotype by Coquillett. Rapp, in following Enderlein, seems to have been unaware that *Ulomyia* Hal. (not Walker) 1856 was a substitute name for *Saccopteryx* Hal. 1839 preoccupied. Both names are listed separately as synonyms of *Tinearia* by Enderlein and Rapp on the basis of isogenotypy. *Ulomyia* is considered by recent workers (Coe 1945) as a subgenus of *Pericoma*.

Panimerus Eaton 1913 Trans. Linn. Soc. London (2) 15: 425-427. Type by original designation "*Panimerus hirtus* (Linn) (= *notabilis* Eaton)". Enderlein (1937) and Rapp give *P. scotti* Eaton 1913 as type, presumably because Enderlein (1935) designated *notabilis* Eaton as genotype of *Lepiseoda* End. 1935, a genus which he sank (1937) under *Panimerus* with the statement that Tonnoir considered *scotti* Eaton 1913 and *notabilis* Eaton 1893 synonymous.

Lepidopsychoda Edwards 1928, Insects Samoa, Pt. VI, fasc. 2, pp. 71-72, fig. 10, Type by original designation *L. tineiformis* Edwards 1928. Also includes *Brunettia trimicra* Edw. This genus is not mentioned by either Enderlein or Rapp.

Mesopsychoda Brauer, Redtenbacher and Ganglbauer 1889 (Akad. nauk, SSSR Leningrad, Memoires, Ser. 7, Vol. 36, No. 15, pp. 1-22, 2 plates) with *dasyptera* sole species. Fossil. Jurassic. East Siberia. I have not seen the original description but Handlirsch (1908. Die fossilen Insekten, p. 629, pl. 51, fig. 4) has re-described and figured the specimen. It is small, 3.6 mm. long, with the hairy wings folded tent-like over the abdomen. What can be made out of the venation is not very like modern Psychodids, but the material is probably not adequate for detailed comparisons. Handlirsch also creates the provisional genus *Psychodites* for two species, *kenngotti* Giebel and *egertoni* Brodie which he believes may be *Psychodids*, though from his figures there is little to support this view except that the wings are more or less hairy.

Parabrunettia Brunetti 1911. According to Tonnoir (1939) the history and synonymy of this name is as follows: *Parabrunettia* has as type *P. squamipennis* Brun., designated by Brunetti in 1912. But this species is a true *Brunettia*, hence *Parabrunettia* = *Brunettia*. *Parabrunettia* of Enderlein, with *B. indica* Eaton 1913 as type is subgenerically distinct, and Tonnoir proposes for it the name *Trichobrunettia*. He also points out that not only *B. indica* Eaton but also *Parabrunettia 9-notata* Brun. and *Psychoda duripuncta*

Curran are synonyms of *Brunettia albonotata* Brun. 1908, a more or less tropicopolitan species. Rapp apparently did not see this paper, as neither the generic nor specific synonymies nor the name *Trichobrunettia* appear in his lists.

Posthon Loew 1845 (Dipt. Beitr. 1: 9-10) Type *gracilis* Loew. 1850.

Phalaenomyia Loew 1845 (l.c.) no species named.

These two names, based on fossil material in amber, were placed respectively as synonyms of *Sycorax* and *Trichomyia* by Haliday, in Walker 1856, where they have remained. At least the first is nomenclatorially available, and should the type ever turn up, might well preoccupy later names. Their descriptions are meagre, consisting of brief comparisons with *Diplonema* Loew. Giebel (1856) has discussed all the fossil *Psychodidae* named at that time, while Meunier (1905) has described and figured a considerable number of amber forms and given keys to the known fossil genera and species.

Phalaenula Meigen 1800. Coquillett (1910) designated *Trichoptera ocellaris* Meigen 1804 as genotype. Eaton in 1904 had erected the genus *Clytocerus*, without type designation, but including by citation *Pericoma ocellaris* (Meigen) and *P. dalei* Eaton and a figure of the former. Enderlein in 1935 designated *P. dalei* Eaton as genotype of *Clytocerus*, but in 1937 he gives *ocellaris* Meigen as genotype, in which he is followed by Rapp. Stone (1941) considers *Clytocerus* to be a synonym of *Phalaenula*, apparently the only correct procedure under the rules if Meigen's 1800 names are accepted, while Coe 1945, recognized *Clytocerus* as valid with *ocellaris* and *dalei*.

Termitadelphos Holmgren 1905 Type *silvestrii* Holmg.

Termitodipteron Holmgren 1905 Type *Wasmanni* Holmg.

These two genera are not mentioned by Rapp or Enderlein, though Tonnoir (1929 p. 2 footnote) considers the first as a possible synonym of *Psychoda*, the second provisionally in the *Trichomyiinae*.

Eatonisca Meunier 1905. Type *E. tertiaria* Meun. 1905. Fossil in Baltic amber. This genus is placed next to *Horaiella* Tonn. by Enderlein, but omitted by Rapp, although he includes other fossil genera. I have seen the original description.

Eutonnoiria Alexander 1940 (Rev. Ent. 11: 794) Type *Bruchomyia edwardsi* Tonn. 1939. This name seems to have been overlooked by Rapp.

"*Diplomia Annandale*" Rapp and Cooper 1945 p. 211. This is a misspelling of *Diplonema* Annand. 1908, which name is preoc-

cupied by *Diplonema* Loew 1845, as discovered by Annandale two years later when he renamed the genus *Brunettia*. Rapp and Cooper list the single species *superstes* under *Diplomia* rather than under *Brunettia*, whose genotype it is. *Diplonema* Loew with type *buceras* is correctly listed by both Rapp and Enderlein.

There are a distressingly large number of minor errors and omissions in the series of papers by Rapp, but there seems no point in going into details. Dates are often omitted and references are in too many cases quite inaccurate. For example, in Rapp and Cooper 1945, pp. 214-215, *Nemopalpus australiensis* Alexander was described in Proc. Linn. Soc. N.S. Wales 53: 293-294, 1928, and *not* in the Federated Malay States Museum Journal 14: 65, as they have it. *N. orientalis* Edwards 1928, which *was* described in the Federated Malay States Museum Journal 14: 65, is not listed by Rapp. In the same genus *N. tertiariae* (Meunier 1905) and *N. molophilinus* (Edwards 1921), two fossil species, are nowhere mentioned by Rapp, while *N. zelandiae* Alex. 1921 is misspelled *zelandicus*.

In going over the faunal lists, no attempt was made at a complete check, but the following omissions should be noted. The genus *Maruina* is not listed as North American by Rapp, in spite of definite statements by Tonnoir (1929, 1934) and Edwards (1929) that *Pericoma californiensis* Kellogg represents the early stages of *Maruina lanceolata* Kinc. and that *Trichomyia unipunctata* Hasem. = *Maruina*, and by Johannsen (1938), who lists and gives a key to six species, three of them from the United States. Rapp places two of these latter in *Trichomyia* and omits the third entirely. True *Trichomyia* occurs in the United States also, as I have examined specimens of *T. urbica* Curtis in the U.S.N.M. from Virginia. I have also compared specimens of *Maruina lanceolata* Kinc. with the original descriptions of *Maruina* by F. Müller and consider them congeneric. It may be well to note here that the figure of the wing of *Maruina* in Curran's North American Diptera, 1934, p. 79 is a species of *Sycorax*.

The listings of the species of *Phlebotomus* are very far from complete. About a dozen species described previous to Rapp's paper on the African *Psychodidae* are missing, while *P. troglodytes* Lutz 1922, a Brazilian species, is listed as *P. troglodytes* Nitzulescu 1930 from Tunisia. The paper quoted is actually a discussion of differences between *troglodytes* Lutz and *brumpti* Larr. The Oriental lists are about equally incomplete and there are minor slips, such as the crediting of *P. barraudi* Sinton 1929, to Yao and Wu and *P. nicnic* Banks to Manalang. The recent paper of Theodor (1948)

adequately covers the Old World species. In the case of the Neotropical *Phlebotomus*, Rapp lists less than half of the species, 61 out of 124, described previous to December 1, 1943, the effective date of his list. There are a number of minor errors of spelling, and three species of *Phlebotomus*, *sordellii*, *squamiventris* and *tejerae* are listed under *Platyplastinx* End. The fine catalogue of Barretto (1947) may be consulted for a complete and accurate listing of the New World species.

Finally, Rapp has noted (1945 p. 262) that *Pericoma unicolor* Abreu 1930 is preoccupied by *Pericoma unicolor* Brun. 1911 and renamed the species *P. abreui*. Unfortunately Tonnoir (1934) made the same observation in addition to observing that the species was a *Telmatoscopus*, and renamed it *Telmatoscopus abreui*. On Rapp's paper on New Psychodidae from Barro Colorado Island (J. New York Ent. Soc. 53. 1945) I do not feel qualified to comment further than to state my opinion that if the drawings of wings accompanying this article are correct and not inadvertently inverted, it will be necessary to rather radically revise the current concept of the genus *Psychoda* to include them. I suspect that some or all of the drawings were made without denuding or mounting the wings.

REFERENCES

- Annandale, N. 1910. The Indian Species of papataci fly (*Phlebotomus*). Rec. Indian Mus., 4 (2): 35-52, 3 plates.
- Barretto, M. P. 1947. Catalogo dos Flebotomos Americanos. Arq. Zool. Est. S. Paulo, 5 Art. 4, pp. 177-242.
- Brues, C. T. 1944. The generic name of the sandfly. Science 99 p. 427.
- Coe, R. L., in Kloet, G. S. and Hincks, W. D. 1945. Check list of British Insects, Stockport. (*Psychodidae* pp. 332-333.)
- Coquillett, D. W. 1910. The type species of the North American genera of Diptera. Proc. U. S. Nat. Mus. 37 No. 1719, pp. 499-647.
- Costa Lima, A. 1932. Sobre os phlebotomos americanos (*Dipt. Psychodidae*). Mem. Inst. Osw. Cruz, 26 (1): 15-69. Pl. IV-XXXI.
- Edwards, F. W. in Tonnoir 1929, footnote p. 2.
- Enderlein, G. 1935. Zur klassifikation der Psychodiden. Sitzungsber. der Gesellschaft Naturforschender Freunde, Berlin, 15 Nov. 1935, pp. 246-248.
- . 1937. Klassifikation der Psychodiden. Deutsche Ent. Zeitsch., Jahrg. 1936, Heft III/IV, pp. 81-112 (June 1937).

- Giebel, C. G. 1856. Fauna der Vorwelt mit steter Beruch-sichtigung der Lebenden Thiere. Zweiter Band: Glieder-thiere, Erste Abtheilung: Insekten und Spinnen. 511 pages. Leipzig. (Psychodidae pp. 248-249.)
- Johannsen, O. A. 1938. New species of Nemosia from Puerto Rico. J. Agric. Univ. Puerto Rico, Rio Piedras, 22: 219-225.
- Meunier, F. 1905. Monographie des Psychodidae de l'ambre de la Baltique. Ann. Mus. Nat. Hungarici, 3: 225-255, 2 plates.
- Rapp, W. F. Jr. 1944. The correct generic name for the sand fly. Science 99: 345.
- . 1944. The generic name of the Sand fly. Science 100: 124.
- . 1944. Catalogue of North American Psychodidae. J. New York Ent. Soc. 52: 201-209.
- . 1945. Catalogue of the types of genera and sub-genera of Psychodidae. Bull. Brooklyn Ent. Soc. 40: 173-177.
- . 1945. Check list of Psychodidae of South and Central America. J. New York Ent. Soc. 53: 21-30.
- . 1945. A new name for Pericoma unicolor Abreu. J. New York Ent. Soc. 53: 262.
- Rapp, W. F. Jr. and Cooper, J. L. 1945. Check list of the Psychodidae of Europe. Op. cit. 117-126.
- . 1945. Check list of Psychodidae of Asia and Australia. Op. cit. 211-217.
- . 1945. Check list of African Psychodidae. Op. cit. 247-257.
- . 1946. Check list of Psychodidae of Philippine and Hawaiian Islands. J. New York Ent. Soc. 54: 291-292.
- Stone A. 1941. The generic names of Meigen 1800 and their proper application. Ann. Ent. Soc. Amer., 34: 404-418.
- Theodor, O. 1948. Classification of the Old World species of the subfamily Phlebotominae. Bull. Ent. Res., 39 (1): 85-115, 15 figs. 2 plates.
- Tonnoir, A. L. 1929. Diptera of Patagonia and South Chile, Part 2, fasc. 1, Psychodidae. 32 pages. 4 plates. British Museum (Natural History), London.
- . 1934. Notes synonymiques sur quelques Psycho-didae. Bull. and Ann. Soc. Ent. Belgique, 74: 69-82.
- . 1939. Psychodidae, in British Museum Ruwen-zori Exped., Vol. 1, No. 4, pp. 35-80, 156 figs., 2 plates.