

PSYCHE

VOL. XLV

MARCH, 1938

No. 1

LECTOTYPES OF NORTH AMERICAN CADDIS FLIES IN THE MUSEUM OF COMPARATIVE ZOOLOGY¹

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Few species of caddis flies described by Hagen and Banks have had lectotypes designated for them. In a few cases the type series of one species contains representatives of more than one species, a condition which has led to confusion of names due to different interpretations made by different authors. The only way to obviate further repetition of this is to place on a single type basis (by lectotype designations) all those species described from a series of cotypes. This paper sets lectotypes for 229 species, all the lectotypes being in the collection of the Museum of Comparative Zoology.

The method followed in selecting the single type specimens has taken into account very little work done by other authors, since a large number of the species represent segregations seldom recognized by others. Furthermore both Hagen and Banks used a labelling system which left no doubt as to which specimen they considered the real type. Hagen placed his label on only one specimen and marked it with an asterisk if it were a type or plesiotype in the sense of present usage. Other specimens in the series were simply placed in

¹A grant from the travel fund of the Illinois State Natural History Survey, Urbana, Illinois, made it possible for me to visit the Museum of Comparative Zoology and make these studies. I wish to acknowledge my gratitude and appreciation to the Survey for this grant.

a row after the first labelled specimen; undoubtedly some specimens which are not actually types were put in these series at the same time or subsequently, either by Hagen himself or inadvertently by others. In selecting lectotypes of Hagen's species the specimen labelled by Hagen has been taken in each case. Lectotypes have been designated for all the species from North America described by Hagen unless they have been previously set in literature, even if only represented in the collection by a single individual. This is done because of the possibility of specimens appearing in other collections which might erroneously be considered as types.

There is a possibility that some specimens designated as lectoallotypes have not been correctly associated with the lectotypes, that is, do not represent the opposite sex of the same species as the lectotypes. In a very high proportion of the North American caddis fly species it is impossible, with our present studies, to separate the females of closely related forms, so that we have to rely to an inordinate extent on collection data as a basis for association.

All the specimens mentioned as "allotype" represent designations made for the first time in this paper.

In the Banks collection the specimens listed without definite collector from the eastern states were taken by Banks himself, except in a few cases.

Banks' species have his own label on the first specimen and simply a "TYPE" label on the others. The first specimen with the label has been taken as the lectotype, a procedure which Mr. Banks has requested and which seems perfectly logical.

In rare cases when these first specimens have been females and the cotype series contained males, an exception to the foregoing procedure has been instituted and a male selected as the lectotype.

No attempt has been made to analyze any of the cotype series except the lectotypes, the remainder automatically becoming paratypes. Such a study would have little significance since the paratypes will have only historic and minor taxonomic interest. Furthermore so many of the specimens have been sent in exchanges, etc., to institutions in widely

scattered countries that it has been impossible for me to gather the necessary information.

The species treated are listed within each family alphabetically according first to genus and then to species. Many of the species have been transferred from genus to genus several times. In attempting to find some method which would be easy to follow and at the same time show the generic placement, I am using the following double entry when a change has been made. If a species is placed in a genus other than the one in which it was described, it is listed both under the genus in which it was originally described and under the genus in which I am placing it. For example, *Hydropsyche sordida* Hagen is now placed in the genus *Cheumatopsyche*. Therefore, it is listed under both *Hydropsyche sordida* in the h's and under *Cheumatopsyche sordida*. Under the former, note is made of the genus in which it is placed.

Professor Nathan Banks, Curator of insects at the Museum of Comparative Zoölogy, and Professor F. M. Carpenter of the Division of Biology, Harvard University, have been of inestimable help during the course of this work in giving information and advice, in placing at my disposal study facilities and equipment, and in the many courtesies accorded me during my visit to the Museum of Comparative Zoology.

Dr. C. O. Mohr, of the Illinois State Natural History Survey, has made most of the drawings for this paper, and I wish to express my gratitude for this.

Family RHYACOPHILIDÆ

Agapetus malleatus Banks, 1914, p. 202, fig. 57.

Lectotype, male.—Los Angeles County, California, San Gabriel Mts., 3000 ft., June 17, 1907, F. Grinnell, Jr. No. 11723. *Lectoallotype, female*.—Same data.

The genitalia of the lectotype are shown in fig. 1.

Baerea? maculata Hagen.—see *Protoptila maculata* (Hagen)

Glossosoma nigrior Banks.—see *Mystrophora nigrior* (Banks)

Glossosoma parvulum Banks, 1904a, p. 108, fig. 13.

Lectotype, male.—Pecos, New Mexico, August 10, at

light. No. 11748. *Lectoallotype, female*.—Same data, but August 13.

The genitalia of a homotype are shown in fig. 2.

Mystrophora lividum (Hagen), 1861, p. 295 (*Tinodes*).

Lectotype, female.—St. Lawrence River, Canada, Osten Sacken. No. 11081.

Milne has determined the male of this species as that illustrated by Betten as *Mystrophora sp.* (1934, pl. 9, figs. 15-17).

Mystrophora nigrior (Banks), 1911, p. 355, fig. 23. (*Glossosoma*)

Lectotype, male.—Black Mountain, North Carolina, north fork Swannanoa River, May. No. 11745. *Lectoallotype, female*.—Same data.

At present there appear to be two valid species in this genus, the two illustrated by Betten (1934) as *americana* and *Mystrophora sp.* No good characters have been discovered as yet which separate the females of the two species, so that the exact status of the names *americana* Banks and *lividum* Hagen is problematic. It seems best at present to consider as *nigrior* the species treated as *americana* by most authors and illustrated by Betten (1934, pl. 8, figs. 4-6 and pl. 9, figs. 1-14), and to consider *americana* as an unidentified species.

Protoptila maculata (Hagen), 1861, p. 296. (*Baerea?*)

Lectotype, male.—St. Lawrence River, Canada, 1859, Sacken. No. 11093. *Lectoallotype, female*.—Same data.

This species has been illustrated by both Banks and Betten (1934).

Rhyacophila acropedes Banks, 1914, p. 201, fig. 39.

Lectotype, male.—Deer creek, Provo Canon, Utah, August 21, Spalding. No. 11741.

This species is closely allied to *coloradensis* Banks, but differs in details of the male genitalia, fig. 6.

Rhyacophila atrata Banks, 1911, p. 351.

Lectotype, male.—Black Mountain, North Carolina, north fork Swannanoa River, May. No. 11739. *Lectoallotype, female*.—Same data.

The genitalia of the type are shown in fig. 3.

Rhyacophila brunnea Banks, 1911, p. 252.

Lectotype, female.—Beulah, New Mexico, July 16. No. 11735.

There is a series of males and females in the M. C. Z. from Cultus Lake, B. C., the females of which appear exactly like the lectotype of *brunnea* in color and external genitalia. A male of this series has been selected as the allotype. It belongs to the *acropedes* group, fig. 4, but is readily distinguished by details of the genitalia.

Allotype, male.—Cultus Lake, British Columbia: May 18, 1933, W. E. Ricker.

Rhyacophila carolina Banks, 1911, p. 353, fig. 31.

Lectotype, male.—Black Mountain, North Carolina, north fork Swannanoa River, May. No. 11727. *Lectoallotype, female*.—Same data.

In addition to those in the original description, illustrations of the genitalia have been given by Betten (1934, pl. 5, figs. 4-7).

Rhyacophila coloradensis Banks, 1905b, p. 10.

Lectotype, male.—Fort Collins, Colorado. No. 11728.

This species is close to *bifila* Banks, but is readily distinguished by details of the genitalia, fig. 5.

Rhyacophila fairchildi Banks, 1930a, p. 130, figs. 4, 7.

Lectotype, male.—Baddeck, Cape Breton Island, Nova Scotia, September 4, 1928. No. 16237. *Lectoallotype, female*.—Same data.

The genitalia of the lectotype agree perfectly with the illustrations of *glaberrima* Ulmer and with the genitalia of the type of *andrea* Betten. There seems little doubt, therefore, that both *fairchildi* and *andrea* are synonyms of Ulmer's species, originally described from Georgia.

Rhyacophila formosa Banks, 1911, p. 353.

Lectotype, female.—Delaware Water Gap, New Jersey. No. 11078.

To date no male has been associated with this form, drawings of which are given by Milne (1936).

Rhyacophila grandis Banks, 1911, p. 350, fig. 27.

Lectotype, male.—Bon Accord, British Columbia, June 14. No. 11737. *Lectoallotype, female*.—Same data, but June 19.

The genitalia of the lectotype are well exposed without clearing, including the apex of the side tubes on the ædeagus. They are identical with those of the homotype illustrated in fig. 8.

Rhyacophila hyalinata Banks, 1905b, p. 10.

Lectotype, male.—South West Colorado, July 23, 1899. No. 11738.

The genitalia of the lectotype have been cleared and compared critically with those of the specimen illustrated in fig. 7.

Rhyacophila luctuosa Banks, 1911, p. 351, fig. 24.

Lectotype, male.—Woodworth Lake, Fulton County, New York, June 23, 1910, Alexander. No. 11740. *Lectoallotype, female*.—Same data.

The male genitalia are shown in fig. 9. The species is listed as a synonym of *invaria* Walker by Banks (1930b).

Rhyacophila minora Banks, 1924, p. 444, fig. 37.

Lectotype, male.—White Mountains, New Hampshire, Morrison. No. 14857. *Lectoallotype, female*.—Same data.

This species was described and illustrated by Betten (1934, p. 134, pl. 7, figs. 10, 11) as *Rhyacophila* sp. 1.

Rhyacophila nevadensis Banks, 1924, p. 443, fig. 53.

Lectotype, male.—Reno, Nevada, Morrison, 1878. No. 14855. *Lectoallotype, female*.—Same data.

Rhyacophila nigrita Banks, 1907a, p. 132, fig. 16.

Lectotype, female.—Black Mountain, North Carolina, June. No. 11742.

The male of this species has been figured in considerable detail by Betten (1934, pl. 7, figs. 1-5). The allotype will have to be designated from one of his specimens.

Rhyacophila rotunda Banks, 1924, p. 443, fig. 33.

Lectotype, male.—Reno, Nevada, 1878, Morrison. No. 14856. *Lectoallotype, female*.—Same data.

Rhyacophila torva Hagen, 1861, p. 296.

Lectotype, male.—Washington, D. C., Sacken. No. 11078.

The genitalia of this species have been illustrated by Banks (1907a, p. 132, fig. 7) and Betten (1934, pl. 7, figs. 6-9).

Tinodes lividum Hagen.—see *Mystrophora lividum* (Hagen)

Family PHILOPOTAMIDÆ

Chimarrha aterrima Hagen, 1861, p. 297.

Lectotype, male.—Mus. Berol. Penn. No. 11098.

The male genitalia have been illustrated by Betten (1934, pl. 16, figs. 6-9).

Chimarrha femoralis (Banks), 1911, p. 358. (*Wormaldia*).

Lectotype, male.—Sacandaga River, Sport Island, New York, June 27, 1910. No. 11520.

This species is a synonym of *socia* Hagen. Betten has figured the genitalia under the latter name (1934, pl. 16, fig. 13).

Chimarrha plutonis (Banks), 1911, p. 358, fig. 34. (*Wormaldia*).

Lectotype, male.—Delaware Water Gap. No. 11519.

The male genitalia of this species have been illustrated by Betten under the name *lucia* Betten (1934, pl. 16, figs. 10-12).

Chimarrha texana Banks, 1920, p. 360.

Lectotype, female.—San Antonio, Texas, August, Snow. No. 10914.

To date no reliable characters have been found for separating the females of this genus, so that for the present this species must be considered of doubtful identity.

Dolophiliella gabriella Banks.—see *Dolophilus gabriella* (Banks).

Dolophilus breviatus Banks, 1914, p. 254, fig. 61.

Lectotype, male.—Ithaca, New York, in Coy Glen, August. No. 11518.

The male genitalia of this type are broader than those of *moestus*, but the study of additional specimens indicates that this difference may be only individual variation.

Dolophilus gabriella (Banks), 1930b, p. 230, fig. 14. (*Dolophiliella*).

Lectotype, male.—San Gabriel Mountains, California, June 29. No. 16326.

The most distinctive feature of this species is the more or

less spatulate process of the eighth sternite.

Dolophilus major Banks, 1914, p. 254, fig. 66.

Lectotype, male.—Black Mountain, North Carolina, May. No. 11517.

This is the largest eastern species in the family.

Philopotamus aequalis Banks, 1924, p. 450, fig. 48.

Lectotype, male.—Tolland, Colorado, Dodds. No. 14853.
Lectoallotype, female.—Same data.

This western species is readily distinguished by its dark color and the male genitalia.

Philopotamus americanus Banks, 1895, p. 316.

Lectotype, male.—New York. No. 11512.

Both Banks and Betten have given illustrations showing a difference between this species and *distinctus* Walker. While these differences do occur, I have found all intergradations between them in a study of specimens from Michigan, New York, North Carolina and Maryland. All collections which I have seen containing specimens of both sexes are alike in having the females with minute, vestigial wings. This evidence indicates that only one species is involved in this material.

Wormaldia femoralis Banks.—see *Chimarrha femoralis* (Banks).

Wormaldia plutonis Banks.—see *Chimarrha plutonis* (Banks).

Family HYDROPTILIDÆ

Agraylea fraterna Banks, 1907b, p. 164.

Lectotype, male.—Falls Church, Virginia, May 1. No. 11591.

This species is a synonym of *multipunctata* Curtis.

Allotrichia flavida Banks, 1907b, p. 164.

Lectotype, female.—Fort Collins, Colorado, June 9. No. 11593.

No males have yet been associated with this form, so that its exact placement cannot be given.

Allotrichia maculata Banks.—see *Hydroptila maculata* (Banks).

Hydroptila albicornis Hagen, 1861, p. 275.

Lectotype, male.—St. Lawrence River, Canada, Osten Sacken. No. 11105.

This species is easily identified by the ædeagus and claspers, fig. 10. Hagen says the type is a female, but he was evidently misled by the retracted condition of the genitalia.

Hydroptila maculata (Banks), 1904b, p. 116, 3 figs. (*Allotrichia*).

Lectotype, male.—Falls Church, Virginia. No. 11595.

The unique male genitalia, fig. 11, are approached only by *waubesiana* Betten, but many differences separate the two.

Hydroptila tarsalis Hagen.—see *Polytrichia tarsalis* (Hagen).

Hydroptila transversa Banks, 1907b, p. 163.

Lectotype, male.—Washington, D. C., September, at light. No. 11592.

This is a synonym of *maculatus* (Banks).

Orthotrichia americana Banks, 1904b, p. 116, 1 fig.

Lectotype, male.—Washington, D. C., August 13. No. 11598. *Lectoallotype, female*.—Same data.

Illustrations of the cleared male genitalia have been given by Morton, 1905, under the name *brachiata*, which falls as a synonym of *americana* Banks. The species *americana* of authors will take the name *cristata* Morton.

Orthotrichia nigritta Banks, 1907b, p. 163, figs. 1-3.

Lectotype, male.—Austen, Texas, March 3, 1901. No. 11596.

This striking, black species from the southwest is different in many respects from the usual definition of *Orthotrichia* and should be placed in a new genus.

Metrichia new genus

Characteristics.—Ocelli present, close to eye. Tibial spur count, 1-3-4; spur on front tibia apical and small. Wings, fig. 14, narrowing to a pointed apex. Front wings with Sc very stocky, and all the other veins well developed; M1-2 almost fused with Rs; Cu & Cu2 running close to the hind margin of the wing. Hind wing with R1 apparently reduced

to a short "cross-vein", and M1-2 fused for a short distance with Rs.

Genotype.—*Orthotrichia nigrutta* Banks (by original designation).

This genus keys out with *Stactobia* but differs from it in the position of Cu & Cu2, the shortening of R1, and in other characters.

Orthotrichia pallida Banks.—see *Oxyethira pallida* (Banks)

Orthotrichia pictipes Banks.—see *Stactobia pictipes* (Banks)

Oxyethira dorsalis Banks, 1904d, p. 216, pl. 2, fig. 5.

Lectotype, female.—Falls Church, Virginia, June 26, No. 11600.

That portion of the type series which corresponds to the original description, especially in having the characteristic white line down the dorsum, contains only female specimens. Until the females and males of more species in the genus have been associated nothing can be done to settle the specific identity of this species.

Oxyethira pallida (Banks), 1904d, p. 215, pl. 2, figs. 2, 7.

Lectotype, male.—Washington, D. C. No. 11599. *Lectoallotype, female.*—Same data.

This species is the same as *viminalis* Morton, which now becomes a synonym of *pallida*.

Polytrichia tarsalis (Hagen), 1861, p. 275. (*Hydroptila*)

Lectotype, male.—St. Lawrence River, Canada, Osten Sacken. No. 11104.

This species has been illustrated by Betten (1934, pl. 12, figs. 11-14) under the name *confusa* Morton. Morton's species is not this one, but according to original figures belongs to another section of the genus.

Stactobia pictipes (Banks), 1911, p. 359.

Lectotype, male.—Johnstown, New York, June 28, Hale's Creek. No. 11597. *Lectoallotype, female.*—Same data.

The spur of the front tibiae put this species in the heterogeneous *Stactobia*. The male genitalia are illustrated in fig. 12. They are strikingly different from any other Nearctic species.

Family POLYCENTROPODIDÆ

Cernotina pallida (Banks), 1904d, p. 214. (*Cyrnus*)

Lectotype, male.—High Island, Maryland, June 17. No. 11539.

This interesting species belongs in the subfamily Psychomyiinae. The male genitalia are very distinctive, fig. 18. The only females in the M. C. Z. under this name do not belong to this species, so that as yet an allotype cannot be designated.

Cyrnus fraternus Banks.—see *Nyctiophylax fraternus* (Banks)

Cyrnus pallidus Banks.—see *Cernotina pallida* (Banks)

Plectrocnemia albipuncta Banks.—see *Polycentropus albipunctus* (Banks)

Plectrocnemia aureola Banks, 1930a, p. 130, figs. 2, 3, 5.

Lectotype, male.—Baddeck, Cape Breton Island, Nova Scotia, July 20, 1928. No. 16323. *Lectoallotype, female*.—Same data.

Illustrations of the male genitalia are given in fig. 13.

Plectrocnemia cinerea (Hagen), 1861, p. 293. (*Polycentropus*)

Lectotype, male.—St. Lawrence River, Canada, 1859, Osten Sacken. No. 11039. *Lectoallotype, female*.—Same data.

The genitalia of this species have been illustrated by Betten (1934, pl. 24, figs. 1-8) under the specific name *canadensis* Banks.

Plectrocnemia flavicornis (Banks), 1907b, p. 162, fig. 1. (*Holocentropus*)

Lectotype, male.—Washington, D. C. No. 11526.

This is a synonym of *cinerea* (Hagen).

Plectrocnemia pallescens Banks, 1930b, p. 231, fig. 3.

Lectotype, male.—Put-in-Bay, Ohio, July 3, 1924, on Middle Bass Island, G. Townsend. No. 16322. *Lectoallotype, female*.—Same data, but July 6, 1926.

The genitalia of this specimen appear identical with those of *cinerea* (Hagen), but the color is lighter. It is my belief that the specimen is slightly teneral. In several species

of caddis flies I have taken large collections every specimen of which was uniformly teneral.

Holocentropus flavicornis Banks.—see *Plectrocnemia flavicornis* (Banks)

Holocentropus interruptus Banks, 1914, p. 257, fig. 71.

Lectotype, male.—Hampton, New Hampshire, June 15, 1908. No. 11543.

This species was illustrated by Betten (1934, pl. 24, fig. 9). It has line priority over *orotus* Banks.

Holocentropus longus Banks, 1914, p. 258, figs. 65, 68.

Lectotype, female.—Framingham, Massachusetts, June 4, 1904, C. A. Frost. No. 11542.

The size and color of this specimen leaves little doubt but that it is the same as *interruptus*, although sure diagnostic characters have not yet been discovered for the females of this genus.

Holocentropus orotus Banks, 1914, p. 257, fig. 69.

Lectotype, male.—Clear Creek, Colorado. No. 11541.
Lectoallotype, female.—Chimney Gulch, Boulder, Colorado, Oslar.

This species is a synonym of *interruptus* Banks, which has line priority.

Holocentropus placidus Banks.—see *Phylocentropus placidus* (Banks)

Neureclipsis parvulus Banks, 1907b, p. 163, figs. 2, 3.

Lectotype, male.—High Island, Maryland, June 17. No. 11509.

In addition to the original description, the genitalia have been illustrated by Betten (1934, pl. 22, fig. 8, and pl. 23, fig. 1).

Nyctiophylax fraternus (Banks), 1905b, p. 17. (*Cyrnus*)

Lectotype, female.—Plummer's Island, Maryland, August 28. No. 11538.

A species of doubtful standing, placed as a synonym of *vestitus* by Milne (1935).

Nyctiophylax marginalis Banks, 1930b, p. 231, fig. 15.

Lectotype, male.—Put-in-Bay, Ohio, August 5, 1926, G. Townsend. No. 16325.

The male genitalia of this species are very distinctive, especially the sclerotized point on the mesal side of the clasper. They have been illustrated by Mosely under the name *Cyrnellus zernii* Mosely (1934, p. 142), which becomes a synonym of *marginalis*.

Nyctiophylax mæstus Banks, 1911, p. 359.

Lectotype, male.—Peachland, British Columbia, August 19, 1909, J. B. Wallis. No. 11536.

A synonym of *vestitus* Hagen.

Nyctiophylax vestitus (Hagen), 1861, p. 293. (*Polycentropus*)

Lectotype, female.—Washington, D. C., Osten Sacken. No. 11036.

The color and venation of this specimen associates it indubitably with the concept of this species as used by Banks, Betten and others.

Phylocentropus lucidus (Hagen), 1861, p. 294. (*Polycentropus*)

Lectotype, male.—Trenton Falls, New York, 1858, Osten Sacken. No. 11037.

The genitalia of this species also have been figured by Betten (1934, pl. 23, figs. 9-14).

Phylocentropus placidus (Banks), 1905b, p. 15. (*Holocentropus*)

Lectotype, male.—Washington, D. C., August 25. No. 11540.

The essential features of the genitalia of this species have been illustrated by Betten (1934, pl. 23, figs. 2-18). The species *carolinus* Carpenter has been placed as a synonym erroneously by Milne.

Polycentropus albipunctus (Banks), 1930a, p. 131, figs. 6, 9. (*Plectrocnemia*)

Lectotype, male.—Point Brevis, Cape Breton Island, Nova Scotia, July 10, 1928. No. 16324. *Lectoallotype, female*.—Same data.

The genitalia of the male of this species are shown in fig. 17.

Polycentropus arizonensis Banks, 1905b, p. 16.

Lectotype, male.—Huachua Mts., Arizona, June 21. No.

11546. *Lectoallotype, female*.—Same but July 20, 1903.

The genitalia of this distinctive species are shown in fig. 15.

Polycentropus cinereus Hagen.—see *Plectrocnemia cinerea* (Hagen)

Polycentropus lucidus Hagen.—see *Phylocentropus lucidus* (Hagen)

Polycentropus remotus Banks, 1911, p. 359.

Lectotype, male.—Peachland, British Columbia, August 23, 1909, J. B. Wallis. No. 11549.

The male genitalia are shown in fig. 16.

Polycentropus vestitus Hagen.—see *Nyctiophylax vestitus* (Hagen)

Psychomyia diversa (Banks), 1914, p. 253, fig. 64.

Lectotype, male.—Black Mountain, North Carolina, May, along north fork Swannanoa River. No. 11533. This is close but distinct from *griselda* (Betten).

Psychomyia flavida Hagen.—see *Psychomyiella flavida* (Hagen)

Psychomyia pulchella Banks.—see *Psychomyiella pulchella* (Banks)

Psychomyiella flavida (Hagen), 1861, p. 294. (*Psychomyia*)

Lectotype, female.—St. Lawrence River, Canada, 1859, Osten Sacken. No. 11055.

The structure of the male genitalia, fig. 19, indicates that this species belongs to *Psychomyiella* Martynov, and that *Quissa* Milne, with *flavida* as its genotype, is a synonym of it. The female genitalia are distinctive, allowing certain determination of this type. The species is widely distributed.

Psychomyiella pulchella (Banks), 1899, p. 217.

Lectotype, male.—Colorado, accession no. 2022. No. 11534. A synonym of *flavida* (Hagen).

Family HYDROPSYCHIDÆ

Arctopsyche grandis (Banks), 1900a, p. 258. (*Hydropsyche*)

Lectotype, male.—South West Colorado, July 20, 1899. No. 11514.

The mottled wings and male genitalia, fig. 36, will serve to distinguish this species from other nearctic members of the genus.

Cheumatopsyche analis (Banks), 1903b, p. 243. (*Hydropsyche*)

Lectotype, male.—Riverton, New Jersey, July 16. No. 11532.

The elongate apical segment of the clasper, the V-shaped ridge on the dorsum of the tenth tergite, and the inconspicuous apical lobes on the tenth tergite, fig. 20, distinguish the species from others in the genus. To date I have seen no specimens of this species except the type.

The much used name "*Hydropsychodes analis*" has been applied to at least six different species in the past, and records under this name can not be accepted.

Cheumatopsyche gracilis (Banks), 1899, p. 216. (*Hydropsyche*)

Lectotype, male.—Colorado, accession no. 2022. No. 11497.

The elongate apical segment of the clasper combined with the elongate-trapezoidal apical lobes of the tenth tergite will serve to distinguish this species, fig. 23.

Cheumatopsyche minuscula (Banks), 1907a, p. 130, pl. 8, fig. 5. (*Hydropsyche*)

Lectotype, male.—Plummers Island, Maryland, August 29. No. 11530. *Lectoallotype, female*.—Same data.

The pointed and approximate apical lobes of the tenth tergite, fig. 21, set this species off at once from *sordida* (Hagen), with which it was incorrectly synonymized by Milne.

Cheumatopsyche sordida (Hagen), 1860, p. 285. (*Hydropsyche*)

Lectotype, male.—St. Lawrence River, Canada, 1859, Sacken. No. 11015.

This black species is distinguished by the widely separated apical lobes of the tenth tergite; these lobes have a dorsal, truncate apex, fig. 24.

Cheumatopsyche speciosa (Banks), 1904d, p. 214, pl. 2, fig. 6. (*Hydropsyche*)

Lectotype, male.—Plummers Island, Maryland, August 28. No. 11502. *Lectoallotype, female*.—Same data.

In addition to the three large yellow spots of the front wings, the genitalia are distinctive of the species (Betten, 1934, pl. 20, fig. 14).

Diplectrona modesta Banks, 1908b, p. 266, pl. 19, fig. 13.

Lectotype, male.—Riverside, Massachusetts, June 4, C. W. Johnson. No. 11523. *Lectoallotype, female*.—Same data.

The details of the male genitalia have been illustrated by Betten (1934, pl. 17, figs. 3-7).

Hydropsyche analis Banks.—see *Cheumatopsyche analis* (Banks)

Hydropsyche bifida Banks, 1905b, p. 15, fig. 14.

Lectotype, male.—Colorado, accession no. 2175. No. 11503. *Lectoallotype, female*.—Colorado, accession no. 2135, Fort Collins, June.

The male genitalia of this species, fig. 32, are distinguished by the short, widely separated apical processes of the tenth tergite and the small spur at the end of the lateral processes of the ædeagus. The species is widely distributed across the continent.

Hydropsyche californica Banks, 1898, p. 217.

Lectotype, male.—Tahoma, California, August 28, 1897. No. 11304.

The somewhat moniliform apex of the ædeagus distinguishes this species from others in the *scalaris* group, fig. 26.

Hydropsyche chlorotica Hagen, 1861, p. 290.

Lectotype, male.—St. Lawrence River, Canada, 1859, Sacken. No. 11016.

This specimen is identical in genitalia with the lectotype of *morosa* Hagen recently erected by Banks (1938). Diagnostic features include the flattened spur at the end of the lateral arm of the ædeagus, and the relatively simple apex of the ædeagus, fig. 33.

Hydropsyche cockerelli Banks, 1905b, p. 14.

Lectotype, male.—Pecos, New Mexico, June 26, M. Grabham. No. 11506. *Lectoallotype, female*.—Same, August 14, at light, Cockerell.

The long, curved spur at the end of the lateral process of the ædeagus, combined with the short, upright and notched apical processes of the tenth tergite, set off this species from its close relatives, fig. 34.

Hydropsyche depravata Hagen, 1861, p. 290.

Allotype, male.—Georgia, 1860, Gerhard.

This specimen agrees perfectly in color, habitus and labels with the female type of the species. There is no doubt that it is the same species. The genitalia are quite distinct, fig. 31, and in a large number of points suggest that this species and its close allies form the most primitive stock in the genus.

Hydropsyche divisa Banks.—see *Smicridea divisa* (Banks)

Hydropsyche gracilis Banks.—see *Cheumatopsyche gracilis* (Banks)

Hydropsyche grandis Banks.—see *Arctopsyche grandis* (Banks)

Hydropsyche hageni Banks, 1905b, p. 14, figs. 6, 10, 12.

Lectotype, male.—Travilah, Maryland, July. No. 11996.

The greatly lengthened and flattened apico-lateral plates of the ædeagus set the species off from others of the *scalaris* group easily, fig. 22.

Hydropsyche incommoda Hagen, 1861, p. 290.

Lectotype, male.—Georgia, Winthem. No. 11028.

This species is a member of the *scalaris* group. The structures at the apex of the ædeagus are shown in fig. 29.

Hydropsyche kansensis Banks.—see *Potomyia kansensis* (Banks)

Hydropsyche minuscula Banks.—see *Cheumatopsyche minuscula* (Banks)

Hydropsyche novamexicana Banks, 1904a, p. 110, fig. 12.

Lectotype, male.—Roswell, New Mexico, August 22, Cockerell. No. 11505.

This species is a synonym of *occidentalis* Banks.

Hydropsyche occidentalis Banks, 1900a, p. 258.

Lectotype, male.—Pullman, Washington, August 7, 1898. No. 11500.

This species is closest to *scalaris* and *venularis*, but differs

from both in details of the genitalia, fig. 27.

Hydropsyche oslari Banks, 1905b, p. 13, fig. 2.

Lectotype, male.—South West Colorado, July 23, 1899. No. 11501. *Lectoallotype, female*.—Same, but July 17.

The long, apical segment of the claspers and the short, approximate apical processes of the tenth tergite are diagnostic for this species, fig. 35.

Hydropsyche partita Banks, 1914, p. 252, figs. 58, 59.

Lectotype, male.—Switzers Camp, San Gabriel Mts., California, June. No. 11498.

This is a synonym of *oslari*.

Hydropsyche phalerata Hagen, 1861, p. 287.

Allotype, male.—Great Falls, Virginia, July 27.

The great similarity between the pinned lectotype and this allotype leaves no doubt of the correct association of the two. The upturned apex of the tenth tergite and the slightly enlarged apex of the ædeagus are diagnostic, fig. 25.

Hydropsyche recurvata Banks, 1914, p. 253, fig. 73. (*H. slossonæ* var.)

Lectotype, male.—Go Home Bay, Ontario, Split Rock, June 9, E. M. Walker. No. 11507.

This species is distinguished by the combination of a long, curved spur at the end of the lateral process of the ædeagus and the apex of the ædeagus being developed into a pair of large, lateral lobes. The species *codona* Betten (1934, pl. 18, figs. 10-12) is a synonym of *recurvata*.

Hydropsyche slossonæ Banks, 1905b, p. 14, figs. 4, 7.

Lectotype, male.—Franconia, New Hampshire. No. 11495. *Lectoallotype, female*.—Same data.

In general appearance this species resembles other members of the "*alternans*" group, but is distinguished from all others by the male genitalia, fig. 30. Diagnostic characters include: simple, spine-like spur on end of lateral process of ædeagus, three large pockets of spines within apex of ædeagus, and long, excavated processes of tenth tergite which form an apical horseshoe.

Hydropsyche sordida Hagen.—see *Cheumatopsyche sordida* (Hagen)

Hydropsyche speciosa Banks.—see *Cheumatopsyche speciosa* (Banks)

Hydropsyche venularis Banks, 1914, p. 252, fig. 62.

Lectotype, male.—Washington, D. C., June 22. No. 11508.

A member of the *scalaris* group, characterized by the greatly enlarged head at the apex of the ædeagus, which is half again as deep as the stalk, fig. 28.

Macronema carolina Banks, 1909, p. 342.

Lectotype, male.—Southern Pines, North Carolina, June, 1924, A. H. Manee. No. 11529.

This species, although widely distributed, always occurs south of the range of *zebratum* Hagen.

Macronema flavum Hagen.—see *Potomyia flava* (Hagen)

Macronema zebratum Hagen, 1861, p. 285.

Lectotype, male.—St. Lawrence River, Canada, 1859, O. Sacken. No. 11027. *Lectoallotype, female*.—Same data.

This northern species is larger than *carolina* Banks and has the basal antennal segment more bulbous.

Potomyia flava (Hagen), 1861, p. 285. (*Macronema*)

Lectotype, male.—St. Louis, Missouri, 1859, Sacken. No. 11026.

This species has been illustrated by Betten (1934, pl. 21, figs. 1-3).

Potomyia kansensis (Banks), 1905b, p. 15. (*Hydropsyche*)

Lectotype, female.—Douglas County, Kansas, July, electric light. No. 11499.

This represents the female of *flava* (Hagen), and is a synonym of this name.

Smicridea divisa (Banks), 1903a, p. 244, pl. 4, fig. 12. (*Hydropsyche*)

Lectotype, male.—Salt River, Arizona, April, Osler. No. 11528. *Lectoallotype, female*.—Same data, but April 10.

This species is a synonym of McLachlan's *fasciatella*. The male genitalia show more relationship to *Potomyia* than to any other genus in the family.

Family ODONTOCERIDÆ

Heteroplectron dissimilis Banks, 1897, p. 30.

Lectotype, female.—Sea Cliff, Long Island, New York, June. No. 11718.

A synonym of *indecisum* (Walker).

Heteroplectron rufa (Hagen), 1861, p. 276. (*Molanna*)

Lectotype, male.—Trenton Falls, New York, 1858, Osten Sacken. No. 10956. *Lectoallotype, female*.—Same data.

This species also is a synonym of *indecisum* (Wlk.)

Molanna rufa Hagen.—see *Heteroplectron rufa* (Hagen)

Nerophilus californicus (Hagen), 1861, p. 272. (*Silo*)

Lectotype, female.—California. No. 10994. *Allotype, male*.—Same data.

The allotype may have been of the original type series. It displays the same distinctive color pattern as the female.

Silo californicus Hagen.—see *Nerophilus californicus* (Hagen)

Family MOLANNIDÆ

Molanna cinerea Hagen, 1861, p. 276.

Lectotype, female.—St. Lawrence River, Canada, 1859, O. Sacken. No. 10957.

Only fragments of head and legs, and a fairly complete set of wings are left.

Molanna flavicornis Banks, 1914, p. 261, fig. 46.

Lectotype, male.—Husavick, Manitoba, July 2, 1916, J. B. Wallis. No. 11590. *Lectoallotype, female*.—Winnepeg, Manitoba, May 31, 1911, J. B. Wallis.

The diagnostic features separating this species from others in the genus have been given by Betten (1934).

Family LEPTOCERIDÆ

Athripsodes albostictus (Hagen), 1861, p. 276. (*Leptocerus*)

Lectotype, female.—America, September, Winthem. No. 10963.

At the present time no satisfactory characters have been found to separate the females of this group of species. For the present, therefore, it will be necessary to consider this species of doubtful identity.

Athripsodes dilutus (Hagen), 1861, p. 277. (*Leptocerus*)

Lectotype, male.—Chicago, Illinois, Osten Sacken. No. 10965.

This species is a very close relative of *annulicornis* (Stephens), but may be readily separated from it on the basis of the ædeagus having two internal, large spines, and the clasper having a pedunculate sclerotized process, fig. 42. *Dilutus* has been incorrectly synonymized with *annulicornis*; it is really distinct and seems to be the only name available for the species.

Athripsodes flavus (Banks), 1904d, p. 212, pl. 2, fig. 4.
(*Leptocerus*)

Lectotype, male.—Falls Church, Virginia. No. 11572.
Lectoallotype, female.—Same data.

The angulate basal process of the claspers illustrated in the original description serves to differentiate this species from its only close ally, *ancylus* (Vorhies).

Athripsodes futilis (Banks), 1914, p. 264, figs. 44, 49.
(*Leptocerus*)

Lectotype, male.—Go Home Bay, Ontario, July 11, E. M. Walker. No. 11574. *Lectoallotype, female*.—Same data, but August 12.

The male genitalia of this type agree with those of a male from Europe determined by Hagen as *annulicornis* (Stephens) and answer in detail the illustrations of McLachlan. There seems no doubt but that *futilis* must be considered a synonym of *annulicornis*. The chief diagnostic characters are in the ædeagus, which has only a single, large, internal spine, and the clasper, which has a short, digitate, sclerotized process, fig. 41.

Athripsodes lugens (Hagen), 1861, p. 276. (*Leptocerus*)

Lectotype, male.—St. Lawrence River, Canada, 1859, O. Sacken. No. 10966. *Lectoallotype, female*.—Same data.

This species, also, is a synonym of *annulicornis*.

Athripsodes maculatus (Banks), 1898, p. 214. (*Leptocerus*)

Lectotype, female.—Washington, D. C. No. 11576.

The type matches that of *transversus* (Hagen) so perfectly that there is no doubt that the two are the same species. Both type series were collected at Washington.

Athripsodes transversus (Hagen), 1861, p. 279. (*Leptocerus*)

Lectotype, female.—Washington, D. C., Osten Sacken. No. 10967. *Allotype, male*.—Washington, D. C., June 22.

A large series of this species in the M. C. Z. shows that it is the common one in the vicinity of the type locality, and that the designated allotype is correctly associated with Hagen's type. The male genitalia of the allotype are shown in fig. 40.

Athripsodes variegatus (Hagen), 1861, p. 278. (*Leptocerus*)

Lectotype, male.—Chicago, Illinois, Osten Sacken. No. 10964.

The genitalia of this species have been illustrated by Betten under the name *aspinosus* Betten (1934, pl. 31, figs. 5-10). Both *variegatus* and *aspinosus* are synonyms of *resurgens* (Walker), according to the identification of Banks and Milne.

Leptocella candida (Hagen), 1861, p. 280. (*Setodes*)

Lectotype, male.—Florida, May, 1858, Sacken. No. 10972.

No attempt is made here to determine the status of any species in this genus.

Leptocella coloradensis Banks, 1899, p. 215.

Lectotype, male.—Colorado, accession no. 2059. No. 11582. *Lectoallotype, female*.—Colorado, accession no. 2022.

Leptocella minuta Banks, 1900a, p. 257.

Lectotype, female.—Pullman, Washington, August 9, 1898. No. 11581. *Allotype, male*.—Same data, but August 19.

The allotype bears no type label but is undoubtedly of the type lot.

Leptocella nivea (Hagen), 1861, p. 281. (*Setodes*)

Lectotype, male.—St. Lawrence River, Canada, 1859, Sacken. No. 10969.

Leptocella pavida (Hagen), 1861, p. 282. (*Setodes*)

Lectotype, female.—Washington, [D. C.], O. Sacken. No. 10970.

Leptocella stigmatica Banks, 1914, p. 262, fig. 48.

Lectotype, male.—Jemey Mts., New Mexico, July 20. No. 11583.

Leptocella texana Banks, 1905b, p. 19.

Lectotype, male.—Zavalla County, Nueces River, Texas, April 27, 1910, Hunter & Pratt. No. 11578.

Leptocerus albostictus Hagen.—see *Athripsodes albostictus* (Hagen)

Leptocerus americana (Banks), 1899, p. 215. (*Setodes*)

Lectotype, female.—Washington, D. C. No. 11567.
Lectoallotype, male.—Same data.

This species was made the basis for a new genus *Ymyia* by Milne. All characters except the genitalia, however, group it with the genotype of *Leptocerus*.

Leptocerus dilutus Hagen.—see *Athripsodes dilutus* (Hagen)

Leptocerus flavus Banks.—see *Athripsodes flavus* (Banks)

Leptocerus futilis Banks.—see *Athripsodes futilis* (Banks)

Leptocerus grandis (Banks), 1907a, p. 128, pl. 8, fig. 4. (*Setodes*)

Lectotype, male.—New Haven, Connecticut, June 23, 1904, H. L. Viereck. No. 11564. *Lectoallotype, female*.—Falls Church, Virginia, June 21.

This species is a synonym of *americana*.

Leptocerus lugens Hagen.—see *Athripsodes lugens* (Hagen)

Leptocerus maculatus Banks.—see *Athripsodes maculatus* (Banks)

Leptocerus transversus Hagen.—see *Athripsodes transversus* (Hagen)

Leptocerus variegatus Hagen.—see *Athripsodes variegatus* (Hagen)

Mystacides canadensis Banks, 1924, p. 448, fig. 47.

Lectotype, male.—Sherbrooke, Canada. No. 14852.

This represents the banded form of *longicornis* (L.). Field observations indicate that the unbanded specimens are simply rubbed, since the bands are formed only by hairs.

Mystacides interjecta Banks, 1914, p. 262, figs. 2, 5.
(*Æcetina*)

Lectotype, female.—Go Home Bay, Ontario, August 22, E. M. Walker. No. 11551.

This species is a synonym of *longicornis* (L.).

Æcetina disjuncta Banks.—see *Æcetis disjuncta* (Banks)

Æcetina flavida Banks.—see *Æcetis flavida* (Banks)

Æcetina floridana Banks.—see *Æcetis floridana* (Banks)

Æcetina fumosa Banks.—see *Æcetis fumosa* (Banks)

Æcetina interjecta Banks.—see *Mystacides interjecta* (Banks)

Æcetina parvula Banks.—see *Æcetis parvula* (Banks)

Æcetina persimilis Banks.—see *Æcetis persimilis* (Banks)

Æcetis cinerascens (Hagen), 1861, p. 282. (*Setodes*)

Lectotype, male.—Washington, [D. C.] No. 10971.

This species is illustrated by Betten (1934, pl. 35, figs. 2-7) under the name *resurgens* (Walker).

Æcetis disjuncta (Banks), 1920, p. 351, fig. 100. (*Æcetina*)

Lectotype, male.—Arroyo Seco Canyon, San Gabriel Mts., California, June 17, 1913, F. Grinnell, Jr. No. 10915.

The male genitalia resemble those of *avara* (Banks) very closely.

Æcetis flaveolata (Hagen), 1861, p. 282. (*Setodes*)

Lectotype, female.—Washington, [D. C.,] Osten Sacken. No. 10978.

This is the same species as *inconspicua* (Walker) as determined by Milne.

Æcetis flavida (Banks), 1899, p. 216. (*Æcetina*)

Lectotype, male.—Kissimmee, Florida. No. 11557.
Lectoallotype, female.—Same data.

This is the same species as *inconspicua* (Walker) as determined by Milne.

Æcetis floridana (Banks), 1899, p. 216. (*Æcetina*)

Lectotype, male.—Biscayne Bay, Florida. No. 11555.

This is the same species as *inconspicua* (Walker) as determined by Milne.

Æcetis fumosa (Banks), 1899, p. 216. (*Æcetina*)

Lectotype, female.—Washington, D. C. No. 11556.

This species is a synonym of *cinerascens* (Hagen).

Æcetis immobilis (Hagen), 1861, p. 283. (*Setodes*)

Lectotype, male.—St. Lawrence River, Canada, 1859. No. 10977.

The peculiar claspers, illustrated by Betten (1934, pl. 34, figs. 4, 5) readily distinguish this species.

Æcetis micans (Hagen), 1861, p. 283. (*Setodes*)

Lectotype, male.—Washington, [D. C.,] O. Sacken. No. 10973. *Lectoallotype, female*.—Same data.

This is a synonym of *inconspicua* (Walker) as determined by Milne.

Æcetis parva (Banks), 1907a, p. 130, pl. 9, figs. 24, 26. (*Setodina*)

Lectotype, male.—Kissimmee, Florida. No. 11562.

The genitalia of this minute leptocerid are illustrated in fig. 39. They are extremely similar to those of *avara* except for the claspers, which shows that *Setodina* must be considered at most a subgenus of *Æcetis*.

Æcetis parvula (Banks), 1899, p. 215. (*Æcetina*)

Lectotype, female.—Washington, D. C. No. 11554.

This is the same as *inconspicua* (Walker) as determined by Milne.

Æcetis persimilis (Banks), 1907a, p. 129. (*Æcetina*)

Lectotype, male.—High Island, Maryland. No. 11552. *Lectoallotype, female*.—Same data, in coitu with lectotype.

The distinctive male genitalia are illustrated by Betten (1934, pl. 34, fig. 12).

Æcetis sagitta (Hagen), 1861c, p. 284. (*Setodes*)

Lectotype, female.—Florida, March, 1858, O. Sacken. No. 10975.

This is the same as *inconspicua* (Walker) as determined by Milne.

Setodes americana Banks.—see *Leptocerus americana* (Banks)

Setodes candida Hagen.—see *Leptocella candida* (Hagen)

Setodes cinerascens Hagen.—see *Æcetis cinerascens* (Hagen)

Setodes flaveolata Hagen.—see *Æcetis flaveolata* (Hagen)

Setodes grandis Banks.—see *Leptocerus grandis* (Banks)

Setodes immobilis Hagen.—see *Æcetis immobilis* (Hagen)

Setodes injusta Hagen.—see *Triænodes injusta* (Hagen)

Setodes micans Hagen.—see *Æcetis micans* (Hagen)

Setodes nivea Hagen.—see *Leptocella nivea* (Hagen)

Setodes pavidia Hagen.—see *Leptocella pavidia* (Hagen)

Setodes sagitta Hagen.—see *Æcetis sagitta* (Hagen)

Setodina parva Banks.—see *Æcetis parva* (Banks)

Triænodes borealis Banks, 1900a, p. 257.

Lectotype, female.—St. Anthony Park, Minnesota. No. 11586.

Until definite characters are discovered for the lucid separation of the females of this genus, it will be necessary to consider this species of unknown status. Sufficient color antigeny exists in this genus to prevent the matching of males and females of each species on conventional characters alone.

Triænodes dentata Banks, 1914, p. 261, fig. 45.

Lectotype, male.—Johnstown, New York, June 28. No. 11589.

The male genitalia, fig. 38, are distinct in having the tenth tergite divided into a pair of long filaments, and having the lateral arm of the clasper of only medium length.

Triænodes flavescens Banks, 1900a, p. 257.

Lectotype, male.—New Brunswick, New Jersey, October. No. 11588.

The details of the male genitalia have been illustrated under the name *ignita* (Walker) by Betten (1934, pl. 39, figs. 1-3).

Triænodes frontalis Banks, 1907a, p. 127, pl. 9, fig. 11.

Allotype, male.—Ft. Collins, Colorado, June 26, accession no. 2154.

This specimen was probably a part of the type series but did not bear a type label. The male genitalia differ from

those of *grisea* Banks chiefly in the long and whip-like mesal process of the clasper, fig. 37A.

Triænodes grisea Banks, 1899, p. 214.

Lectotype, female.—Colorado, accession no. 2184. No. 11585. *Allotype, male*.—Denver, Colorado, June 27.

This specimen was probably a part of the type series but did not bear a type label. The genitalia resemble those of *frontalis*, but differ in the short mesal processes of the claspers, fig. 37.

Triænodes injusta (Hagen), 1861, p. 283. (*Setodes*)

Lectotype, male.—St. Lawrence River, Canada, 1859, Osten Sacken. No. 10976.

The genitalia of this species have been illustrated by Betten (1934, pl. 39, figs. 4-6).

Family PHRYGANEIDÆ

Agrypnia colorata Hagen, 1873, p. 424.

Lectotype, male.—Saskatchewan, 1860, Kennicott. No. 10734.

The male genitalia were illustrated by Milne (1931, figs. 10-11) under the name *bradorata* Milne.

Agrypnia straminea Hagen, 1873, p. 425.

Lectotype, male.—Saskatchewan, 1860, Kennicott. No. 10735.

The genitalia have been illustrated by Betten (1934, pl. 42, figs. 10-12) under the name *curvata* Banks, which is a synonym of *straminea*.

Neuronina angustipennis Hagen, 1873, p. 400.

Lectotype, male.—House, C[ambridge, Massachusetts?], July 9, 1863. No. 10739.

Neuronina stygipes Hagen, 1873, p. 388.

Lectotype, male.—West Roxbury, Massachusetts, April 26, 1868. No. 10741.

The male genitalia have been illustrated by Betten (1934, pl. 42, figs. 8, 9).

Family LIMNEPHILIDÆ

Acronopsyche pilosa Banks.—see *Neophylax pilosus* (Banks)

Anabolia assimilis Banks.—see *Limnephilus assimilis* (Banks)

Anabolia curta Banks.—see *Limnephilus curtus* (Banks)

Anabolia modesta Hagen.—see *Limnephilus modestus* (Hagen)

Anabolia montana Banks.—see *Limnephilus montanus* (Banks)

Anabolia nigricula Banks.—see *Limnephilus nigricula* (Banks)

Anisogamus costalis (Banks), 1901, p. 286. (*Asynarchus*)
Lectotype, male.—Las Vegas Range, New Mexico, June 28. No. 11676.

The generic placement of this species seems to me somewhat doubtful. The male genitalia, fig. 44, show this species to belong to a residue of forms whose relationships are obscure.

Anisogamus disjunctus Banks, 1914, p. 156, fig. 22.

Lectotype, male.—Bon Accord, British Columbia, May 22. Russell. No. 11673. *Lectoallotype, female*.—Same data, but May 18.

The male genitalia, fig. 43, lead to the same remarks as applied to the preceding.

Anisogamus edwardsi Banks.—see *Drusinus edwardsi* (Banks)

Apatania canadensis Banks.—see *Glyphopsyche canadensis* (Banks)

Apatania pallida Hagen.—see *Apatelia pallida* (Hagen)

Apatania shoshone Banks.—see *Apatelia shoshone* (Banks)

Apatelia incerta (Banks), 1897, p. 28. (*Enoicycla*)

Lectotype, male.—Sea Cliff, New York. No. 11681. *Lectoallotype, female*.—Franconia, New Hampshire.

The male genitalia are illustrated in fig. 47. Milne (1935) considered this the same as *nigra* (Wlk.). There are, however, two different species of *Apatelia* with long, needle-like claspers, and it is very likely *nigra* applies to one and *incerta* to the other.

Apatelia pallida (Hagen), 1861, p. 270. (*Apatania*)

Lectotype, male.—St. Lawrence River, Canada, 1859, O. Sacken. No. 14715.

This is a synonym of *stigmatella* (Zett.).

Apatelia shoshone (Banks), 1924, p. 442, figs. 35, 42. (*Apatania*)

Lectotype, male.—Yellowstone Park, Wyoming, H. S. Smith. No. 14850. *Lectoallotype, female*.—Same data.

The genitalic characters mentioned in the original description will separate this species from its closest ally, *stigmatella* (Zett.).

Apolopsyche pallida Banks.—see *Limnephilus pallidus* (Banks)

Asynarchus centralis Banks, 1900a, p. 253.

Lectotype, male.—Clear Cr., Colorado, September 10, 1899, Osler. No. 11670.

The male genitalia, fig. 45, are suggestive of some species of *Limnephilus*, but other characters, such as the unusually long maxillary palpi, are quite distinctive. For the present it seems better to regard the generic assignment as open to question.

Asynarchus costalis Banks.—see *Anisogamus costalis* (Banks)

Asynarchus pallidus Banks, 1903b, p. 242.

Lectotype, female.—South Park, Colorado, August 23, 1899, Osler. No. 11671.

The species represents the opposite sex of *centralis* Bks. and is a synonym of it.

Asynarchus tristis Banks.—see *Dicosmoecus tristis* (Banks)

Chilostigma subborealis Banks.—see *Glyphopsyche subboreale* (Banks)

Clistoronia maculata (Banks), 1904a, p. 107, pl. 1, figs. 2, 4. (*Dicosmoecus*)

Lectotype, male.—Pecos, New Mexico, August 24, at light, Cockerell. No. 11653. *Lectoallotype, female*.—South Arizona, August, 1902, F. B. Snow.

This species is the same as *formosus* (Banks). The male genitalia, fig. 46, show that the genus *Clistoronia* Banks is

closely allied to the *Limnephilus* section of the family, rather than to the *Stenophylax* section.

Colpotaulius medialis Banks.—see *Limnephilus medialis* (Banks)

Colpotaulius minusculus Banks.—see *Limnephilus minusculus* (Banks)

Colpotaulius tarsalis Banks.—see *Limnephilus tarsalis* (Banks)

Dicosmæcus atripes (Hagen), 1875, p. 600. (*Platyphylax*)
Lectotype, male.—Colorado Mts., August 1873, Comporte. No. 10701.

The male genitalia are illustrated in fig. 49. The color of legs is variable (see *D. gilvipes*).

Dicosmæcus gilvipes (Hagen), 1875, p. 601. (*Stenophylax*)
Lectotype, male.—Quesnel Lake, British Columbia, August 27, Crotch. No. 10716.

The genitalia of this type are identical with those of *atripes* (Hagen). The color of the legs, previously used to separate the two, was found to vary over a large series of specimens. *Gilvipes*, therefore, becomes a synonym of *atripes*.

Dicosmæcus maculatus Banks.—see *Clistoronia maculata* (Banks)

Dicosmæcus tristis (Banks), 1900a, p. 254. (*Asynarchus*)
Lectotype, male.—South Park, Colorado, August 17, 1899, Osler. No. 11634. *Lectoallotype, female*.—Same data, but August 20.

This is a synonym of *unicolor* (Banks). The male genitalia differ considerably from those of *atripes*, fig. 48.

Drusinus calypso (Banks), 1911, p. 350, pl. 13, fig. 25.
(*Stenophylax*)

Lectotype, male.—Catskills, New York, June. No. 11672.
This species is identical with *sparsus* (Bks).

Drusinus edwardsi (Banks), 1920, p. 345. (*Anisogamus*)
Lectotype, male.—Marin County, California, H. Edwards. No. 10881. *Lectoallotype, female*.—California.

The genitalia, illustrated in the original description, and general structure place this species in *Drusinus* Betten.

Ecclisomyia maculosa Banks, 1907a, p. 123, pl. 9, fig. 18.

Lectotype, female.—Boulder, Colorado, July 31, 1904, Oslar. No. 11680. *Allotype, male*.—Slate Cr., Summit County, Colorado, August 2, 8, 211 ft. elevation, S. C. Clagg.

The male genitalia, fig. 50, are quite distinctive.

Enoicycla incerta Banks.—see *Apatelia incerta* (Banks)

Enoicycla lepida Hagen.—see *Stenophylax lepidus* (Hagen)

Glyphopsyche bellus (Banks), 1903b, p. 241. (*Glyphotaelius*)

A male in the M. C. Z. identical in external characters with the female type is here designated the allotype. The male genitalia, fig. 51, are quite distinctive.

Allotype, male.—March 23, 1903.

Glyphopsyche bryanti Banks, 1904c, p. 141.

Lectotype, male.—Wellington, British Columbia, Bryant. No. 11640. *Lectoallotype, female*.—Same data.

This lectotype is identical with paratypes of *intercisis* (Wlk.) in the M. C. Z., which species in turn has been synonymized with *irroratus* (Fabricius), fig. 53.

Glyphopsyche canadensis (Banks), 1924, p. 442, fig. 5. (*Apatania*)

Lectotype, male.—Winnipeg, Manitoba, October 1, 1909, J. B. Wallis. No. 14851.

The genitalia, fig. 52, are similar in general conformation to those of other nearctic members of the genus.

Glyphopsyche subboreale (Banks), 1924, p. 441, fig. 32. (*Chilostigma*)

Lectotype, male.—Alaska. No. 14847. *Lectoallotype, female*.—Beaver Mts., Alaska, May 15, 1917, A. B. Twitchell.

The male genitalia are illustrated in fig. 54.

Glyphopsyche taylori (Banks), 1904c, p. 140. (*Halesus*)

Lectotype, female.—Wellington, British Columbia, Bryant. No. 11666.

The extremely striking appearance of this species, the genotype of *Halesochila* Banks, is the chief character separating it from *Glyphopsyche*. Since it agrees so well with this latter genus in structural characters, it seems advisable to reduce *Halesochila* to subgeneric rank.

Glyphotælius bellus Banks.—see *Glyphopsyche bellus* (Banks)

Glyphotælius hostilis Hagen, 1864, p. 814.

Lectotype, male.—Saskatchewan, 1860, Kennicott. No. 10730. *Lectoallotype, female*.—Fort Resolution, Great Slave Lake, Canada, 1862, Kennicott.

This large, distinctive species with the incised wing apex needs no comment.

Goniotaulius coloradensis Banks.—see *Limnephilus coloradensis* (Banks)

Grammataulius praecox Hagen, 1873, p. 451.

Lectotype, male.—Fort Resolution, Great Slave Lake, Canada, 1862, Kennicott. No. 10732.

The species has been synonymized with *interrogationis* Zett.

Halesus amicus Hagen.—see *Platycentropus amicus* (Hagen)

Halesus hostis Hagen.—see *Platycentropus hostis* (Hagen)

Halesus taylори Banks.—see *Glyphopsyche taylори* (Banks)

Halesus mutatus Hagen.—see *Limnephilus mutatus* (Hagen)

Hesperophylax alascensis (Banks), 1908b, p. 265, pl. 19, fig. 14. (*Platyphylax*)

Lectotype, male.—Sitka, Alaska. No. 11647.

This species is very close to and may be the same as *designatus* (Walker).

Hesperophylax consimilis Banks, 1900a, p. 253. (*Limnephilus*)

Lectotype, male.—South Park, Colorado, August 25, 1899, Osler. No. 11612. *Lectoallotype, female*.—Same data but July 20.

Differentiated by the sharp tenth tergite, fig. 55, this species is close to *magnus* Banks.

Hesperophylax magnus Banks, 1918, p. 20, fig. 9.

Lectotype, male.—Palmerlee, Cochise County, Arizona, Biedermann. No. 10075. *Lectoallotype, female*.—Stockton, Utah, July 22, Spaulding.

This species is quite distinct from the other nearctic species of the genus on the basis of the cercus (see original description). It has been considered a subspecies of *designatus* Wlk. erroneously by Milne (1935).

Hesperophylax occidentalis Banks, 1908b, p. 265, pl. 19, fig. 16. (*Platyphylax*)

Lectotype, male.—Florissant, Colorado, August 3, 1907, S. A. Rohwer. No. 11646. *Lectoallotype, female*.—Ft. Wingate, New Mexico, August, Wingate.

A close ally but not a synonym of *designatus* (Wlk.).

Homophylax crotchii Banks, 1920, p. 345.

Lectotype, female.—Victoria, British Columbia, July, Crotch. No. 10877.

The striking wing pattern of yellow and dark brown will serve to identify this species.

Homophylax flavipennis Banks, 1900a, p. 255.

Lectotype, male.—South Park, Colorado, August 23, 1899, Osler. No. 11635. *Lectoallotype, female*.—Same data.

The male genitalia show many points of similarity to those of *Glyphopsyche*.

Leptophylax gracilis Banks, 1900a, p. 252.

Lectotype, female.—St. Anthony's Park, Minnesota. No. 11637.

The male was described by Betten (1934, pl. 44, figs. 2-5). This seems to be one genus of the *Limnephilus* group sufficiently distinct to be recognized. At least, it can be keyed out in both sexes without difficulty.

Limnephilus Leach

Inability to find satisfactory characters for segregating the females into the same groups as the males has led me to consider as only of subgeneric rank such groups as *Anabolia*, *Anabolina*, *Colpotaulius*, *Goniotaulius* and some others.

Limnephilus abbreviatus Banks, 1908b, p. 263, pl. 18, fig. 8.

Lectotype, male.—Tabernash, Colorado, August, E. S. Tucker. No. 11625. *Lectoallotype, female*.—Same data.

The male genitalia are quite distinctive, fig. 71.

Limnephilus aequalis Banks, 1914, p. 150, figs. 14, 31.

Lectotype, male.—Bon Accord, British Columbia, June 7, Russell. No. 11624.

This species is a synonym of *harrimani* Bks., fig. 82.

Limnephilus americanus Banks, 1900a, p. 253.

Lectotype, female.—Idaho, C. V. Piper. No. 11631.

This is considered a synonym of *sublunatus* Prov., fig. 73.

Limnephilus argenteus Banks, 1914, p. 152, fig. 13.

Allotype, male.—Hardisty Island, Great Slave Lake, Canada, June 5, 1924, J. Russell.

The male genitalia, fig. 56, are very different from any described Nearctic species in the genus.

Limnephilus assimilis (Banks), 1908b, p. 262, pl. 19, figs. 9, 10. (*Anabolia*)

Lectotype, male.—Prescott, Arizona. No. 11648. *Lectoallotype, female*.—Same data, June 15, 1902, Oslar.

The slender and branched lateral arms of the ædeagus, fig. 58, distinguish this species from its closest allies.

Limnephilus bifidus Banks, 1908b, p. 263, figs. 11, 13-15.

Lectotype, female.—Pullman, Washington, C. V. Piper. No. 11627.

The type series contains only females.

Limnephilus brevipennis (Banks), 1899, p. 209. (*Stenophylax*)

Lectotype, male.—Colorado, Gillette. No. 11612.

In this species the male genitalia, fig. 77, appear to have the claspers much reduced and the lobes of the tenth tergite again divided.

Limnephilus canadensis Banks, 1908b, p. 264, pl. 18, fig. 4.

Lectotype, female.—Laval County, Canada, June 29. No. 11619.

Until more female characters are worked out for this genus, the identity of this species cannot be determined.

Limnephilus clausus Banks, 1924, p. 440, fig. 56.

Lectotype, male.—Long Lake, Colorado, Cockerell. No. 14844. *Lectoallotype, female*.—Same data.

This species is closely related to *kincaidi* Bks., the chief difference being in the lateral arms at the base of the apical portion of the ædeagus, fig. 64.

Limnephilus cockerelli Banks, 1900b, p. 124.

Lectotype, female.—Top of Range between Sapello and

Pecos Rivers, New Mexico, August 2, 1900, 11,000' elev., T. D. A. & W. P. Cockerell. No. 11613. *Allotype, male*.—Top Las Vegas Range, New Mexico.

The male genitalia show this species to be a close relative of *moestus* Bks. The chief differences are found in the proportions of the tenth tergite and cerci, and details of the ædeagus, fig. 84.

Limnephilus coloradensis (Banks), 1899, p. 208. (*Gonio-
taulius*)

Lectotype, male.—Colorado. No. 11621.

The curious ædeagus, fig. 76, and flattened claspers group this species with *kennicotti* Banks, although the two are by no means the same.

Limnephilus concolor Banks, 1899, p. 207.

Lectotype, male.—Tacoma, Washington, September 5, 1897. No. 11611. *Lectoallotype, female*.—Same data.

The abdomen of the lectotype is missing, hence it is impossible at present to give the diagnostic characters for the species.

Limnephilus consimilis Banks.—see *Hesperophylax con-
similis* (Banks)

Limnephilus curtus Banks, 1920, p. 345, fig. 57. (*Anabolia*)

Lectotype, male.—Massachusetts. No. 10874. *Lectoallotype, female*.—White Mts., New Hampshire.

This species has been synonymized with *planifrons* Kolenati.

Limnephilus diversus (Banks), 1903a, p. 244, pl. 4, fig. 5. (*Anabolina*)

Lectotype, male.—Prescott, Arizona, Oslar. No. 11649. *Lectoallotype, female*.—Same data.

The cerci, fig. 79, distinguish this species from its closest relative, *productus* Bks.

Limnephilus elongatus Banks, 1920, p. 344, figs. 92, 94, 98, 99.

Lectotype, male.—Fort Resolution, Great Slave Lake, Canada, 1862, Kennicott. No. 10870.

This species is a close relative of *sublunatus* Prov., but is readily distinguished by characters of the male genitalia, fig. 72.

Limnephilus externus Hagen, 1861, p. 257.

Lectotype, female.—North Red River, Canada, 1854, Uhler. No. 10727.

The wing pattern is distinctive for the species. The male genitalia are illustrated in fig. 80.

Limnephilus flavastellus Banks, 1918, p. 20, pl. 1, figs. 16, 17.

Lectotype, male.—Jones Collection. No. 10072. *Lectoallotype, female*.—Wellington, British Columbia, September 23, 1903.

This species is a synonym of *externus* Hagen.

Limnephilus gravidus Hagen, 1861, p. 257.

Lectotype, female.—California. No. 10723. *Allotype, male*.—Santa Cruz, California, May 20, 1905.

The abdomen of the type is partly gone. A male agreeing well with the type and designated allotype has male genitalia, fig. 75, differing from those of *vastus* Hagen chiefly in details of the tenth tergite.

Limnephilus hageni Banks, 1930b, p. 226, figs. 7-9.

Lectotype, male.—Fort Resolution, Great Slave Lake, Canada, 1862, Kennicott, No. 16316. *Lectoallotype, female*.—Same data.

Belongs to the *sublunata* group, differing from other members as follows, fig. 69: appendages of the genitalia abbreviated, the preanal appendages with a small sclerotization near the apex on the dorsal margin, and the sclerotized part of the lateral arms of the ædeagus stockier.

Limnephilus hyalinus Hagen, 1861, p. 258.

Lectotype, male.—North Red River, Canada, 1858, Uhler. No. 10722.

The male genitalia have been illustrated by Betten under the designation "*Limnephilus* sp. 1" (1934, pl. 46, fig. 5 and pl. 47, fig. 7).

Limnephilus medialis (Banks), 1905b, p. 8, pl. 1, fig. 3.
(*Colpotaulius*)

Lectotype, male.—Muskoka, Ontario, July, 1888, E. P. Van Duzee. No. 11656. *Lectoallotype, female*.—Ithaca, New York, electric light.

This species has been synonymized with *consocia* Wlk.

Limnephilus janus new name for

Limnephilus minusculus (Banks), 1924, p. 439, fig. 52. (*Colpotaulius*). Preoccupied by *Limnephilus minusculus* (Banks), 1906, p. 120. (*Stenophylax*).

Lectotype, male.—Tolland, Colorado, Dodds. No. 14842. *Lectoallotype, female*.—Same data.

The male genitalia, fig. 59, are distinctive. I do not believe that this Colorado species is the same as *perpusillus* Walker, as stated by Milne.

Limnephilus modestus (Hagen), 1861, p. 265. (*Anabolia*)

Lectotype, male.—Labrador, 1858, Hugo Christoph. No. 10711.

The differences between the genitalia of this species and *mutatus* (Hagen) are found chiefly in the cerci, fig. 65.

Limnephilus moestus Banks, 1908a, p. 62, pl. 2, figs. 4, 8, 10, 11.

Lectotype, male.—Grand Lake, Newfoundland, July 28, 1906, O. Bryant. No. 11629. *Lectoallotype, female*.—Same data.

A close relative of *harrimani* Bks., this species is distinguished by the shorter cerci and less ornamented lateral arms of the ædeagus, fig. 83.

Limnephilus montanus Banks, 1907a, p. 119. (*Anabolia*)

Lectotype, female.—Mt. Katahdin, Maine. No. 11661.

This species has been synonymized with *planifrons* Kol. and *curtus* Banks. Better characters in the female sex of this genus will have to be discovered to determine this with certainty.

Limnephilus morrisoni Banks, 1920, p. 343, figs. 5, 32 and 96.

Lectotype, male.—Reno, Nevada, 1878, Morrison. No. 10873. *Lectoallotype, female*.—Sierra Nevada, 1876, Crotch.

The male genitalia are illustrated in fig. 81. The generic assignment of this species is unsettled.

Limnephilus mutatus (Hagen), 1861, p. 267. (*Hallesus*)

Lectotype, female.—Labrador, Winthem. No. 10688. *Allotype, male*.—Labrador, 1865, Moeschler.

The allotype matches the lectotype so perfectly in general

characteristics and color that there seems no doubt of the correctness of the association. The male genitalia, fig. 66, are distinctive.

Limnephilus nigriculus (Banks), 1908b, p. 262, pl. 19, fig. 11. (*Anabolia*)

Lectotype, male.—Clear Cr., Colorado, September 10, 1889, Osler. No. 11664.

The male genitalia are illustrated in fig. 68. They form an intermediate step between *modesta*, fig. 65, and *mutatus*, fig. 66.

Limnephilus occidentalis Banks, 1908b, p. 264, pl. 18, figs. 1, 3.

Lectotype, male.—Tacoma, Washington, September 5, 1897. No. 11620. *Lectoallotype, female*.—Wellington, British Columbia, Bryant.

The male genitalia, fig. 60, have small cerci and broad claspers. The lateral arms of the ædeagus are a primitive type.

Limnephilus osleri Banks, 1907a, p. 121, pl. 9, fig. 19.

Lectotype, female.—South Park, Colorado, August 25, 1899. No. 11632.

The color pattern shows this to be the same as *externus* Hagen.

Limnephilus pacificus Banks, 1899, p. 207.

Lectotype, male.—Olympia, Washington, Kincaid. No. 11610. *Lectoallotype, female*.—Tacoma, Washington, September 5, 1897.

This species has been synonymized with *sitkensis* (Kolenati).

Limnephilus nepus new name for

Limnephilus pacificus (Banks), 1900a, p. 254. (*Stenophylax*). Preoccupied by the preceding species.

Lectotype, male.—Pullman, Washington. No. 11663.

Lectoallotype, female.—Same data, May 4, 1898.

The male genitalia, fig. 67, have a curious ædeagus which is a simple derivative of the *modesta* type (see figs. 65, 66).

Limnephilus pallidus (Banks), 1924, p. 442, fig. 54. (*Apolo-psyche*)

Lectotype, male.—Winnipeg Lake, Canada, 1860, Kennicott. No. 14849.

This is a synonym of *parvulus* (Banks).

Limnephilus perjurus Hagen, 1861, p. 258.

Lectotype, female.—Ins. Kenae. No. 10721.

The type lacks the abdomen.

Limnephilus pudicus Hagen, 1861, p. 262.

Lectotype, female.—Washington, D. C., Osten Sacken. No. 10720.

This is a synonym of *submonilifer* Wlk.

Limnephilus pulchellus Banks, 1908a, p. 63, pl. 2, figs. 5, 9.

Lectotype, male.—Grand Lake, Newfoundland, July 28, 1906, O. Bryant. No. 11626. *Lectoallotype, female*.—Same data.

This small species has male genitalia, fig. 78, which bear a marked resemblance to the *vastus* group.

Limnephilus roberti Banks, 1930b, p. 226, figs. 10-12.

Lectotype, male.—Winnipeg Lake, 1860, Kennicott. No. 16318. *Lectoallotype, female*.—Same data.

This species is a synonym of *parvulus* (Banks), fig. 61. The type of this latter species lacks the abdomen, but a topotype specimen which probably belonged to the type series but did not bear a type label agrees perfectly with the lectotype of *roberti*.

Limnephilus sansoni Banks, 1918, p. 19, fig. 8.

Lectotype, male.—Banff, Alberta, Spray Lake, August 25, Sanson. No. 10089. *Lectoallotype, female*.—Banff, August 31.

Belongs to the *sublunatus* group, set off from other members of the group by the following characters, fig. 70: Pre-anal appendages very wide, with an inner band of heavily sclerotized points; sclerotized portion of the side arms of the ædeagus subdivided at their apex into small projections, otherwise the ædeagus is like *sublunatus*.

Limnephilus secludens (Banks), 1914, p. 152, figs. 17, 27.

Lectotype, male.—Saskatchewan, July. No. 11623.

Close to *tarsalis* Banks, but separated on details of the male genitalia, fig. 63.

Limnephilus sordidus Hagen, 1861, p. 264.

Lectotype, male.—North Red River, Canada, 1858, Uhler. No. 10710.

This species has been considered a synonym of *bimaculatus* Wlk.

Limnephilus spinatus Banks, 1914, p. 149, fig. 8, 9.

Lectotype, male.—Vineyard, Utah, August 22. No. 11617. *Lectoallotype, female*.—Same data, but August 28.

The slender and undivided lateral arms of the ædeagus distinguish this species, fig. 57.

Limnephilus tarsalis (Banks), 1920, p. 342, fig. 104. (*Colpotaulius*)

Lectotype, male.—Ward, Colorado, Osler. No. 10880.

The male genitalia, fig. 62, resemble most closely those of *secludens* (Banks).

Limnephilus vastus Hagen, 1861, p. 257.

Lectotype, male.—Ins. Kenae. No. 10724.

The abdomen of the type is missing.

Neophylax fuscus Banks, 1903b, p. 242.

Lectotype, male.—Agricultural College, Michigan, Pettit. No. 11643. *Lectoallotype, female*.—Franconia, New Hampshire, Mrs. Slosson.

The male genitalia of this species are illustrated in fig. 86. The species considered and illustrated as this by Betten is quite different.

Neophylax occidentis Banks, 1924, p. 441, figs. 51, 58.

Lectotype, male.—Reno, Nevada, 1878, Morrison. No. 14848.

The male genitalia of this western species are illustrated in fig. 85. The similarity of the fundamental pattern of genitalia with the eastern species, and having the distinctive wart behind the lateral ocellus, indicate that this species forms a primitive subgenus of *Neophylax*.

Neophylax pilosus (Banks), 1930b, p. 228, fig. 13. (*Acronopsyche*)

Lectotype, male.—Modoc Co., California, July 20, 1922, Lindsey. No. 16319. *Lectoallotype, female*.—Same data.

This species, the genotype of *Acronopsyche* Banks, is a synonym of *occidentis* Banks.

Platycentropus amicus (Hagen), 1861, p. 265. (*Halesus*)

Lectotype, female.—New Orleans. No. 10690.

No definite placement of this species can be made until well associated males are found, or good structural characters for separating the females.

Platycentropus hostis (Hagen), 1861, p. 266. (*Halesus*)

Lectotype, male.—North Red River, Canada, 1858, Uhler. No. 10689. *Lectoallotype, female*.—Data illegible.

This species has recently been synonymized with *indicans* (Walker) by Milne (1936).

Platyphylax alascensis Banks.—see *Hesperophylax alascensis* (Banks)

Platyphylax atripes Hagen.—see *Dicosmoecus atripes* (Hagen)

Platyphylax occidentalis Banks.—see *Hesperophylax occidentalis* (Banks)

Pycnopsyche similis Banks.—see *Stenophylax similis* (Banks)

Stenophylax brevipennis Banks.—see *Limnephilus brevipennis* (Banks)

Stenophylax calypso Banks.—see *Drusinus calypso* (Banks)

Stenophylax gilvipes Hagen.—see *Dicosmoecus gilvipes* (Hagen)

Stenophylax lepidus (Hagen), 1861, p. 269. (*Enoicycla*)

Lectotype, male.—Pennsylvania. No. 10697.

The male genitalia have been figured by Betten (1934, pl. 50, figs. 4-6). *Lepida* was sunk by Milne as a synonym of *subfasciata* (Say) but is distinct from that species.

Stenophylax pacificus Banks.—see *Limnephilus pacificus* (Banks)

Stenophylax similis (Banks), 1907a, p. 122, pl. 9, fig. 22. (*Pycnopsyche*)

Lectotype, male.—Chatham, Michigan, August 23, 1900. No. 11659.

The male genitalia show this to be a synonym of *guttifer* Walker.

Family SERICOSTOMATIDÆ

Alepomyia bryanti Banks.—see *Lepidostoma bryanti* (Banks)

Arcadopsyche prominens Banks.—see *Lepidostoma prominens* (Banks)

Atomyia modesta Banks.—see *Lepidostoma modesta* (Banks)

Brachycentrus incanus Hagen, 1861, p. 272.

Lectotype, female.—Washington, D. C., April, 1859, O. Sacken. No. 10455.

This is probably *numerosus* (Say) or *lateralis* (Say). To date, however, diagnostic characters have not been found for the females of this genus.

Brachycentrus occidentalis Banks, 1911, p. 355, pl. 13, fig. 32.

Lectotype, male.—Bon Accord, British Columbia, May 14. No. 11685.

The long, separate cerci and slender, angled claspers, fig. 88, are diagnostic for this western species.

Brachycentrus similis Banks, 1907a, p. 124, pl. 9, fig. 21.

Lectotype, male.—Tabernash, Colorado, August, E. S. Tucker. No. 11684. *Lectoallotype, female*.—Boulder, Colorado, August 9, at light, T. D. A. Cockerell.

This species is a synonym of *americanus* Bks. The short, fused cerci and bilobate claspers, fig. 87, are diagnostic for this widespread species.

Dasystema rusticum Hagen.—see *Micrasema rusticum* (Hagen)

Helicopsyche arizonensis Banks, 1907a, p. 125.

Lectotype, female.—Nogales, Arizona, July, 1903, Oslar. No. 11694.

Helicopsyche californicus Banks, 1899, p. 210.

Lectotype, male.—Colton, California. No. 11696.

The genitalia are remarkably similar to those of *borealis* (Hagen).

Helicopsyche borealis (Hagen), 1861, p. 271. (*Notidobia*)

Lectotype, male.—St. Lawrence River, Canada, 1859, O. Sacken. No. 10939.

This widespread species has been illustrated by Betten (1934, pl. 66).

Lepidostoma Rambur

Many of the species here placed in *Lepidostoma* have been considered previously as belonging to genera separated from *Lepidostoma* on the basis of male characters such as venation, folds in the wing, structure of antennae, etc. The male genitalia show that in many cases these definitions cut across phylogenetic lines, grouping together species which are at most distantly related and separating species which are really extremely closely related. The male genitalia show further that many of the most distinct of these groups are, at the most, an offshoot of a group of species placed in another genus. I feel, therefore, that many of these genera are only artificial segregates of species without any consideration to relationships. For this reason, I am defining the genus *Lepidostoma* very broadly. I agree with Mr. Banks that a thorough revision of the entire world fauna of this group will be necessary to correctly evaluate the genera.

Lepidostoma bryanti (Banks), 1908a, p. 65, figs. 1, 2, 13.
(*Alepomyia*)

Lectotype, male.—Grand Lake, Newfoundland, July 28, 1906, O. Bryant. No. 11709.

This species is a synonym of *wisconsinensis* Vorhies.

Lepidostoma carolina (Banks), 1911, p. 356, pl. 13, fig. 28.
(*Notiopsyche*)

Lectotype, male.—Southern Pines, North Carolina, April 28, A. H. Manee. No. 11704.

This species belongs to the *togatum* group as evidenced by the genitalia, fig. 92.

Lepidostoma costalis (Banks), 1914, p. 265, pl. 10, fig. 34.
(*Olemira*)

Lectotype, male.—Woodworth's Lake, Fulton Co., New York, August 19, 1909. No. 11701. *Allotype, female*.—Same data.

The allotype is evidently of the type series but did not bear a type label. The species has been illustrated by Betten (1934, pl. 64, figs. 1-5).

Lepidostoma grisea (Banks), 1911, p. 357, pl. 12, figs. 17, 19, 22. (*Phanopsyche*)

Lectotype, male.—Woodworth's Lake, Fulton Co., New York, August 22. No. 11693.

Characteristics of this species have been illustrated by Betten (1934, pl. 64, fig. 6-12). It is a member of the *wisconsinensis* group.

Lepidostoma modesta (Banks), 1905a, p. 217. (*Atomyia*)

Lectotype, male.—Black Mts., North Carolina, May. No. 11702.

The elongate processes of the male tenth tergite, fig. 93, will identify this species.

Lepidostoma prominens Banks, 1930a, p. 129, figs. 1, 8, 10. (*Arcadopsyche*)

Lectotype, male.—Cape North, Cape Breton Island, Nova Scotia, August 7, 1928. No. 16321. *Lectoallotype, female*.—Same data.

The female bears the same label as the lectotype but did not have a type label. The tenth tergite of the male, fig. 91, is diagnostic.

Lepidostoma stigma Banks, 1907a, p. 125, pl. 8, fig. 10.

Lectotype, female.—Boulder, Colorado, August 9, at light, T. D. A. Cockerell. No. 11692.

The placement of this species requires first identification of its corresponding male.

Lepidostoma togatum (Hagen), 1861, p. 273. (*Mormonia*)

Lectotype, female.—St. Lawrence River, Canada, 1859, Osten Sacken. No. 10942.

The traditional interpretation of this species is very likely correct, but until better diagnostic characters are found for the females of this genus, there is no guarantee of it.

Lepidostoma vernalis (Banks), 1897, p. 29. (*Mormonia*)

Lectotype, male.—Sea Cliff, Long Island, New York, March 28. No. 11687. *Lectoallotype, female*.—Same data.

The male genitalia, fig. 90, are characterized by the tooth-beset claspers, hooked processes of the tenth tergite and a pair of setal brushes on the ninth tergite.

Micrasema charonis Banks, 1914, p. 266, figs. 3, 47, 51.

Lectotype, male.—Black Mts., North Carolina, May. No. 11698.

This species differs from *rustica* (Hagen) in the curved apex of the claspers and more elliptic aedeagus, fig. 95.

Micrasema falcatum Banks, 1914, p. 265, fig. 52.

Lectotype, male.—Great Falls, Virginia, May 12. No. 11697.

This is a new synonym of *rusticum* (Hagen).

Micrasema rusticum (Hagen), 1868, p. 272. (*Dasystoma*)

Lectotype, male.—Saskatchewan, Canada, 1860, Kennicott. No. 10938. *Lectoallotype, female*.—Same data.

The details of the genitalia are illustrated in fig. 96.

Mormonia togatum Hagen.—see *Lepidostoma togatum* (Hagen)

Mormonia vernalis Banks.—see *Lepidostoma vernalis* (Banks)

Neothremma alicia Banks, 1930b, p. 229, figs. 4, 5.

Lectotype, male.—Colorado, G. S. Dodds. No. 16320. *Lectoallotype, female*.—Same data.

The male genitalia are illustrated in fig. 89.

Notidobia americana Banks, 1900a, p. 256.

Lectotype, male.—Falls Church, Virginia, June. No. 11714.

This species appears to be the same as *grisea* (Bks.), described from the female.

Notidobia assimilis Banks, 1907a, p. 124, pl. 8, fig. 8.

Lectotype, male.—San Diego, California, G. H. Fields. No. 11715.

This species has been considered the same as *griseola* McL. but is distinct from it on the basis of the claspers, fig. 94.

Notidobia borealis Hagen.—see *Helicopsyche borealis* (Hagen)

Notidobia lobata Banks, 1911, p. 356, pl. 12, figs. 18, 20. (*Schizopelex*)

Lectotype, male.—Woodworth's Lake, Fulton Co., New York, June 22, 1910. No. 11712.

This is a synonym of *distincta* (Ulmer).

Notidobia moesta Banks, 1914, p. 264, fig. 12. (*Psiloneura*)
Lectotype, female.—Cambridge, Massachusetts, September. No. 11717.

This represents the female of the above, and is a synonym of it.

Notiopsyche carolina Banks.—see *Lepidostoma carolina* (Banks)

Olemira costalis Banks.—see *Lepidostoma costalis* (Banks)

Phanopsyche grisea Banks.—see *Lepidostoma grisea* (Banks)

Psiloneura moesta Banks.—see *Notidobia mæsta* (Banks)

Schizopelex lobata Banks.—see *Notidobia lobata* (Banks)

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PLATE I

- Fig. 1. *Agapetus malleatus* Banks, male genitalia.
Fig. 2. *Glossosoma parvulum* Banks, male genitalia.
Fig. 3. *Rhyacophila atrata* Banks, male genitalia; A, tenth tergite; B, ædeagus.
Fig. 4. *Rhyacophila brunnea* Banks, male genitalia; A, tenth tergite; B, ædeagus.
Fig. 5. *Rhyacophila coloradensis* Banks, male genitalia; A, tenth tergite; B, ædeagus.
Fig. 6. *Rhyacophila acropedes* Banks, male genitalia.
Fig. 7. *Rhyacophila hyalinata* Banks, male genitalia; A, tenth tergite; B, ædeagus.
Fig. 8. *Rhyacophila grandis* Banks, male genitalia; A, tenth tergite.

PLATE II

- Fig. 9. *Rhyacophila invaria* Walker, male genitalia; A, ædeagus.
Fig. 10. *Hydroptila albicornis* Hagen, male genitalia; A, ædeagus; B, claspers.
Fig. 11. *Hydroptila maculata* (Banks), male genitalia.
Fig. 12. *Stactobia pictipes* (Banks), male genitalia; A, ædeagus.
Fig. 13. *Plectrocnemia aureola* Banks, male genitalia; A, same, ventral view.
Fig. 14. *Metrichia nigrita* (Banks), male genitalia; A, wings.

PLATE III

- Fig. 15. *Polycentropus arizonensis* Banks, male genitalia; A, same, dorsal view.
Fig. 16. *Polycentropus remotus* Banks, male genitalia; A, tenth tergite.
Fig. 17. *Polycentropus albipunctus* (Banks), male genitalia.
Fig. 18. *Cernotina pallida* (Banks), male genitalia; A, same, dorsal view.
Fig. 19. *Psychomyiella flavida* (Hagen), male genitalia.
Fig. 20. *Cheumatopsyche analis* (Banks), tenth tergite; A, same, caudal view.
Fig. 21. *Cheumatopsyche minuscula* (Banks), ædeagus; A, tenth tergite, dorsal view; B, tenth tergite, lateral view.
Fig. 22. *Hydropsyche hageni* Banks, apex of ædeagus, lateral and ventral views.
Fig. 23. *Cheumatopsyche gracilis* (Banks), tenth tergite, caudal view; A, clasper, caudal view.
Fig. 24. *Cheumatopsyche sordida* (Hagen), ædeagus; A, tenth tergite, dorsal view; B, tenth tergite, lateral view.

PLATE IV

- Fig. 25. *Hydropsyche phalerata* Hagen, male genitalia; A, apex of ædeagus, ventral view.
Fig. 26. *Hydropsyche californica* Banks, apex of ædeagus, ventral and lateral views.
Fig. 27. *Hydropsyche occidentalis* Banks, apex of ædeagus, ventral and lateral views.
Fig. 28. *Hydropsyche venularis* Banks, ædeagus, lateral and ventral views.
Fig. 29. *Hydropsyche incommoda* Hagen, apex of ædeagus, ventral and lateral views.
Fig. 30. *Hydropsyche slossonæ* Banks, tenth tergite, lateral view; A, same, dorsal view; B, ædeagus.
Fig. 31. *Hydropsyche depravata* Hagen, male genitalia; A, apex of ædeagus, ventral view.
Fig. 32. *Hydropsyche bifida* Banks, ædeagus; A, tenth tergite, dorsal view; B, ædeagus, dorsal view.
Fig. 33. *Hydropsyche morosa* Hagen, ædeagus.
Fig. 34. *Hydropsyche cockerelli* Banks, male genitalia.
Fig. 35. *Hydropsyche oslari* Banks, ædeagus; A, male genitalia.

PLATE V

- Fig. 36. *Arctopsyche grandis* (Banks), male genitalia.
Fig. 37. *Triænodes grisea* Banks, male genitalia; A, *Triænodes frontalis*, clasper, lateral aspect.
Fig. 38. *Triænodes dentata* Banks, male genitalia; A, clasper, ventral view.
Fig. 39. *Æcetis parva* (Banks), male genitalia.
Fig. 40. *Athripsodes transversus* (Hagen), male genitalia.
Fig. 41. *Athripsodes annulicornis* (Stephens), clasper, caudal view.
Fig. 42. *Athripsodes dilutus* (Hagen), male genitalia; A, clasper, caudal view.
Fig. 43. *Anisogamus disjunctus* Banks, male genitalia; A, ædeagus.
Fig. 44. *Anisogamus costalis* (Banks), male genitalia; A, ædeagus.
Fig. 45. *Asynarchus centralis* Banks, male genitalia; A, ædeagus.
Fig. 46. *Clistoronia formosa* (Banks), male genitalia; A, ædeagus.
Fig. 47. *Apatelia incerta* (Banks), male genitalia.

PLATE VI

- Fig. 48. *Dicosmæcus unicolor* (Banks), male genitalia.
Fig. 49. *Dicosmæcus atripes* (Hagen), male genitalia.
Fig. 50. *Ecclisomyia maculosa* Banks, male genitalia; A, clasper.
Fig. 51. *Glyphopsyche bellus* (Banks), male genitalia; A, ædeagus; B, male genitalia, dorsal view.
Fig. 52. *Glyphopsyche canadensis* (Banks), male genitalia; A, same, dorsal view; B, ædeagus.

- Fig. 53. *Glyphopsyche irroratus* (Fabricius), male genitalia; A, ædeagus.
 Fig. 54. *Glyphopsyche subborealis* (Banks), male genitalia; A, ædeagus; B, same, dorsal view of apex.
 Fig. 55. *Hesperophylax consimilis* Banks, male genitalia.
 Fig. 56. *Limnephilus argenteus* Banks, male genitalia; A, ædeagus.

PLATE VII

- Fig. 57. *Limnephilus spinatus* Banks, male genitalia; A, ædeagus.
 Fig. 58. *Limnephilus assimilis* (Banks), male genitalia; A, ædeagus.
 Fig. 59. *Limnephilus janus* Ross, male genitalia; A, ædeagus.
 Fig. 60. *Limnephilus occidentalis* Banks, male genitalia; A, ædeagus.
 Fig. 61. *Limnephilus parvulus* (Banks), male genitalia; A, ædeagus.
 Fig. 62. *Limnephilus tarsalis* (Banks), male genitalia; A, ædeagus.
 Fig. 63. *Limnephilus secludens* (Banks), male genitalia; A, ædeagus.
 Fig. 64. *Limnephilus clausus* Banks, lateral arm of ædeagus.
 Fig. 65. *Limnephilus modestus* (Hagen), male genitalia; A, ædeagus.
 Fig. 66. *Limnephilus mutatus* (Hagen), male genitalia; A, ædeagus.
 Fig. 67. *Limnephilus nepus* Ross, male genitalia; A, ædeagus.

PLATE VIII

- Fig. 68. *Limnephilus nigriculus* (Banks), male genitalia; A, ædeagus.
 Fig. 69. *Limnephilus hageni* Banks, male genitalia; A, ædeagus.
 Fig. 70. *Limnephilus sansoni* Banks, male genitalia; A, ædeagus.
 Fig. 71. *Limnephilus abbreviatus* (Banks), male genitalia; A, ædeagus.
 Fig. 72. *Limnephilus elongatus* Banks, male genitalia; A, ædeagus.
 Fig. 73. *Limnephilus sublunatus* Provancher, male genitalia; A, ædeagus.
 Fig. 74. *Limnephilus vastus* Hagen, male genitalia; A, same, dorsal view; B, lateral arm of ædeagus.
 Fig. 75. *Limnephilus gravidus* Hagen, male genitalia; A, same, dorsal view; B, lateral arm of ædeagus.
 Fig. 76. *Limnephilus coloradensis* (Banks), male genitalia; A, B, ædeagus.

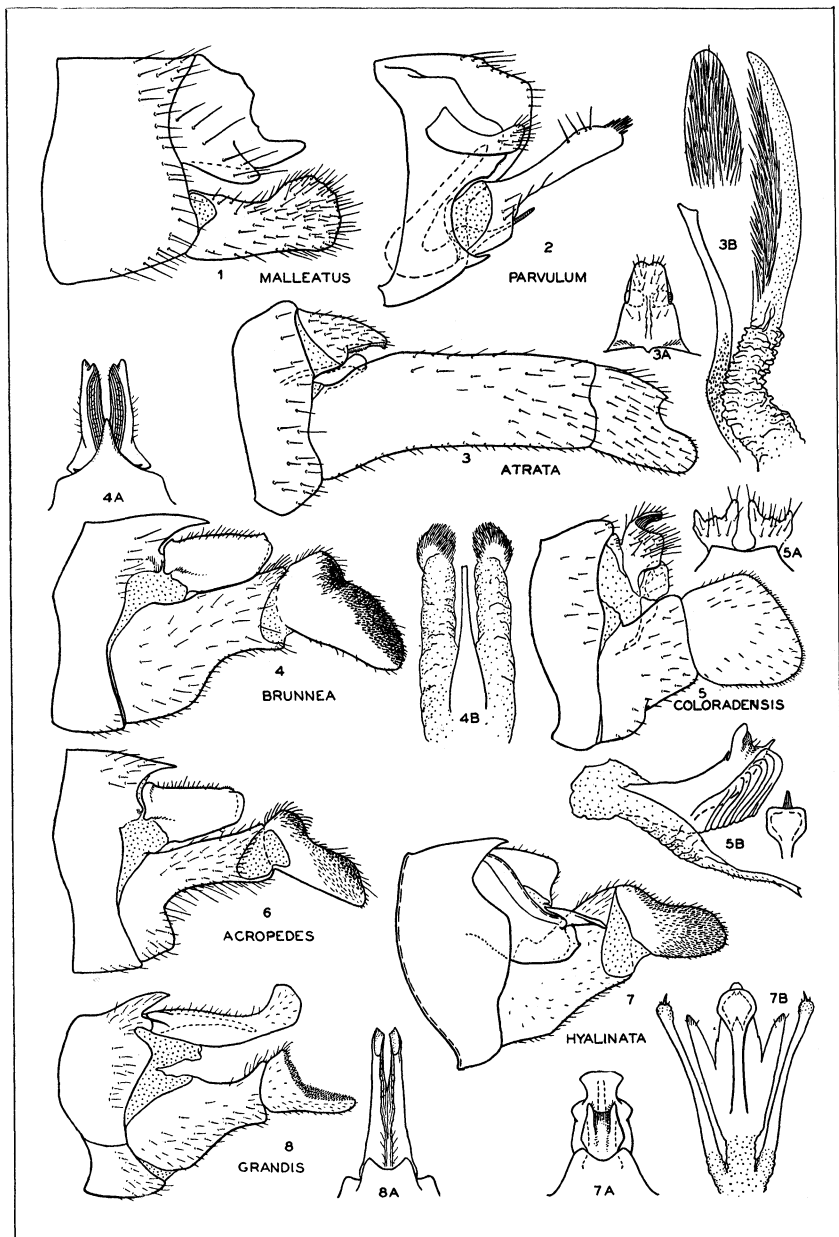
PLATE IX

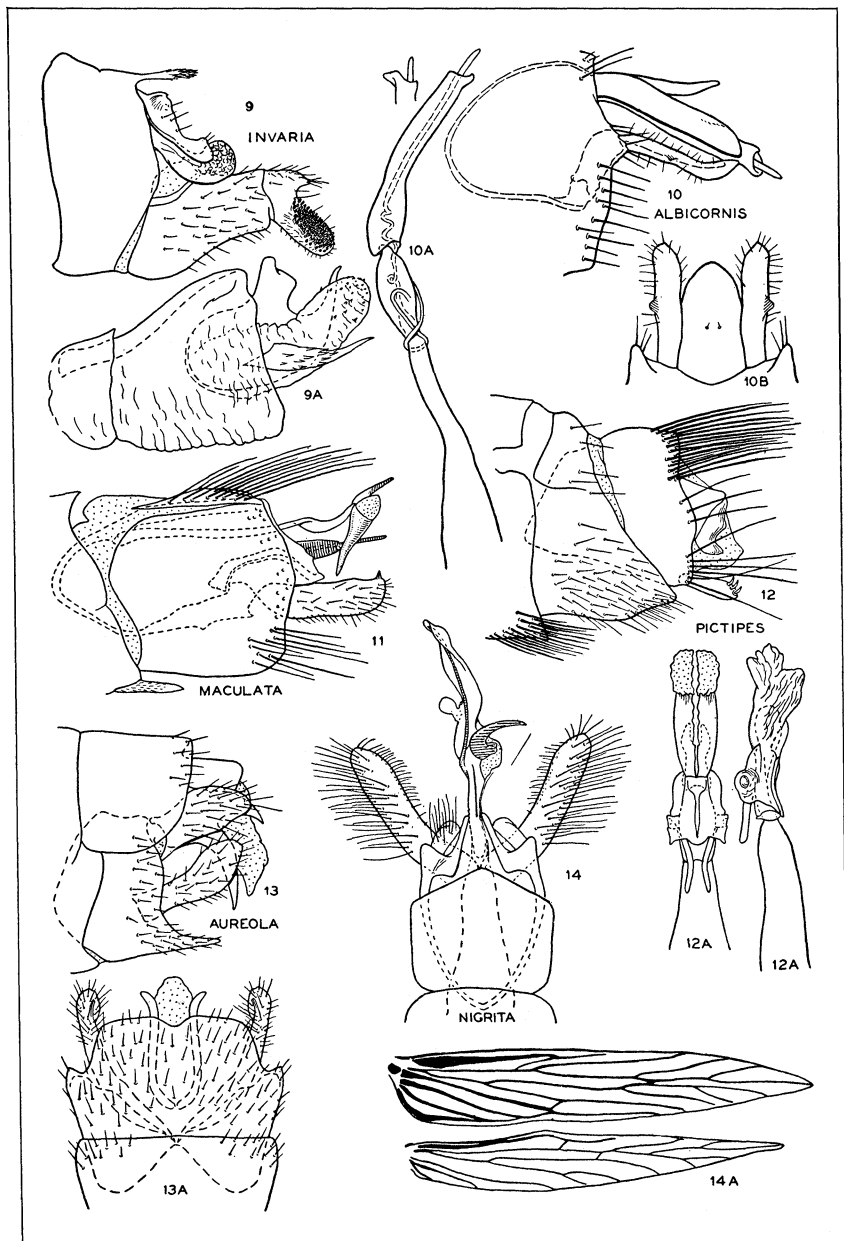
- Fig. 77. *Limnephilus brevipennis* (Banks), male genitalia; A, ædeagus.
 Fig. 78. *Limnephilus pulchellus* Banks, male genitalia; A, same, dorsal view; B, ædeagus.
 Fig. 79. *Limnephilus diversus* (Banks), male genitalia; A, ædeagus.
 Fig. 80. *Limnephilus externus* Hagen, male genitalia; A, ædeagus.
 Fig. 81. *Limnephilus morrisoni* Banks, male genitalia; A, ædeagus.

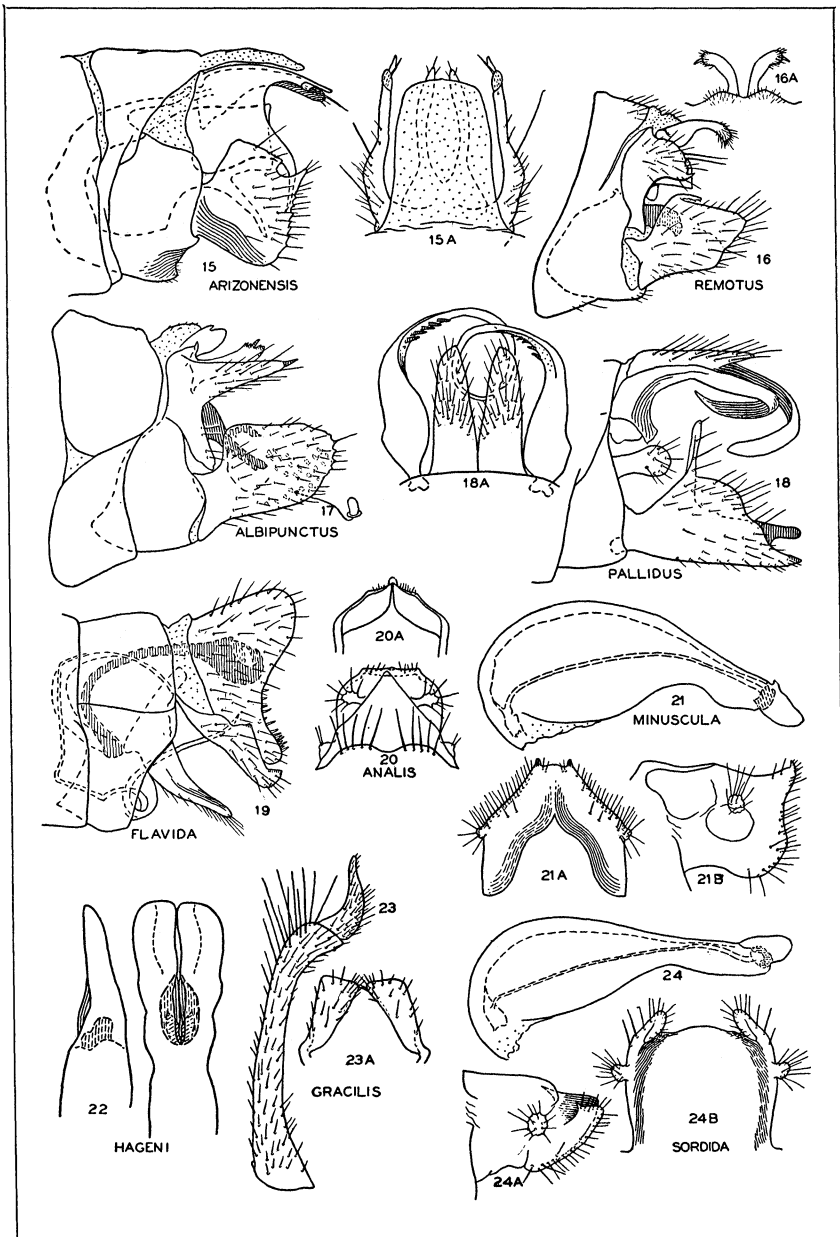
- Fig. 82. *Limnephilus harrimani* Banks, male genitalia; A, ædeagus.
Fig. 83. *Limnephilus mæstus* Banks, male genitalia; A, ædeagus.
Fig. 84. *Limnephilus cockerelli* Banks, male genitalia; A, ædeagus.
Fig. 85. *Neophylax occidentis* Banks, male genitalia.
Fig. 86. *Neophylax fuscus* Banks, male genitalia, caudal view; same, ventral view.

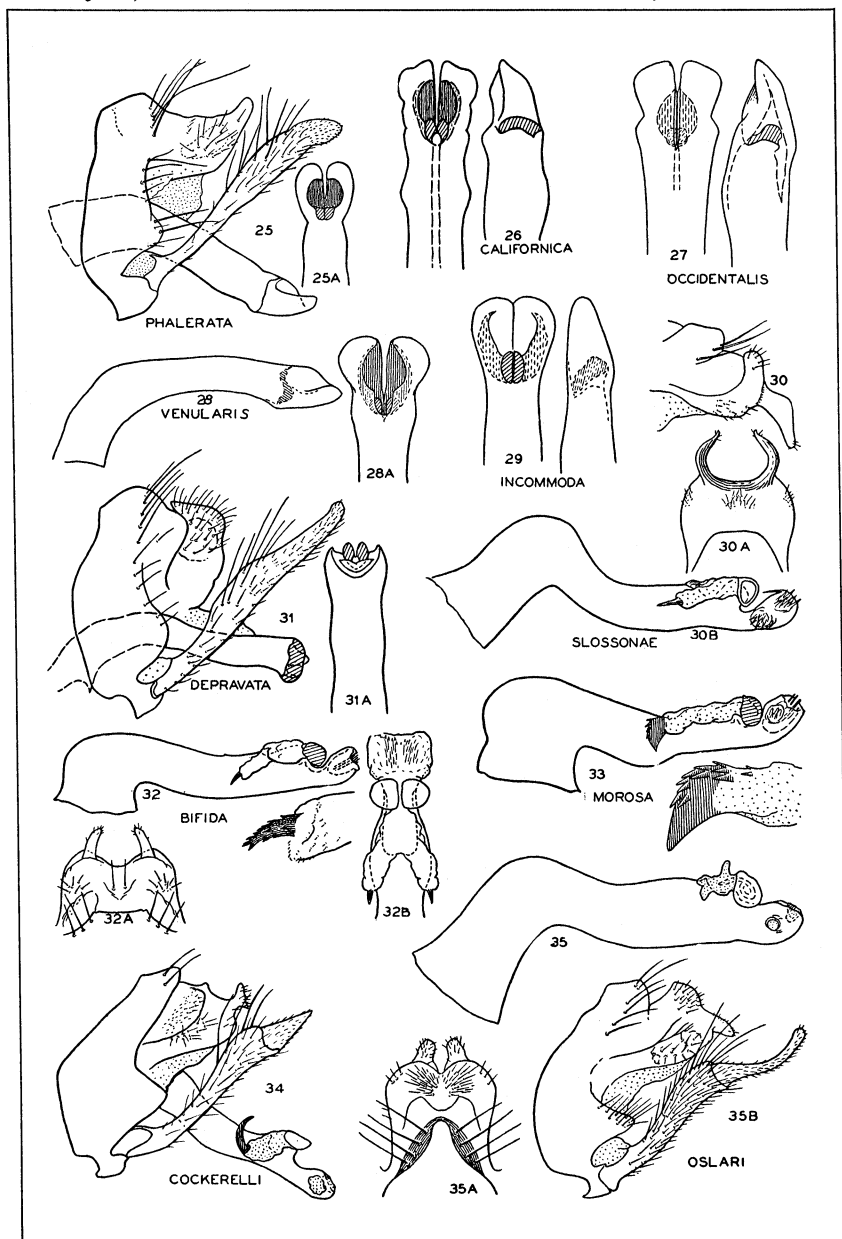
PLATE X

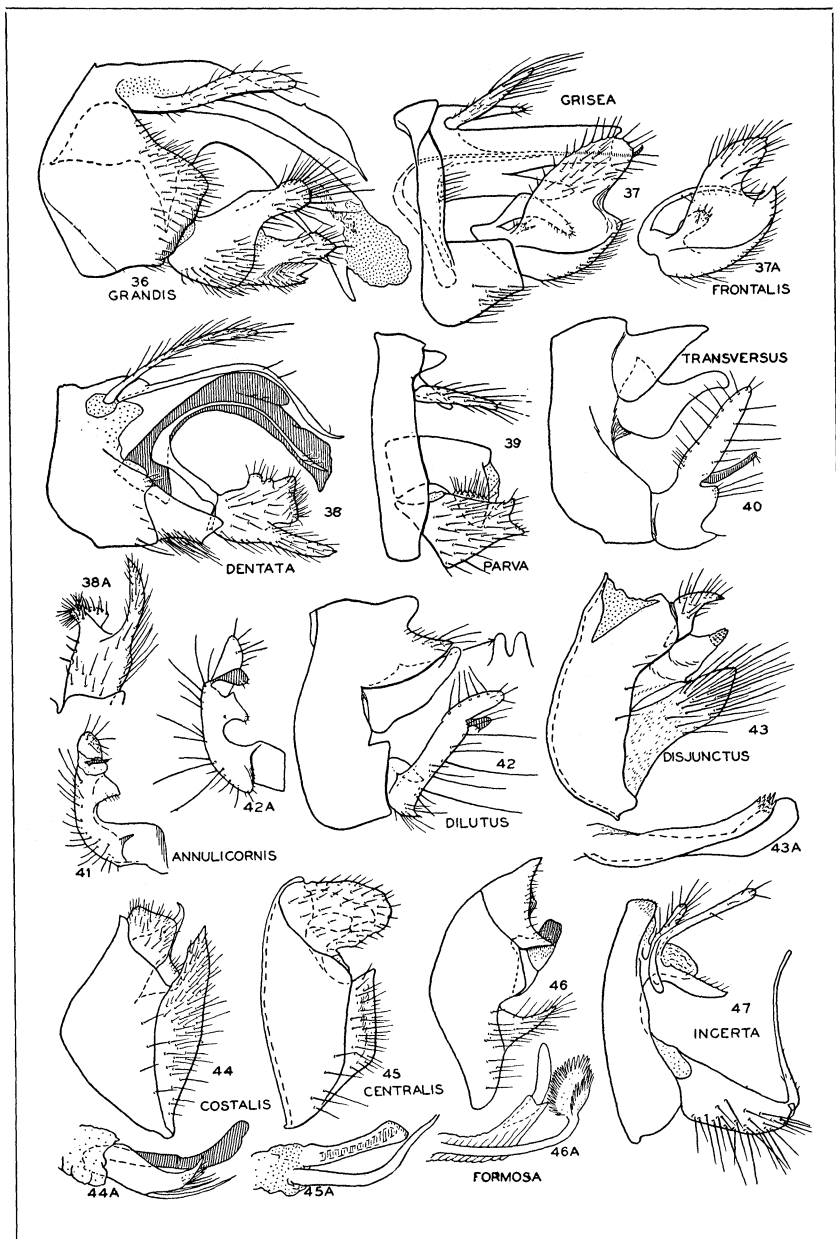
- Fig. 87. *Brachycentrus americanus* Banks, male genitalia.
Fig. 88. *Brachycentrus occidentalis* Banks, male genitalia.
Fig. 89. *Neothremma alicea* Banks, male genitalia.
Fig. 90. *Lepidostoma vernalis* (Banks), male genitalia; A, same, dorsal view.
Fig. 91. *Lepidostoma prominens* Banks, male genitalia.
Fig. 92. *Lepidostoma carolina* (Banks), male genitalia; A, tenth tergite, dorsal view.
Fig. 93. *Lepidostoma modesta* (Banks), tenth tergite, lateral view.
Fig. 94. *Notidobia assimilis* Banks, clasper.
Fig. 95. *Micrasema charonis* Banks, male genitalia; A, ædeagus and tenth tergite, dorsal view.
Fig. 96. *Micrasema rusticum* (Hagen), ædeagus and tenth tergite, dorsal view; A, tenth tergite, lateral view; B, clasper, lateral view; C, style of tenth tergite.

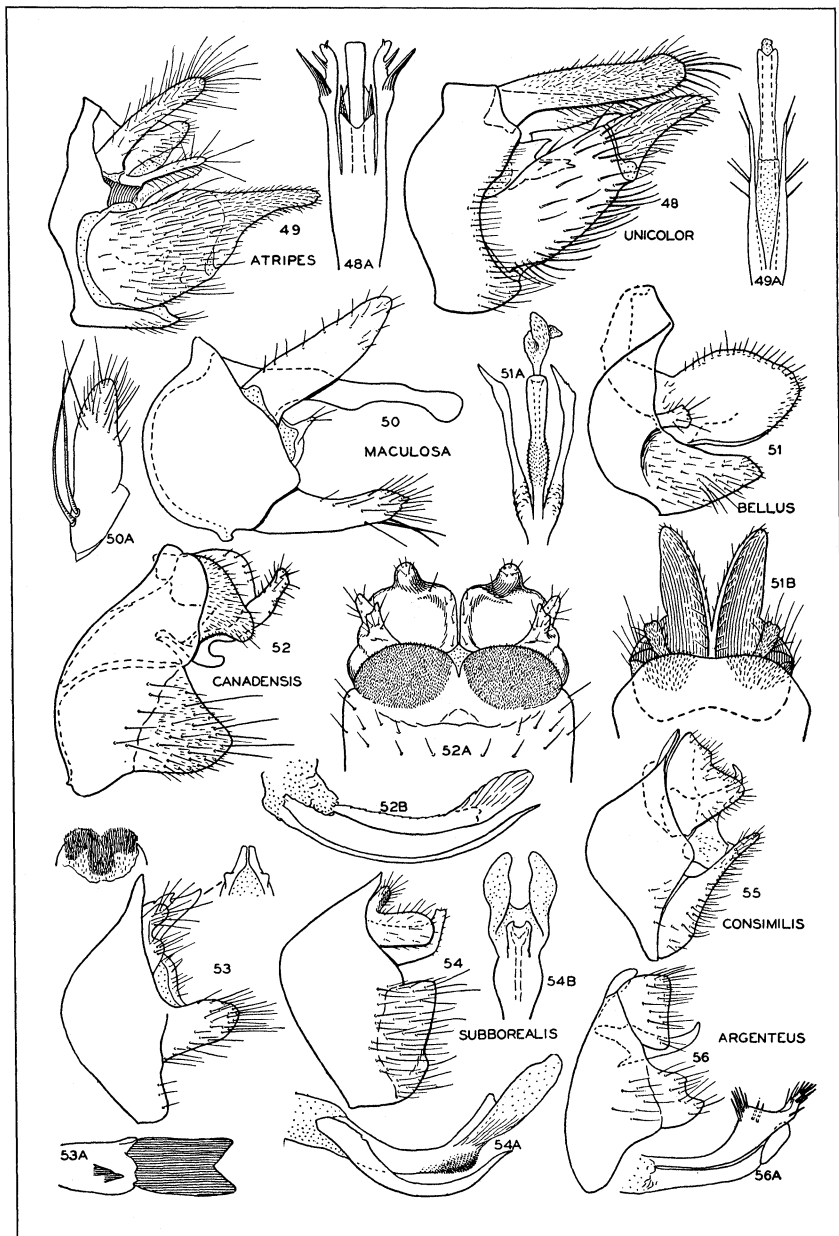


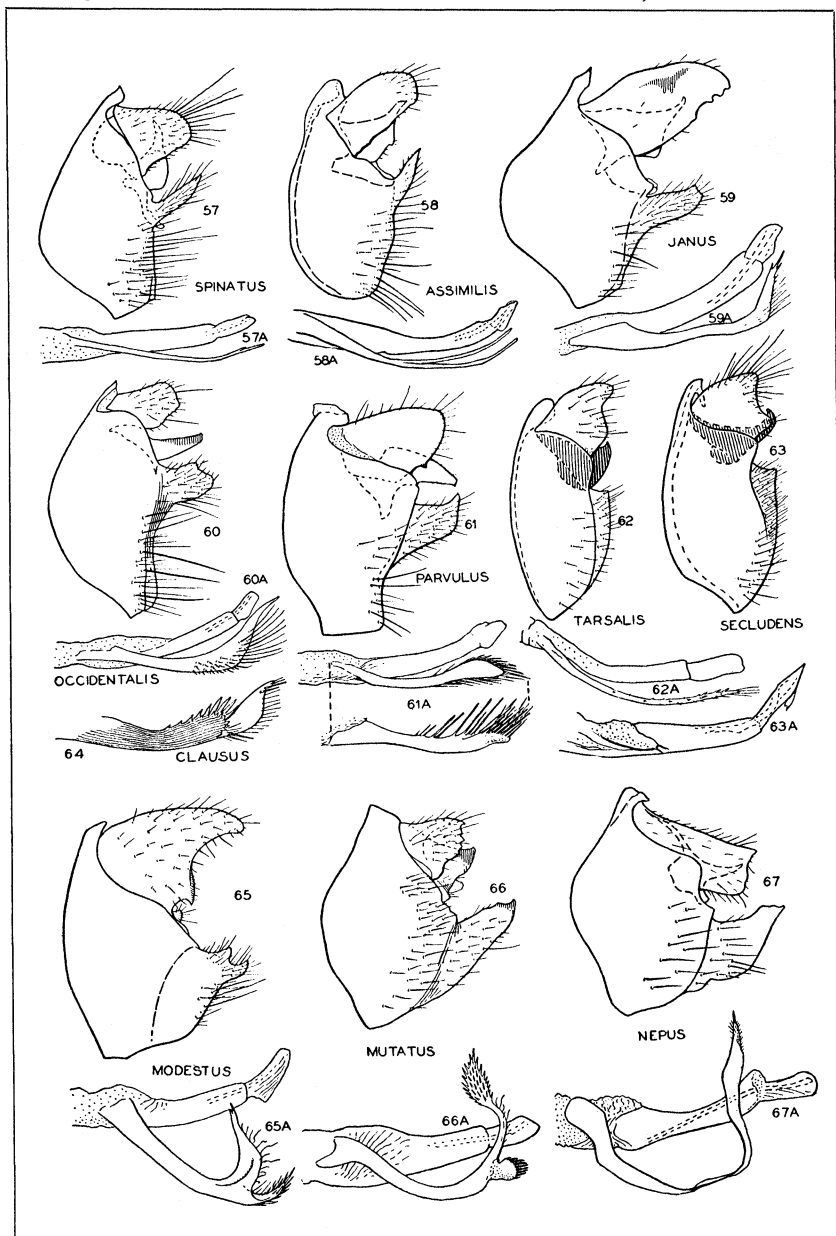


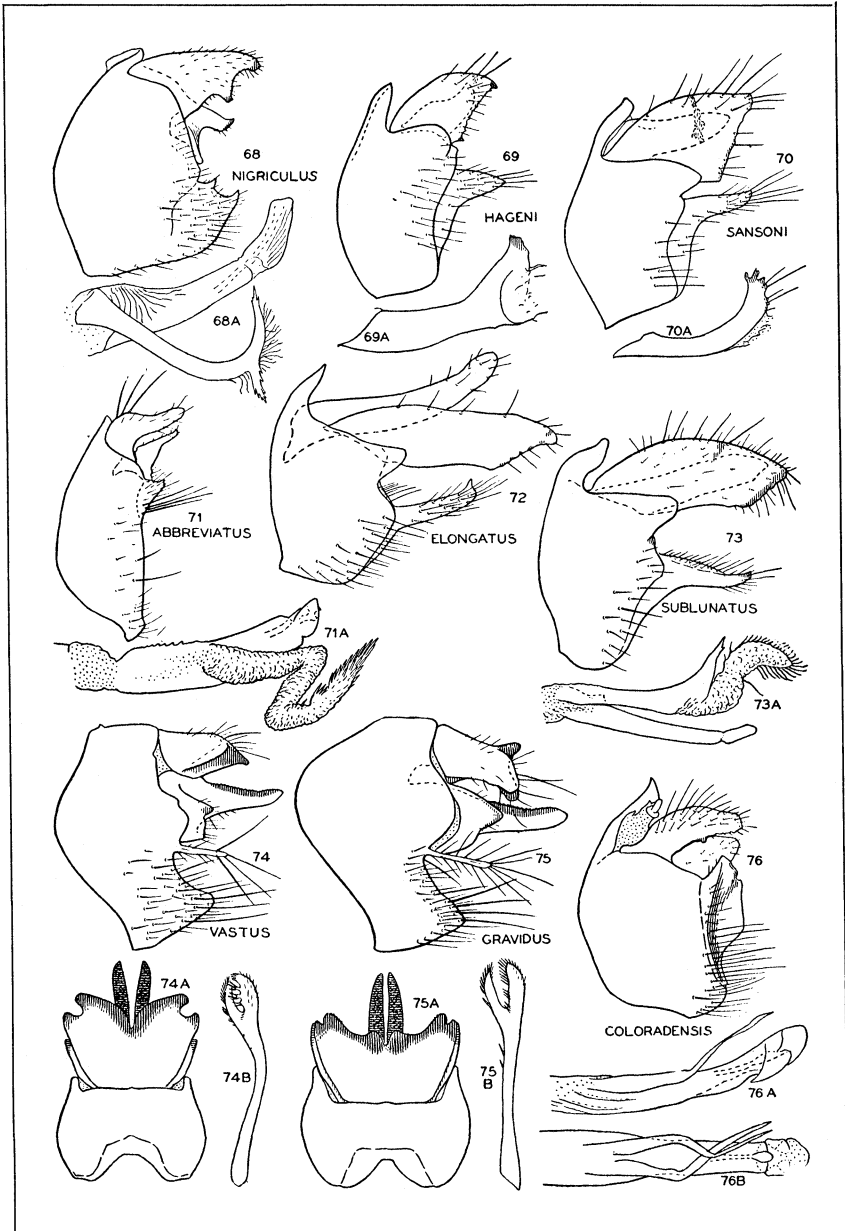


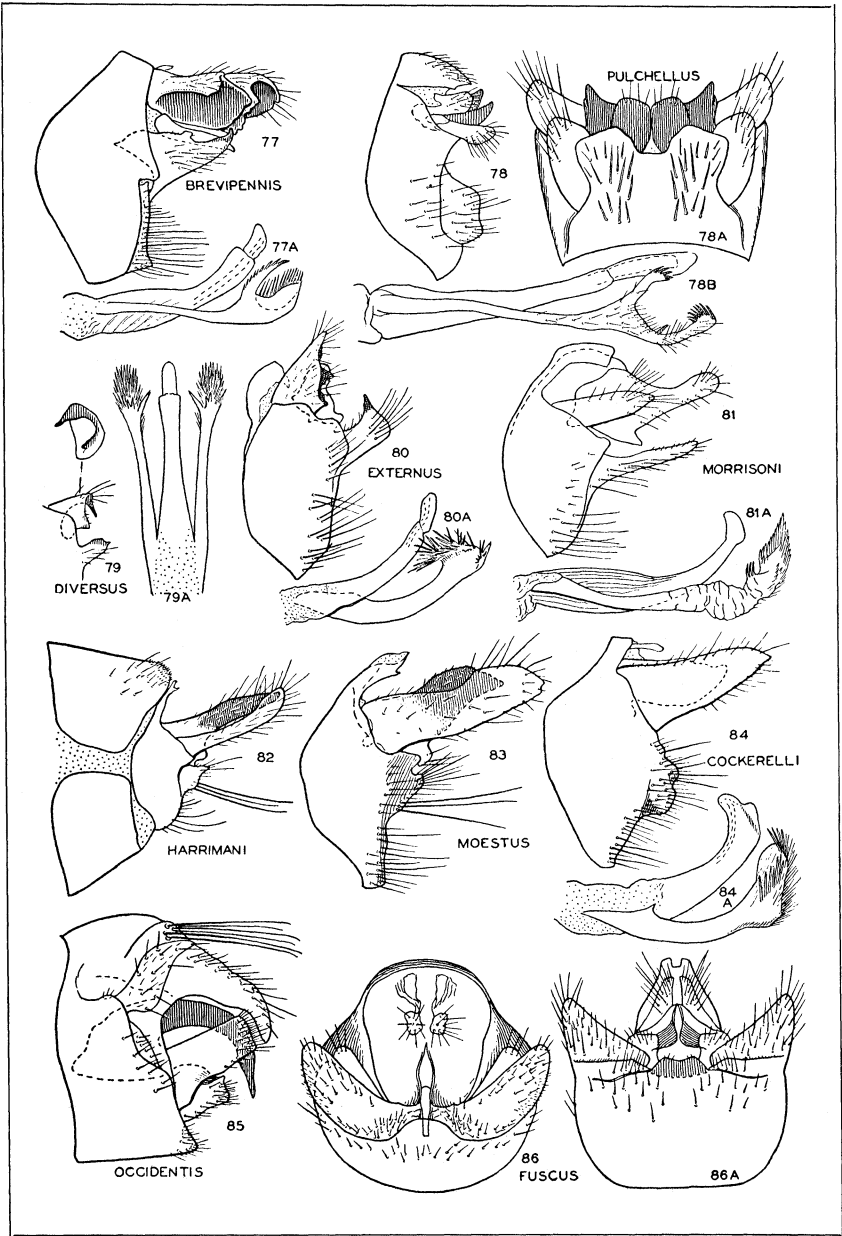












Ross — North American Caddis Flies

