

THE INSECTS OF THE DIPTEROUS FAMILY PHORIDÆ IN THE UNITED STATES NATIONAL MUSEUM.

By J. R. MALLOCH.

Of the Bureau of Entomology, United States Department of Agriculture.

INTRODUCTION.

The species of this family are for the most part very small, black, or yellow flies that are easily overlooked, and the life history of which is very little known. It is considerably more than a century since the first species was described, and even now but little is known of its habits. If one accepts *florea* Fabricius (1794) as synonymous with *abdominalis* Fallen, which systematists are averse to doing, or *rufipes* Meigen, as examples of common species, it will be found that very little is known about their larval habits. It is rarely indeed that complete records of their life habits are found, and a list of those so recorded would not occupy a page of this paper. Those that have been reared have been for the most part upon fungi, or upon dead or decaying animal or vegetable matter. Some species have been reared from snails and a few from the bodies of bees, ants, or beetles, but whether the whole of those species were true parasites or not is a matter for conjecture. Several species are myrmecophilous, and in this section occur the most peculiar genera belonging to the family, the females being apterous, or semiapterous, and resembling the Pulicidæ more than the Phoridæ. The general body of the family have wings in both sexes, and their peculiar neuration separates them from any other Diptera, although they superficially resemble *Scatopse* in wing neuration. This is a genus belonging to the Bibionidæ, in which Fabricius described his species *florea* (1794), and the similarity in neuration very probably was responsible for his placing it here. In Phoridæ the costa extends to only the middle, or slightly beyond, or short of the middle of the wing, the thick costal vein being combed with long bristles in most species, and the only other thick veins are the first and third longitudinal veins, which join the costa at about its middle and its apex, respectively. The mediastinal vein is present in some genera and ends in the first longitudinal vein; the humeral vein is always present, and the second longitudinal vein

is only represented by a small portion at near the apex of third, where it is separated from that vein, being coalescent with it for most of or its entire length; in the latter case the third vein is said to be unforked. There are four thin veins crossing the disk of the wing which are sometimes used for the separation of species or genera. The antennæ are 3-jointed, the first joint small, the second inclosed for the greater part in the very large third, which is more or less spherical or conical, and has a long 3-jointed dorsal or apical arista. The flies may be met with throughout the year, at least in houses, and I found a series here taken on Plummers Island, Maryland, on January 7, 1908.

HABITS OF THE PHORIDÆ

Appended is a list of some of the species whose habits are more or less known. The complete life history of most of these is still unknown.

Trupheoneura microcephala Loew, lives on dead caterpillars, but is not a true parasite (Hubbard and Riley).

Trupheoneura trinervis Becker, carrion and rotting fungi (Wood).

Trupheoneura perennis Meigen, carrion (Wood).

Trupheoneura fratercula Brues, in museum, with label "In nest of *Vespa germanica*." Plummers Island, Oct. 21, 1903. Labeled "*microcephala* Loew."

Trupheoneura opaca Meigen, on exhumed human bodies.

Paraspiniphora bergenstammii Mik, in putrid snails (Mik.). Specimens marked "From clean bones of turtle." Plummers Island, April 9, 1911 (Barber). In collection.

Paraspiniphora maculata Meigen, larva lives on dead snails (Wood, Ent. Mo. Mag., 1906, p. 262).

Pseudostenophora pubericornis Malloch, on *Agaricus* sp. (Malloch).

Pseudostenophora, new name, is a change of name for the genus *Stenophora* Malloch (Jour. Nat. Hist. Soc. Glasgow, vol. 1, 1909, p. 27), which is preoccupied.

Dohrniphora concinna Meigen (= *cimbicis* Aldrich), from cocoons of *Cimbex americana* (Aldrich).

Dohrniphora abdominalis Fallén, on carrion (Malloch).

Dohrniphora venusta Coquillett. (See under this species in list.)

Chætoneurophora thoracica Meigen, from mole's nest (Malloch).

Chætoneurophora caliginosa Meigen (= *urbana* Meigen). Same nest, and under carrion (Malloch).

Chætoneurophora curvinervis Becker, under carrion (Malloch).

Hypocera incrassata Meigen, parasite of honey bee in England and cause of foul brood (Packard, 1868).

Hypocera vitripennis Meigen, bred by Collin from nest of *Bombus* (Wood). From moss (Malloch).

Pseudohypocera clypeata Malloch, series in collection marked "On honey and wax." (See description of species.)

Apocephalus, species on ants. Lives parasitic in the heads of the adults of *Camponotus*, sp. Their presence causes the head of the ant to drop off. Habits discussed by Pergande (1901). (See descriptions of species.)

Aphiochæta epeiræ Brues, reared from egg cocoons of spider *Epeira* (Brues).

Aphiochæta fasciata Fallén, from Coccinellidæ that were feeding on Aphides (Rondani).

Aphiochæta nedeæ Malloch, reared from *Nedu marginalis*. (See under description of species.)

- Aphiochæta flava* Fallén, larvæ on *Agaricus* (Schiner).
Aphiochæta fungicola Coquillett, from the fungus *Trametes pecki* (Coquillett).
Aphiochæta lutea Meigen, larvæ on *Agaricus* (Schiner).
Aphiochæta agarici Lintner, on decaying mushrooms (Lintner).
Aphiochæta pusilla Meigen (= *nigra* Meigen), in *Agaricus prunulus* (Schiner).
Aphiochæta pulicaria Fallén, in nest of *Vespa germanica* (Van der Wulp); from *Agaricus* (Schiner).
Aphiochæta minor Zetterstedt (= *minuta*, Aldrich), bred from cocoons of *Cimbex americana* (Aldrich). In mushrooms (Howard). This last record is incorrect as the identification is wrong.
Aphiochæta rufipes Meigen, quite a general feeder, Brunetti (Ent. Mo. Mag., 1889). In nest of *Vespa germanica* Newstead (Ent. Mo. Mag., 1861). From larva of *Nematus salicis* (Fitch). On turnip leaves, and in bee hives (Malloch). Specimens here in collection marked "On dead bees."
Aphiochæta scalaris Loew. (See under description of species.)
Aphiochæta conica Malloch, from abdomen of *Camponotus pennsylvanicus* (Pergande). In collection.
Aphiochæta aletix Comstock. (See under description.)
Aphiochæta juli Brues, Parasitic on myriapods. (See description.)
Aphiochæta cata Melander and Brues, and *rostrata* Melander and Brues. Collected about the burrows of the bee *Halictus pruinosus* (Melander and Brues).
Aphiochæta (?) *atlantica* Brues, on rotting *Aletix* pupa. (In collection.)
Aphiochæta evarthæ Malloch, from beetle *Evarthus ovatus* (in collection). From dead *Polyphilla* (in collection). Reared from fungi (Johnson).
Aphiochæta setacea Aldrich, from cocoon of *Cimbex americana* (Aldrich).
Aphiochæta humeralis Zetterstedt, found on poplar where a species of Coccinellidæ was abundant (Malloch).
Conicera atra Meigen, on exhumed human bodies. On corpse two years after burial (Webster, 1890).
Phora aterrima Fabricius, on buried human bodies (Megnin, 1895).
Metopina pachycondylæ Brues, as commensals with the ant *Pachycondyla harpax* Fabricius (Wheeler).
Syneura cocciphila Coquillett, from larva infesting heads of adults of *Icerya purchasi* (Coquillett); one specimen evidently of the same species on *I. braziliensis*.
*Puliciphora venata*¹ Aldrich, on dead shells (H. H. Smith).
Puliciphora lucifera Dahl, on flowers of giant *Arum* that smell like carrion.
Platyphora lubbocki Verrall, Myrmecophilous (Verrall).
Platophora formicarum Verrall, Myrmecophilous (Verrall).
Platophora antiguensis Malloch, attacking *Solenopsis geminata*.
Platophora crawfordi Coquillett, attacking *Solenopsis geminata* (Crawford).
Platophora currici Malloch, attacking *Solenopsis geminata* (Currie).
Psylloptera testacea Loew, Myrmecophilous with *Dorylus* (Brues).
Commoptera solenopsidis Brues, Myrmecophilous with *Solenopsis geminata* (Brues).
Ecitomyia wheeleri Brues, Myrmecophilous with *Eciton* (Brues).
Enigmatias blattoides Meinert, Myrmecophilous (Meinert).
Aconistoptera melanderi Brues, Myrmecophilous with *Eciton opacithorax* (Brues).
Xanionotum hystrix Brues, Myrmecophilous with *Eciton* spp. (Brues).
Wandolleckia cookii Brues, on land molluscs (*Achatina*) (Cook).
Schulz records² Phoridæ attacking butterflies of the genera *Morpho* and *Helicopsis* in Brazil.

¹ See under specific descriptions.² Zool. Anz., vol. 28, 1904, pp. 42-43.

TERMINOLOGY USED IN PAPER.

- Anal protuberance.* An organ in the male which projects beyond the genitalia, and is generally furnished at its lateral extremities with two long, curved, pubescent bristles.
- Antenna.* This consists of three joints. The third joint is practically all that is visible to anything except the higher magnification lenses, and is the only one which is referred to in descriptions.
- Costa.* That part of wing bordered by the thick costal vein, extending to from one-third to two-thirds of the wing length in different species, and more or less combed with thick-set bristles or hairs.
- Costal divisions.* The first division is taken as extending from the humeral cross vein to the junction of the first vein with the costa. The second is taken as from the farther side of the first vein to the near side of the fork, or the tip of third vein as the case may be. When the term "remainder" is used as against the length of first division both second and third are included as one. The third is that inclosed by fork of third vein and tip of same.
- Fork of third vein.* This is really the second vein, which is coalescent with the third to near its junction with the costa.
- Frons.* That portion of head bordered by the compound eyes laterally, the face in front (which is hidden by the very large antennæ and is more or less invisible except from directly in front), and the occiput behind.
- Frontal bristles.* These are transversely four-rowed in *Phora* and *Aphiochæta* as well as some of the other genera. The FIRST row consists of two or four bristles situated on the center of frons directly over the antennæ and are in some genera RECLINATE, i. e., lying back over the frons as the other bristles do, or PROCLINATE, i. e., projecting over the antennæ and downward, or ERECT, i. e., projecting straight out over the antennæ. Those bristles are in my opinion but one row, and in some cases we find them more or less in line. The SECOND row consists of four bristles which are, when the frons is elongated, sometimes much out of line, and the central pair drops farther down and nearer the eye margin the longer the frons is. The THIRD row is situated more or less closely to the anterior ocellus and consists of four bristles. The FOURTH row consists of four bristles situated, two on the ocellar triangle and one on near each eye margin. There are in most species two other bristles situated on the back of the vertex and directed inward toward the ocelli, but little account is taken of them in descriptions of species. In descriptions in *Aphiochæta* the first row is called the POST-ANTENNAL and the second row is called the FIRST row—i. e., of reclinate bristles.
- Frontal suture.* A suture or depression more or less distinct in *Aphiochæta* that runs from front ocellus to front edge of frons.
- Hind tibial armature in Aphiochæta.* The hind tibia has a raised ridge running from base to tip on the dorsal surface, which is generally clothed with very short hairs. Those hairs in the species with yellow legs give the insects the appearance of having a black dorsal line, and some writers refer to these as having the "tibiæ black-lined above." The great majority of the species have a single row of serial bristles on the postero-dorsal surface just below the dorsal ridge, but in some this is duplicated more or less fully on the antero-dorsal surface.
- Leg surfaces.* These are arrived at by taking the legs as at right angles to the body, and considering the upper surface as the dorsal and the under as the ventral.
- Mesopleural bristles.* These are situated on the mesopleura, on the upper posterior angle close in front of wing base, and are in the black species very difficult to detect.

CLASSIFICATION.

It is almost impossible to adopt an unfailing system for descriptions, so that one unacquainted with the family may work out the species, and different writers have adopted different characters for arranging them, so that it is sometimes almost impossible to tell what species is intended from the description; but in the following tables I have used those characters only which are generally recognized as reliable, and endeavored to keep clear as much as possible of the use of those characters that are variable in compiling my tables. Color is not an unfailing guide, nor is the number of scutellar bristles so constant that it may be used with entire confidence; but when necessary I have introduced species into the tables under both "black or brown," and "yellow" or with "two" or "four scutellar bristles." So many species are new to science in the collection that it is deemed necessary to give tables and descriptions of all the species, described and undescribed.

I have added at end of this paper descriptions of some of the exotic Phoridæ in the collection, but have not included them in the tables, as that might unnecessarily involve matters when anyone endeavored to identify native Phoridæ by the use of these tables. It is not probable that any of those species occur in America.

Several important changes in nomenclature are proposed in this paper, for all of which I consider there is a necessity, owing to our increased knowledge of the group and the desirability of having matters of this kind on as reliable a basis as possible.

TABLE OF GENERA.

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| 1. At least mid tibiæ with preapical spines other than the terminal spurs..... | 2. |
| Mid tibiæ without spines other than the apical spurs..... | 8. |
| 2. Third vein forked, generally two spines at basal third of mid tibia | 3. |
| Third vein unforked..... | 6. |
| 3. Seventh vein (fourth thin vein) absent, or indistinct and abbreviated. | |
| | <i>Truphœoneura</i> , p. 417. |
| Seventh vein distinct and complete..... | 4. |
| 4. Third longitudinal vein bristly on its whole length, the bristles very short and lying close to vein surface..... | <i>Chætoneurophora</i> , p. 422. |
| Third longitudinal vein without such close lying bristles, generally entirely bare. | 5. |
| 5. Mid tibia with two strong spines on basal third and one at about apical third, hind tibiæ with a variable number of spines, costa to middle, fourth vein distinctly curved at origin | <i>Paraspiniphora</i> , p. 425. |
| Mid tibia with two spines at basal third and one small one at near apex, hind tibia generally with short hair-like bristles on antero-dorsal surface in addition to any bristles that may be present, costa short, fourth vein nearly straight, proboscis enlarged in females of some species..... | <i>Dohrniphora</i> , p. 430. |
| 6. Velvet black species, middle tibiæ with several long dorsal spines, frontal bristles arranged in two upper rows of four each and two lower rows of two each, frons in male very narrow..... | <i>Phora</i> , p. 437. |

- Not velvet black species, mid tibiæ with only two spines at basal third and one at apical third or at near apex.....7.
7. Small species, three rows of frontal bristles, the two upper of four each and the lower of two, male third antennal joint conical, arista apical.... *Conicera*, p. 436.
Larger species, three rows of four frontal bristles and generally also two post-antennal reclinate bristles, antennæ sometimes somewhat conical, but arista dorsal or subapical..... *Hypocera*, p. 433.
8. Wings present, and of usual size.....9.
Wings very much reduced, or absent.....23.
9. Third vein forked.....10.
Third vein unforked.....14.
10. Frons with at least two upper rows of four bristles.....11.
Frons with weak hairs, and four very weak bristles on the vertex, costa destitute of bristles..... *Gymnophora*, p. 500.
11. Frontal bristles erect, not projecting downward over the antennæ.....12.
Frontal bristles proclinate, *i. e.* projecting downward over the antennæ; or reclinate, *i. e.* lying back over frons as the other frontal bristles do.....13.
12. Mediastinal vein absent, clypeus, much produced, especially in female.
Pseudohypocera, p. 439.
Mediastinal vein present, clypeus not produced in either sex.....13.
Beckerina, p. 441.
13. Frontal bristles proclinate, female ovipositor generally retracted and fleshy.
Aphiochæta, p. 445.
Frontal bristles reclinate; female ovipositor chitinised, projecting.
Apocephalus, p. 442.
14. Frons wholly destitute of bristles..... *Platyphora* ¹ Verrall.
15. Frons with rows of bristles.....16.
16. First longitudinal vein absent..... *Ecitomyia*, p. 508.
First longitudinal vein present.....17.
17. Post-antennal bristles reclinate, hind tibiæ fringed above with bristles; female ovipositor exerted, chitinous..... *Melaloncha*, p. 500.
Post-antennal bristles not reclinate.....18.
18. Post-antennal bristles absent, wings very hairy..... *Chonocephalus*, p. 510.
Post-antennal bristles present, proclinate.....19.
19. Spurs of posterior tibiæ well developed.....20.
Spurs of middle tibiæ wanting, those on hind tibiæ minute.....22.
20. Ovipositor of female prolonged, stout, and heavily chitinised, wing neuration normal..... *Plastophora*, p. 500.
Ovipositor of female retracted, fleshy.....21.
21. First and third veins much approximated, legs very stout..... *Syneura*, p. 503.
First and third veins widely separated, legs not stout, much as in *Aphiochæta*.
Parasyneura ², p. 516.
22. Frons with two, or three transverse rows of bristles; female apterous.
Puliciphora, p. 504.
Frons with four transverse rows of bristles; female with wings... *Metopina*, p. 503.
23. Wings present, but reduced in size.....24.
Wings entirely absent.....27.
24. Wings very narrow with very long bristles.....25.
Wings without long bristles.....26.

¹ *Platyphora* Verrall has not been reported from America, but it has been suggested that it may probably prove to be the male of *Ænigmatias* Meinert, so I have included it in the table.

² *Parasyneura*, new genus, is a Javanese genus, but I have included it in the table, as it is new to science and I desire to indicate its affinities more clearly.

25. Abdomen with several transverse rows of very long and strong bristles.
Xanionotum, p. 510.
 Abdomen bare.....*Acontistoptera*, p. 509.
26. Wings narrow, strap-like.....*Ecitomyia*, p. 508.
 Wings more or less triangular and indistinctly veined.....*Commoptera*, p. 509.
27. Body, seen from above, oval, cockroach-like.....*Ænigmatias*, p. 511.
 Body, seen from above, of the usual shape, more or less constricted into three parts.....28.
28. Ocelli and ocellar bristles present.....*Puliciphora*, p. 504.
 Ocelli and ocellar bristles absent.....*Chonocephalus*, p. 510.

DESCRIPTIONS OF SPECIES.

Genus TRUPHEONEURA¹ Malloch.

TABLE OF SPECIES.

1. Halteres black, or brown.....2.
 Halteres yellow.....7.
2. Fork of third vein very long, starting at below tip of first vein.....*occidentalis*, p. 417.
 Fork of third vein not long, starting much beyond end of first vein.....3.
3. Scutellum with four equal bristles.....4.
 Scutellum with two bristles and two small weak hairs.....5.
4. Third vein very thick, thicker on its entire length than costa at tip, legs all piceous.
pachyneura, p. 418.
 Third vein not thicker than costa at tip, legs nearly all yellow....*varipes*, p. 419.
5. Wings limpid, first vein ending much nearer to tip of costa than to humeral vein.
vitrinervis, p. 419.
 Wings grayish, first vein ending at midway between humeral vein and tip of costa.....6.
6. Male palpi of normal size and moderately bristly.....*fratercula*, p. 420.
 Male palpi large and very weakly bristled.....*suspecta*, p. 420.
7. Male palpi very large and nearly bare.....*microcephala*, p. 421.
 Male palpi normal in size and moderately bristled.....*subfusca*, p. 422.

TRUPHEONEURA OCCIDENTALIS Brues.

Female.—Black; frons slightly broader than long, polished and unpunctured, post-antennal bristles widely separated, first row scarcely higher than post-antennals, equidistant and nearly straight, antennæ small, rounded, arista strongly pubescent; palpi slender, bristly toward the tips, proboscis short, membranous, four scutellar bristles, the anterior pair weak; second abdominal segment not elongate, surface of abdomen sparsely hairy; legs black, trochanters and knees yellow, anterior tibiæ without bristles, mid tibiæ with the usual two bristles, hind tibiæ with one bristle just before middle; wings infuscated, especially on anterior half and along course of veins, costa to beyond middle, fringe short, sparse and delicate, costal vein thickened on apical half, first division one-fourth longer than other two together, third as long as second, the fork of third vein originating very far basally, nearer to base of fifth than fourth vein and opposite to tip of

¹Jour. Nat. Hist. Soc. Glasgow, vol. 1, 1909, p. 27.

first vein on costa, third vein bristly to fork, which is at about its middle, fourth vein rather sharply curved at its base, straight elsewhere, ending well before wing tip, seventh very distinct at base but not reaching margin of wing; halteres black.

Length, 2-3 mm.

Described by Brues¹ from two specimens from Pullman, Washington, and Moscow, Idaho. Unrepresented in collection.

TRUPHEONEURA PACHYNEURA Loew.

Male and female.—Black, distinctly shining; frons in male very short, about one-third as long as broad, in female nearly one-half as long as broad, frontal bristles longer in male than in female, third antennal joint in male very large, round, and strongly pubescent, in female normal in size and not so distinctly pubescent, arista longer than breadth of frons and pubescent in both sexes, palpi black, in male broad and leaf-like with very weak bristles, in female narrow, and normally bristled, female proboscis very large, exerted, longer than palpi; thorax shining black, scutellum with four subequal bristles, abdomen opaque black, second and sixth segments elongated in both sexes, posterior margin of sixth segment with long and posterior margins and sides of other segments with distinct, though not particularly long hairs, male hypopygium very large, exerted, glossy black at base and extreme tips of lamellæ, forceps-like lamellæ nearly symmetrical, anal protuberance small, brown, some long hairs on extremity of hypopygium; legs piceous, very strong, the fore tarsi in both sexes distinctly thickened, hardly longer than tibiæ, fore tibial bristle weak or absent, mid tibial bristles present on basal third, hind tibiæ without any bristle on basal half; wings grayish, costa to beyond middle in both sexes, increasing much in thickness from end of first vein to tip, first division as long as other two in both sexes, third two-thirds as long as second, fringe very short and fine, third vein very thick and black, as thick on its whole length as costa at thickest part, fourth vein leaving third at one-third beyond fork with a distinct bend, more pronounced in female, and ending slightly recurved at as much in front of wing tip as fifth does behind it, seventh vein reaching two-thirds of the length to wing margin; halteres black.

Length, 2½-4 mm.

I have examined specimens in C. W. Johnson's collection from Moscow, Idaho; Olympia and Seattle, Washington; and Montreal, Quebec. A very distinct species, and easily known by the very thick third vein. I have redescribed this species, as so many important characters were not given in Loew's original description and Brues's paper on the group.

¹Journ. N. Y. Ent. Soc., vol. 16, 1908, p. 200.

TRUPHEONEURA VARIPES, new species.

Male.—Black, shining; frons shining, less than half as long as broad, frontal bristles of moderate length, antennæ above normal size, black-brown, pubescent, arista longer than breadth of frons, pubescent, palpi large, leaf-like, weakly bristled, black-brown; thorax shining, scutellum with four equal bristles; abdomen dull black, first, second, and sixth segments subequal, elongated, third, fourth, and fifth short, subequal, barely half as long as the others, hypopygium glossy black, very large, as long as sixth segment, terminal lamellæ papilla like, anal protuberance yellowish, hairy, and of moderate size; legs yellow, only the femora of anterior pair at base and the posterior pair on basal two-thirds brownish, fore tarsi slightly thickened, fore tibial bristle at just above middle, mid tibiæ with two setulæ at about basal third and one very weak one at near apex, hind tibial bristle large, and at just above middle; wings grayish, costa to distinctly beyond middle, very thick from beyond end of first vein, first division about one and one-third times as long as other two together, third nearly as long as second, fringe very short and close, third vein brown, not so thick as costa at tip, a distinct bristle at base, fourth vein leaving much as in *pachyneura* but ending distinctly nearer to tip of wing than fifth, seventh vein very indistinct and not reaching more than two-thirds to margin of wing; halteres black.

Length, 3 mm.

One male, Lawrence, Kansas (C. W. Johnson). Type in collection of C. W. Johnson.

TRUPHEONEURA VITRINERVIS, new species.

Plate 41, fig. 2.

Male.—Black, shining; frons shining, about one-third broader than high, bristles rather weak, antennæ of moderate size, brownish black, arista slightly pubescent, palpi bright yellow, rather small, weakly bristled; thorax distinctly shining, scutellum with four bristles, the anterior pair hardly more than coarse hairs; abdomen rather dull, second, and sixth segments elongated, sixth distinctly glossy, hypopygium large, very glossy, black above, but the complicated ventral processes yellowish; legs yellowish-brown, hind pair darker, fore tibiæ with a small antero-dorsal spine at basal third, the usual pair at basal third of mid tibiæ, and one at basal third of antero-dorsal surface on hind tibiæ; wings vitreous, veins very indistinct, except the costal from its junction with the first vein, the apical half of first, and the third vein, which are pale brown, costa to beyond middle, fringe very short and fine, first division distinctly longer than other two together, third section nearly equal to second, fork of third vein

acute and rather long, third vein with very short bristles from base to fork, first vein very thick on apical half, fourth vein leaving third at nearly a right angle, then turning abruptly and running nearly straight to wing tip, sixth vein very distinctly bent toward anal angle of wing at near base, seventh vein indistinct and not reaching margin of wing; halteres black-brown.

Length, $2\frac{1}{2}$ mm.

One specimen, White Mountains, New Hampshire (Morrison), from collection of C. V. Riley.

Type.—Cat. No. 14823, U.S.N.M.

Near to *vitrea* Wood and *sublugubris* Wood, especially the latter, but quite easily separable. Labeled *Phora aptina*, Schiner (Coquillett).

TRUPHEONEURA FRATERCULA Brues.

Male.—Black; frons short, one and three-fourth times as broad as long, with the usual bristles, antennæ black, of rather large size and strongly pubescent, arista pubescent and much thickened at base, palpi small, black, bristling normal; thorax subshining, two scutellar bristles; abdomen dull black, grayish pollinose, hypopygium of rounded form, black and slightly pollinose; legs long and rather slender, a little lighter on the anterior coxæ and knees, mid and fore tibial bristles as usual, hind tibial bristle at the basal third; wings slightly infuscated, costa to wing middle, first division equal to the other two together, fringe very short and close, fourth vein leaving at fork of third, and ending just before tip, not recurved at tip, seventh vein absent, halteres brown or black.

Length, 2 mm.

Described from two males from Jackson's Lake, Wyoming.¹ The type specimen in the collection is in very poor condition as it has lost both wings. There are two specimens from Plummers Island, Maryland, "from wasp's nest," that may be females of this species, but they are in rather poor condition. They are certainly not *microcephala* Loew, as labeled.

TRUPHEONEURA SUSPECTA, new species.

Male.—Black, shining; frons shining, nearly twice as broad as long, first row of bristles nearly straight, second convex, antennæ velvety black, third joint distinctly pubescent, large and rather pointed, arista bare, palpi black, large and projecting, weakly bristled, proboscis brown, smaller than palpi; thorax shining, scutellum with two strong bristles; abdomen broad, dull black in color, first and second segments subequal, last three segments with a few scattered hairs, hypopygium very large, glossy black at base, elsewhere gray pollinose, terminal forceps-like lamellæ asymmetrical; legs piceous, fore tibiæ,

¹ Trans. Amer. Ent. Soc., vol. 29, 1903, p. 341.

tips of fore coxæ, and trochanters paler; fore and mid tibiæ with the usual setulæ, hind tibiæ with a distinct, rather long bristle at basal third; wings grayish, costa to slightly beyond middle, first division equal to other two together, third barely half as long as second, fringe not longer than diameter of costal vein, fourth vein very distinctly bent at base, originating at beyond fork of third and ending nearly straight at wing tip; seventh vein indistinct and not reaching the wing margin; halteres black.

Length, $2\frac{1}{2}$ mm.

Locality.—North Dakota, July 8, 1904 (E. S. G. Titus).

Type.—Cat. No. 14824 U.S.N.M.

I felt inclined to consider this as *pachyneura* Loew, before I saw examples of that species, but it is quite distinct from it. Especially I may mention the presence of only two scutellar bristles and the fact that the third thick vein does not show any remarkable thickening, though it is thicker than the costa.

TRUPHEONEURA MICROCEPHALA Loew.

Male and female.—Shining black; frons shining, slightly pollinose, nearly twice as broad as long, first row of bristles convex, antennæ black-brown, not above normal size in either sex, arista very long, three times as long as frons, distinctly pubescent, palpi in male very large and broad, nearly as long as height of head, and almost without bristles, in female above the normal size but moderately bristled, black in both sexes, proboscis in neither sex protruding; thorax shining, humeri brownish, scutellum with only two bristles in both sexes; abdomen in male rather long and narrow, second segment much longer than first; last three segments and sides of basal segments with scattered, rather long hairs, hypopygium large, protruding, gray pollinose, terminal forceps-like lamellæ asymmetrical, numerous conspicuous hairs on terminal lamellæ and on ventral process, female abdomen with segments subequal and all segments with scattered, rather long hairs; legs piceous, tibiæ paler, the usual bristles on all tibiæ; wings grayish to fuscous, costa to very distinctly beyond middle, thickened on apical half beyond apex of first vein, first division barely as long as other two together, second and third subequal in length, fourth vein leaving at midway from fork of third vein to tip with a very distinct bend, and ending nearly straight at close to wing tip, seventh vein very indistinct, rudimentary; halteres yellow.

Length, 2–4 mm.

There are some differences between the above description and that of Loew as copied by Brues, but I believe they are more the result of inaccuracy of observation by Loew than that the specimens before me are not the same as his which were from the District of Columbia

also. There is a good series before me from very near the District of Columbia (Plummers Island, Maryland, Jan. 7, 1907, W. L. McAtee) and one female from Ithaca, New York (Johannsen). There are also two females from the former locality taken by A. K. Fisher, January 1, 1907, and March 29, 1908.

TRUPHEONEURA SUBFUSCA, new species.

Male.—Very similar to the above species, but not so distinctly shining, the frons is entirely dull, distinctly produced anteriorly in center, the outer bristle in first row is very far—one-fifth of breadth of frons—from eye-margin, and very near to anterior margin of frons, both first and second rows very slightly convex, antennæ velvety black brown, large, rounded, arista at least three times as long as frons, distinctly pubescent, palpi large, but not blunt at tip as in *microcephala*, and with normal bristling, thorax dull black, pleuræ brownish, scutellum with two bristles, abdomen long and narrow, cylindrical, the second segment elongated, third, fourth, and fifth, subequal, sixth elongated, second segment with numerous lateral hairs the others with scattered hairs especially on sides, sixth with numerous rather strong hairs especially on posterior lateral angles, hypopygium large and strongly haired, the lamellæ asymmetrical, the left side being the longest and broadest, anal protuberance small and inconspicuous, legs paler than in *microcephala*, the bristles weak, that on the fore tibiæ near the middle, the pair on mid tibiæ at basal third unequal in size, the one on the postero-dorsal surface very small, hind tibial bristle at near middle, weak; wings grayish, costa to distinctly beyond middle, the costa beyond first vein is much less swollen than in the above species and the third costal division is distinctly shorter than the second; halteres yellow.

Length, 3 mm.

One male, labeled *Phora microcephala* Loew?; from Cambridge, Massachusetts, April 4, 1870.

Type.—Cat. No. 14825, U.S.N.M.

Genus CHÆTONEUROPHORA, new name.

I erected this genus under the name *Chætoneura*¹ in 1909, but afterwards discovered that it was preoccupied and now propose to alter it as above.

TABLE OF SPECIES.

1. Halteres black.....	2.
Halteres pale.....	3.
2. Abdomen (at least in female) with from middle of third segment to apex red.	
	<i>variabilis</i> , p. 423.
Abdomen in both sexes black.....	<i>curvinervis</i> , p. 423.

¹ Jour. Nat. Hist. Soc. Glasgow, vol. 1, 1909, p. 26.

3. Costa distinctly thickened; hind tibia with two spines at basal third, one at apical third, and one just before apex *thoracica*, p. 423.
Costa not particularly thickened..... 4.
4. Thorax reddish or yellowish; hind tibia with one spine at basal third, one at near middle, and one at near apex *olympiæ*, p. 424.
Thorax black..... 5.
5. Hind tibia with only two spines..... *fennica*, p. 424.
Hind tibia with at least four spines..... 6.
6. Hind tibia with two spines at apical third, and two at apex *luggeri*, p. 424.
Hind tibia with at least five spines..... 7.
7. Hind tibia with five to six spines, fore tibia with one spine *caliginosa*, p. 424.
Hind tibia with seven spines, fore tibia with two spines *spinipes*, p. 424.

In the collection there are specimens of *thoracica* Meigen, *luggeri* Aldrich, *olympiæ* Brues (type) and *spinipes* Aldrich. The other species are unrepresented and with the exception of *curvinervis* Becker, which Brues says occurs in Washington, and *variabilis* Brues, they are not reported from America.

CHÆTONEUROPHORA VARIABILIS Brues.

This species is only recorded for the State of Washington and is very similar to *curvinervis* Becker, from which it differs principally in having a pair of spines at the basal third and one spine at the apex of hind tibia, the abdomen is red from the middle of the third abdominal segment to the apex, the antennæ are brown, or fulvous, the second abdominal segment is lengthened and in the type the apical half of abdomen is strongly hairy.

It is quite probable that the male of this species has the abdomen black and if so, it will be separable from *curvinervis* by the arrangement of the bristles on the hind tibia and the paler legs.

CHÆTONEUROPHORA CURVINERVIS Becker.

This species is quite the commonest of this genus in Europe, occurring on carrion in spring and early summer. It received its specific name from the very acutely bent fourth vein. It is, at least in Europe, an almost entirely black insect, the legs being but little paler. The arrangement of hind tibial bristles is as follows: One at basal third, and one at near apex of antero-dorsal surface and one on middle of dorsal surface. I have seen a specimen from New Hampshire (Johnson) that agrees in most particulars with this species, but the spines on hind tibiæ are not situated as in normal *curvinervis*.

CHÆTONEUROPHORA THORACICA Meigen.

Plate 35, fig. 8.

This is a large species with the thorax generally reddish, the postalar calli are always so, the costa especially in the female is distinctly thickened, the wings of female are generally distinctly clouded at apex, the hind tibia bears one spine at the apical third, one at the

middle, and one at near the apex of the antero-dorsal surface, and one at near the basal third of the postero-dorsal surface. Sometimes there is an adventitious spine occurs in the species of this genus and alters the position of the usual spines but it generally occurs on one side only, and if other characters are taken into consideration no trouble need be anticipated in correctly placing the species.

Franconia, New Hampshire, Mrs. Slosson, one female.

CHÆTONEUROPHORA OLYMPIÆ Brues.

This species seems to be very distinct from all others in the genus by its very pale color; the thorax is reddish yellow; the abdomen is black at the base, and the apical half is orange; the legs are all yellow, and the hind tibia has one spine at apical third of dorsal surface, one at near the middle of antero-dorsal surface, and another on same surface at near apex. The species is quite as large as *thoracica* Meigen, being 5 mm.

Olympia, Washington. I have also seen it from Ithaca, New York. (O. A. Johannsen.)

CHÆTONEUROPHORA FENNICA Becker.

This is a comparatively rare European species that is not yet recorded from America. It is rather smaller and more robust than the other species in the genus and may be known by the presence of only two hind tibial bristles, one dorsal, at the basal third and a second, subapical one on the antero-dorsal surface.

CHÆTONEUROPHORA LUGGERI Aldrich.

This species resembles *fennica* Becker, but is separable by the number of bristles on the hind tibia. Those are situated, one on the dorsal and one on the antero-dorsal surface and one on nearly the dorsal and one on the antero-dorsal surfaces, transversely, at near apex.

Localities.—Plummers Island, Maryland; Franconia, New Hampshire (Mrs. Slosson); Lawrence and Baldwin, Kansas (Bridwell); St. Paul, Minnesota; New Bedford, Massachusetts (Hough), and one without locality, collection of Coquillett.

CHÆTONEUROPHORA CALIGINOSA Meigen.

This is not so far recorded from America. It may be distinguished from any of its congeners by the number and location of the hind tibial spines. Occurs along with *curvinervis* Becker, about carrion.

CHÆTONEUROPHORA SPINIPES Coquillett.

Resembles in most particulars the last species but whereas *caliginosa* has only three serial spines on the postero-dorsal surface, and two on antero-dorsal surface, one at near middle and one at near the

apex, *spinipes* has four spines on almost the dorsal surface, the upper being at near the basal third, and three on the antero-dorsal surface, one below the basal third, one below the middle, and one at near the apex. There are also two serial spines on the fore tibia in *spinipes* instead of only one as in *caliginosa*.

Type.—Hartford, Connecticut. Four specimens from Moscow, Idaho, and one specimen from Columbus, Ohio.

Genus PARASPINIPHORA, new name.

The name, *Spiniphora*, I used¹ for this genus being preoccupied I propose the above alteration as substitute.

TABLE OF SPECIES.

- | | |
|---|--------------------------------|
| 1. Thorax red or yellow..... | 10. |
| Thorax black..... | 2. |
| 2. Halteres black, hind tibia with three spines, one at basal third and one at apical third on antero-dorsal surface, and one at middle on antero-ventral surface, as well as 7-8 small setulæ on postero-dorsal surface..... | <i>strobli</i> , p. 425. |
| Halteres yellow..... | 3. |
| 3. Wings with a dark spot at base of fourth vein, mid tibia with two ventral spines..... | <i>maculata</i> , p. 426. |
| Wings unspotted..... | 4. |
| 4. Scutellum with pale hind margin, a series of four spines on postero-dorsal surface, and one at basal third and one at near apex on antero-dorsal surface on hind tibia..... | <i>scutellata</i> , p. 426. |
| Scutellum unicolorous..... | 5. |
| 5. Mid tibia with two or three strong spines in addition to the usual three, hind tibia with antero-ventral spines..... | <i>spiniosissima</i> , p. 426. |
| Mid tibia with only the usual three spines..... | 6. |
| 6. Hind tibia with an antero-ventral spine at middle..... | 7. |
| Hind tibia without antero-ventral spine..... | 9. |
| 7. Thorax black or reddish, never yellow, with two pairs of dorso-central bristles..... | <i>bergenstammi</i> , p. 426. |
| Thorax with only one pair of dorso-central bristles..... | 8. |
| 8. Hind tibia with only three spines..... | <i>trispinosa</i> , p. 427. |
| Hind tibia with eight spines..... | <i>spinulosa</i> , p. 429. |
| 9. Hind tibia with two spines and three end spurs..... | <i>bohemanni</i> , p. 427. |
| Hind tibia with four spines and two end spurs..... | <i>excisa</i> , p. 427. |
| 10. Hind tibia with about 16 transverse rows of short bristles on dorsal surface..... | <i>multiseriata</i> , p. 428. |
| Hind tibia without such short bristles..... | 11. |
| 11. Hind tibia without ventral spine..... | <i>erythronota</i> , p. 428. |
| Hind tibia with ventral spine..... | 12. |
| 12. Hind tibia of male with three spines, of female with seven or eight..... | <i>dorsalis</i> , p. 429. |
| Hind tibia in both sexes with 5 spines..... | <i>slossonæ</i> , p. 428. |

PARASPINIPHORA STROBLI Becker.

A species as yet unrecorded from America; the characters given in table ought to distinguish it. It is the only species in the genus with dark halteres.

¹ Jour. Nat. Hist. Soc. Glasgow, 1909, vol. 1, 1909, p. 27.

PARASPINIPHORA MACULATA Meigen.

Not so far as I know recorded for America. It is easily distinguished by the characters given in the table. Bred from snails.

PARASPINIPHORA SCUTELLATA Brues.

Plate 35, fig. 7.

The type is in the Museum collection from Grenada, West Indies. An easily distinguished species.

PARASPINIPHORA SPINOSISSIMA Strobl.

Plate 35, fig. 4.

I found a specimen of this species in the collection along with *C. spinipes* Coquillett. In addition to the character mentioned in the table this species has two spines on the postero-dorsal surface of fore tibia, one at the basal and one at the apical third, and 4-5 spines on each of the antero- and postero-dorsal surfaces of hind tibia and 4-5 very long apical spines on the latter. It is a deep black species, only the halteres, leg joints, and fore tarsi and tibiae pale. The bristles are very strong; the wing has the costa to about the middle and the first section from the humeral vein to the tip of first vein more than one and one-half times as long as the remainder.

Locality.—Plummers Island, Maryland (W. L. McAtee), 23-4-08.

PARASPINIPHORA BERGENSTAMMI Mik.

Plate 35, fig. 6.

There is evidently considerable confusion regarding this species. Doctor Wood recorded a new species with two dorso-central thoracic bristles under the name of *domestica*. He had taken quite a number of females of typical *bergenstammi* with the usual two pairs of bristles, but could not get the male. On the other hand he had taken 17 males of his *domestica*, but failed to find the female of it. Under the impression that these bristles were an unfailing guide he described the male as a new species. Some time afterwards, in identifying the Phoridae sent me from Cambridge University Museum (England), I found a male and female taken in copulation which represented both species, and on the strength of all the circumstances I sunk *domestica* Wood as a synonym of *bergenstammi* Mik. In examining the material in the United States National Museum collection I found a species standing as *comstocki*, Aldrich, that is in my opinion typical *bergenstammi*, and as I can not see any particular in which it varies from Mik's species have sunk this name as a synonym of that species. The position of the spines on the hind tibia in the type specimen of *comstocki* Aldrich agree with Becker's description, which is, "one

spine on the postero-dorsal and one on the antero-ventral surface at the middle, and one at the basal and one at the apical third on the antero-dorsal surface as well as two long end spurs."

Besides the type of *comstocki* from Ithaca, New York, there are two specimens "from clean bones of turtle," Plummers Island Maryland (Barber).

PARASPINIPHORA TRISPINOSA, new species.

Plate 35, fig. 2.

This species closely resembles the above but it is smaller, darker, and distinctly shining; has only one pair of dorso-central thoracic bristles; has the front pair of scutellar bristles but little weaker than the posterior; the second and sixth abdominal segments prolonged, the former with several rather short lateral bristles and the latter with a fringe of long, apical bristles; the fore and mid tibiæ are bristled as in *bergenstammii*, but the hind tibia has only one spine at the basal third and one at near the apex on the antero-dorsal surface, one spine at the middle on the antero-ventral surface, and two apical spurs; the costa reaches short of the middle of the wing (in *bergenstammii* to fully the middle) and the fork of the third vein is more abrupt than in *bergenstammii*, causing the third section of the costa to be nearly equal to the second instead of only half the length as in Becker's figure and Aldrich's type of *comstocki*; the costal fringe is also longer than in *bergenstammii* being twice the length of the diameter of the costa.

There is only one male in the collection from Kaslo, British Columbia, June 22, 1903 (R. P. Currie).

Type.—Cat. No. 14826, U.S.N.M.

PARASPINIPHORA EXCISA Becker.

This species has not been taken in America so far as I am aware. Besides the characters used in the table, it may be known by having the first section of the costa hardly longer than the second, the costa, which is short fringed, reaches to beyond the middle of the wing.

PARASPINIPHORA BOHEMANNI Becker.

This species, which was described from the female only, I have never seen, but the position of the bristles on the hind tibia ought to distinguish it. The costa does not reach the middle of the wing, and the first section is about twice as long as the remaining part. Not recorded for America.

PARASPINIPHORA MULTISERIATA Aldrich.

Plate 35, fig. 5.

This very distinct species is represented in the collection by three specimens—one (the type) from Lawrence, Kansas, one from Roxborough, Pennsylvania, and one from Atherton, Missouri. The peculiar transverse rows of short bristles on the hind tibia, which also occur on the basal half of the mid tibia, separates this species from its congeners; besides this feature it has only two scutellar bristles; the hind tibia has one spine at the basal third and one at apex on antero-dorsal surface; and the hind metatarsi have 4–5 setulæ longer than the fringe of bristles similar to those that occur in *erythronota* Strobl. This last feature not in original description. I have seen a male of this species from Fremont, Nebraska (O. A. Johannsen), July 27, 1909.

PARASPINIPHORA ERYTHRONOTA Strobl.

This is a species that in all probability will occur in America. The hind tibia has one spine at the basal third and one at near the apex on the antero-dorsal surface, and three end spurs on the posterior surface. It differs from *multiseriata* in having four scutellar bristles, and in being darker, especially in the color of the abdomen. The neuration is very similar to that of *multiseriata*, but there is no peculiar bristling of the hind and mid tibiæ as in that species.

PARASPINIPHORA SLOSSONÆ, new species.

Plate 35, fig. 1.

Male and Female.—Yellow, shining; frons yellow, the ocellar triangle brown, bristles strong, the center pair of bristles in first row low down close to post-antennals, the outer pair almost in transverse line with the center pair in second row, which are very much lower on frons than the outer pair in same row, antennæ of moderate size, clear yellow, arista dark, pubescent, palpi small, yellow, weakly bristled; thorax with one, or two, pairs of dorso-central bristles, numerous short hairs, and sometimes three indistinct reddish stripes, scutellum with four equal bristles; abdomen with the anterior margins of segments 2–5 more or less black, sometimes broadly so, second segment in male distended laterally and very bristly in both sexes, sixth segment with long preapical bristles, hypopygium shining, yellow, anal protuberance short, blunt, yellow haired, fore and mid tibiæ with the usual spines, hind tibiæ with one spine at basal third, and one at near tip on antero-ventral surface, one at just above middle on nearly the dorsal surface, one at above middle on nearly the ventral surface, and one at near apex on anterior surface, as well as two strong and one weak apical spurs; costa to middle of wing, first division twice as long as

second, second three times as long as third, fringe short, fourth vein leaving at slightly before fork of third with a distinct bend and running nearly parallel with fifth to near wing tip; halteres yellow.

Length, 3-3½ mm.

Localities.—Type, Mount Washington, New Hampshire (Mrs. A. T. Slosson); Ithaca, New York (O. A. Johannsen).

Type.—Cat. No. 14827, U.S.N.M.

Very similar in some respects to *bergenstammi*, but a bright yellow colored species.

PARASPINIPHORA DORSALIS Becker.

This species has not yet been recorded from America. It resembles *slossonæ*, but has two pairs of dorso-central thoracic bristles; the hypopygium is "mattgeld" not shining; the bristle-like hairs on the second and sixth segments of the abdomen are more noticeable in this species (those are present in nearly all cases where these segments are elongated); the hind tibia has two spines on the antero-dorsal surface one at the basal third and one at near apex and one on the antero-ventral surface at middle, and two end spurs on the posterior side. The neuration is much as in *slossonæ*. The female has also four to five additional spines on hind tibia. In *slossonæ* the female has hind tibia as in male.

PARASPINIPHORA SPINULOSA, new species.

Plate 35, fig. 3.

Male.—Black; frons dull, bristles strong, antennæ brown, large, half as large as the eye, somewhat pointed, arista pubescent, palpi small, brown, weakly bristled, scutellum with four equally strong bristles; abdomen with the second segment slightly elongated, and with a numerous group of hair-like bristles on its lateral margins, sixth segment elongated and with strong hind-marginal hairs, the other segments subequal and not conspicuously haired, hypopygium moderately large, ventrally yellowish, anal protuberance small; legs black, only the knee joints paler, fore and mid tibia with the usual bristles, hind tibia with one ventral spine beyond the middle, four serial spines on antero-dorsal surface and three on postero-ventral surface, the upper being at about basal third; wings smoky, costa to middle of wing, first division one and one-half times as long as other two together, fork of third vein acute, fringe rather long, fourth vein leaving third at beyond fork with a curve and running nearly straight to near the wing tip, seventh vein complete; halteres yellow.

Length, 3 mm.

Type.—Cat. No. 14828, U.S.N.M.

One male, Ithaca, New York, April, 1900 (O. A. Johannsen).

Nearly related to *spinosissima* Strobl, but the presence of the ventral hind tibial spine and the absence of the additional mid tibial spines will separate it at once. Its black color and spinulose hind tibia will separate it from any described species.

Genus DOHRNIPHORA Dahl.

In my paper on the subgenera in *Phora*¹ I left the species I now include in this subgenus in *Phora* Latreille, which is not tenable, but at that time I did not consider the *concinna* group as congeneric with *dohrni* Dahl. Kertész includes *incisuralis*² Loew, *venusta* Coquillett, and *divaricata* Aldrich in *Dohrniphora*, which was created for the reception of *dohrni* by Dahl³ in 1898. It is evident that those species I now include in this subgenus are very closely allied to *dohrni*, and I am therefore placing them all in *Dohrniphora*.

TABLE OF SPECIES.

1. Species with distinct large spines on hind tibiæ in addition to the series of small hair-like setulæ.....2.
- Species without any large spines on hind tibiæ, at most some short setulæ on antero-dorsal or antero-ventral surface.....3.
2. Halteres black, thin veins complete.....*abdominalis*, p. 430.
- Halteres yellow, thin veins not reaching the wing margin.....*abbreviata*, p. 431.
3. Entirely black species, at most the knee joints or fore tibiæ brownish yellow....4.
- Species mostly yellow, at most the thorax brownish⁴.....6.
4. Hind tibiæ with short setulæ on one or both anterior surfaces.....5.
- No setulæ on either anterior surface of hind tibiæ.....*knabi*, p. 431.
5. Large species 2½-3½ mm. third antennal joint large and pear-shaped in male; 4-5 setulæ on antero-dorsal surface in addition to the 4-5 on antero-ventral surface.
crassicornis, p. 431.
- Smaller species 1½-2½ mm. third antennal joint in male normal; only the antero-ventral hind tibial setulæ present.....*concinna*, p. 431.
6. Larger species 2-3 mm; hind tibiæ with 4-5 serial setulæ on antero-dorsal surface.
incisuralis, p. 432.
- Smaller species 1½-2½ mm; hind tibiæ with setulæ on antero-dorsal surface
venusta, p. 432.

DOHRNIPHORA ABDOMINALIS Fallen.

A large species, the female being very conspicuous with its red abdomen. The male is entirely black, though it is said to have the abdomen sometimes partly black in Europe (Schiner). The complete wing veins, black halteres, and presence of only two hind tibial spines distinguishes it from *abbreviata* von Roser. It is very probable that this species occurs in America though so far not recorded.

¹Journ. Nat. Hist. Soc., Glasgow, 1909.

²Cat. Dipt., vol. 7, 1910, p. 398.

³Sitzb. Ges. Nature Freunde, Berlin.

⁴*D. venusta* and the male of *incisuralis* are sometimes very dark, but the legs and lower parts of pleuræ as well as the hind margins of abdominal segments are yellow.

DOHRNIPHORA ABBREVIATA von Roser.

A very scarce species, easily recognized by the abbreviated wing veins. The hind tibiæ have three serial spines, the lower one being just below the middle. Not recorded from America.

DOHRNIPHORA CRASSICORNIS Meigen.

Very similar to *concinna* Meigen, but easily known by the characters mentioned in table ¹ from that species. Recorded from America.

DOHRNIPHORA CONCINNA Meigen.

With *venusta* Coquillett the smallest species of the genus and generally distributed over North America and Europe. Black, more or less shining; halteres pale, or dark, irrespective of sex, very variable in this respect; hind tibiæ with only 4-5 antero-ventral setulæ. This is the species Aldrich described as *P. cimbicis*, and which stands also in the American list as *nitidifrons* Brues. I have examined the types of both those species and can not find any difference from European examples of *concinna*.

Localities.—Brookings, South Dakota; San Mateo County, California (Baker); New Bedford, Massachusetts (Hough); Ithaca, New York; Beverly, Massachusetts.

DOHRNIPHORA KNABI, new species.

Black, shining; frons glossy black, with numerous weak hairs in addition to the usual bristles, post-antennal bristles strong, first row of bristles slightly convex, second row distinctly concave, the outer pair being placed much lower on frons than the center pair, no distinct ocellar tubercule, vertex slightly raised, antennæ large, nearly round, brownish in color, arista nearly bare, palpi brown, large, protruding, moderately bristled; thorax shining black, covered with short hairs, four scutellar bristles, anterior pair rather weak; abdomen dull black, second, and sixth segments elongated, abdomen nearly devoid of hairs, hypopygium large, ventral processes knob-like, brownish, anal protuberance dusky yellow, long and broad, with numerous short hairs; legs brown, the anterior pair yellowish, fore tibiæ with serial row of 5 setulæ on postero-dorsal surface, the usual two spines on mid tibiæ at very near the base, apical one very weak, hind tibiæ without distinct setulæ, except one at tip on dorsal surface and the usual end spurs; wings grayish, costa to very slightly beyond middle, thickest on basal two thirds, first division about five times as long as other two together, third about one-third as long as second, fringe barely longer than diameter of costal vein, angle of fork of third vein very acute, fourth vein regularly arched; halteres black.

¹ Brues, Gen. Ins., 1906.

Length, $2\frac{1}{2}$ mm.

Type.—Cat. No. 14829, U.S.N.M.

One male Cabima, Panama, May 18, 1911 (A. Busck).

I have named this species in honor of Mr. F. Knab, to whom I am indebted for many kindnesses and assistance in my work here, and who turned over this specimen to me for determination.

DOHRNIPHORA INCISURALIS Loew.

A very distinct, large species, represented in the collection by two specimens. Its yellow color separates it from any of the foregoing, and the hind tibial setulæ from *venusta* Coquillett.

Localities.—Tifton, Georgia, Oct. 17, 1896; and Great Falls, Virginia, June 25, 1909. Two specimens occurred at Plummers Island, Maryland, August, 1912 (H. S. Barber), and one male September 1, 1912, Hyattsville, Maryland (Malloch and Knab).

DOHRNIPHORA VENUSTA Coquillett.

This species was described by Coquillett,¹ and the rather defective description evidently misled Aldrich into describing it as new under the name *divaricata*,² or possibly he had not then seen the description. Later Brues incorporated the species in his Monograph,³ without having seen the specimen, and simply copied Coquillett's description. Fortunately the type is still in existence and I have no hesitation in deciding that it is identical with *divaricata* Aldrich. Had the type not existed there would, I am afraid, have been another unrecognizable species, added to the already large number in this family. Its yellow color separates it from the first five species, and the small size of the anterior pair of scutellar bristles, and absence of any setulæ on the anterior surface of the hind tibia separate it from any of its congeners except *knabi*.

From a large number of localities.

Type.—Boston, Massachusetts (a male and not female as described by Coquillett); Washington, District of Columbia; bred from cow peas (Chittenden); St. Vincent, West Indies (the types of Aldrich's *divaricata*); Florida (Mrs. Slosson); Brownsville, Texas (Barber); Orlando, Florida (Chittenden, Russell collector); Grenada and Trinidad, West Indies (A. Busck); and several without locality labels.

DOHRNIPHORA VENUSTA, var. BUSCKI, new variety.

This variety has the thorax and abdomen black brown, the face brown, the arista more distinctly pubescent than type and the halteres brown. There is not enough material to decide whether it

¹ Can. Ent., vol. 27, 1895, p. 107.

² Trans. Amer. Ent. Soc., vol. 29.

³ Trans. Ent. Soc. London, pt. 3, 1896, p. 437.

is really a distinct species. Two specimens, male and female Cabima, Panama, May 11 (Busck).

Type.—Cat. No. 14830, U.S.N.M.

Genus HYPOCERA Lioy.

TABLE OF SPECIES.

1. First vein remarkably swollen at tip and prolonged to tip of third vein; seventh vein obsolete; two scutellar bristles.....*difformis*, p. 433.
First vein not remarkably swollen ending clear of third..... 2.
2. Vertex semicircularly elevated and sharp above..... 3.
Vertex not so raised..... 4.
3. Antennæ and palpi black.....*coronata*, p. 434.
Antennæ and palpi yellow.....*johnsoni*, p. 434.
4. Ocellar triangle raised, hump-like..... 5.
Ocellar triangle not raised..... 7.
5. Third joint of antennæ yellow.....*bernuthi*, p. 434.
Third joint of antennæ black..... 6.
6. Fore tibia with a serial row of two to four spines.....*incrassata*, p. 434.
Fore tibia with one spine.....*carinifrons*, p. 434.
7. Third vein with four to five strong bristles at base, subapical spine on mid tibia at apical third.....*mordellaria*, p. 434.
Third vein with only one strong bristle at base, or the bristles hair-like, or the whole vein short haired, the subapical spine on mid tibia at near apex.... 8.
8. Hind tibia with one or more spines, other than those at apex..... 9.
Hind tibia without spines, except at apex..... 13.
9. Costa very thick, wings long and narrow, thin veins straight except at extreme apex.....*convergens*, p. 435.
Costa not remarkably thick, fourth vein curved at base..... 10.
10. Small species, about 1½ mm. or less 11.
Larger species, at least 2.5 mm..... 12.
11. Entirely black species, generally the front tibia only piceous, wings limpid.
vitripennis, p. 434.
Thorax and abdomen more or less yellowish, legs yellow; wings hyaline.
grenadensis, p. 434.
12. Antennæ and palpi black.....*flavimana*, p. 434.
Antennæ and palpi yellowish.....*clavata*, p. 435.
13. Small black species, 1½–2 mm.....*citreifformis*, p. 435.
Large species, 3½ mm., hind tibia flattened dorsally and with numerous transverse rows of short black bristles..... 14.
14. Yellow species.....*rectangulata*, p. 512.
Deep black species.....*ehrmanni*, p. 435.

The somewhat aberrant species *agilis* Meigen has been placed in the genus by Brues,¹ but, so far as I can see, it can hardly be included, as the fork of the third vein is sometimes distinct. It does not occur in America.

HYPOCERA DIFFORMIS Brues.

This is described from New Guinea. Type in the National Museum of Hungary.

¹ Gen. Ins., p. 6.

HYPOCERA CORONATA Becker.

This is very similar to *johnsoni* Brues.

HYPOCERA JOHNSONI¹ Brues.

The type of this species is in the United States National Museum collection. Varies from *coronata* only in color of antennæ, and palpi. It may be only a variety of that species, as I can not find that it differs in any other respect. I found a female which I believe to be of this species in the collection from Granada, Nicaragua (Baker). It differs only in having the antennæ of normal size and the costa longer.

Locality.—Riverton, New Jersey.

I have also seen specimens I believe are this species from Japan.

HYPOCERA BERNUTHI Becker, HYPOCERA INCRASSATA Meigen, HYPOCERA CARINIFRONS Meigen.

Are not recorded for America that I know of, though it is more than probable that they occur.

HYPOCERA MORDELLARIA Fallen.

Brues gives this species² as recorded by Coquillett. He says he has seen no specimens from America. The specimens that stood as *mordellaria* Fallen are not that species; so it may, unless since recorded, be deleted from the list of American species.

HYPOCERA VITRIPENNIS Meigen.

A small species found about nests of *Bombus* in Europe.

HYPOCERA GRENADENSIS Brues.

Type in United States National Museum collection. Grenada, West Indies; except the above species the smallest in the group.

HYPOCERA FLAVIMANA Meigen, (=FEMORATA Meigen).

This species is well represented in the collection, and I can not satisfactorily separate it from the next species by the characters given by Brues. In the series before me are 14 specimens, and two of them may be considered as answering to the original description of *clavata* Loew more or less satisfactorily. They have the antennæ and palpi pale. Other eight have the palpi more or less yellowish and seem to come between the other two and the four typical *flavimana* in the lot. It is not a satisfactory character upon which to base a specific distinction, and I am inclined to consider those as all one species. However, in view of the fact that I have not seen the type-specimen I can not definitely state that Loew's species and that described by Meigen are the same.

¹ *H. inseparata* Brues I consider as identical with the specimen from Nicaragua in collection.

² Trans. Amer. Ent. Soc., vol. 29, p. 356.

Localities.—Mount Washington, New Hampshire (Mrs. Slosson); White Mountains (Morrison); Washington, District of Columbia (W. L. McAtee); Beverly, Massachusetts (Burgess); Mount Katahdin, Maine, August 19, 1902 (no collector's name).

HYPOCERA CLAVATA, Loew.

There is standing in the collection two specimens from Beverly, Massachusetts (Burgess), one of which bears the label *P. mordellaria* Fallen (Coquillett). These specimens may be the true *clavata* Loew. The palpi are much broader and clear yellow without any distinct bristles, but the antennæ are not yellow, being brown. I can not reconcile these with the rather unsatisfactory descriptions I have of *clavata*, but consider them as more probably representing that described by Loew. It certainly is not *flavimana* Meigen, and if not identical with Loew's species is an undescribed one.

HYPOCERA CITREIFORMIS Becker.

This is not recorded from America.

HYPOCERA RECTANGULATA, new species.

See description among exotic species. (p. 512).

HYPOCERA EHRMANNI Brues.

A very distinct species represented in the collection by the type-specimen from Pittsburgh, Pennsylvania, and three males from Plummers Island, Maryland. The species was described from a female and Brues had some doubt as to its distinction from *johnsoni*. They are, however, quite distinct. I have seen a male of this species from Fort Erie, Ontario (Van Duzee), which, like two of those from Plummers Island, has the antennæ and palpi black.

HYPOCERA CONVERGENS, new species.

Male.—Black; frons shining, as long as wide, both frontal bristles and arista rubbed off so that it is impossible to indicate their character; antennæ brown, third joint very large, pear-shaped, distinctly pointed at apex, palpi small, brown, moderately strongly bristled, thorax shining, four scutellar bristles, anterior pair rather weaker than posterior pair; abdomen rather short but unlike most of the species narrow, second segment not much elongated, hind margins of segments narrowly yellowish, the sixth more broadly so, dorsum distinctly gray-dusted, except on lateral margins, hypopygium large, shining brown, paler below, a flap-like organ on left side low down darker than upper portion and covered with very short pale pubescence, anal organ retracted, legs yellow, the coxæ and all femora except bases and extreme apices brown, fore tibiæ with a rather short spine at above the middle, a longer one below middle and a series of short setulæ on antero-dorsal surface, mid tibiæ with the usual two

spines at near basal third and one pre-apical spine, hind tibiæ with one long spine at slightly beyond basal third on dorsal surface, one at near apex on antero-dorsal surface, one at nearer to apex on antero-ventral surface and two end spurs, basal hind tarsal joint almost as long as tibiæ, with 4-5 long bristles on ventral surface besides the usual short setulæ and long apical spur; wings gray, more darkened at tip, very narrow and long, costa distinctly short of middle, very much swollen, twice as thick as third vein, humeral vein and all basal portions of the thick veins pale yellow and very indistinct, first costal division twice as long as second, fourth vein almost entirely straight, leaving third at slightly beyond end of first vein and ending with a downward curve at extreme apex very distinctly in front of wing tip, fifth vein almost entirely straight ending with an upward curve at apex just at tip of wing, sixth and seventh veins nearly straight costal fringe of good length, third vein with 2-3 hair-like bristles at base; halteres yellow.

Length, 4 mm.

Type.—Cat. No. 14831, U.S.N.M.

One male. Paraiso, Panama Canal Zone, January 15, 1911 (August Busck). Easily known from any other described species by the nearly straight wing veins, the fourth and fifth of which are abruptly convergent at extreme apices.

Genus CONICERA Meigen.

The species in this genus are in some cases very difficult to separate, especially in the females. In the case of *similis*¹ Haliday and *atra* Meigen the only good distinction lies in the comparative length and breadth of the third antennal joint. In *atra* it is two and a half times as long as its basal breadth, in *similis* one and a half times. They seem, however, to be good species, although very closely allied. The specimens of *atra* in the collection here agree with the European species, but a few from the District of Columbia have the legs much paler than European examples. The specimen standing as *C. atra*, var. *neotropica* Brues, I believe, belongs to a distinct species. The only American species not in table is *kerteszi* Brues from Peru. This has the second and third fore tarsal joints widened and flattened, the hind tibiæ with one spine at middle and another just before the tip, as well as having the fourth vein strongly recurved before its tip. The type is in the National Museum of Hungary in Budapest.

TABLE OF SPECIES.

1. Third antennal joint rather globose at base, produced into a very long narrow point, thickly pubescent on the thin apical portion and reaching beyond vertex.

aldrichi, p. 437.

¹ *C. similis* is not recorded from America.

- Third antennal joint conical, gradually narrowing to a point, not thickly pubescent, and reaching to vertex or short of it. 2.
2. Second costal division one-half as long as first; wings brownish. *neotropica*, p. 437.
 Second costal division one-third as long as first; wings clear. *atra*, p. 437.

CONICERA ALDRICHI Brues.

Easily distinguished from the other species of the genus by the peculiar third antennal joint, besides having four mid tibial spines—two at basal third, one at apical third, and one at just before apex.

CONICERA NEOTROPICA Brues.

Is very similar to *atra* but larger, the third antennal joint is rather broader, the fore tibia has only one distinct setula near the base and is devoid of the row of serial setulose hairs, present in *atra*, beyond it reaching near to apex, the tibial spines are longer and stronger than in *atra*, especially those on the mid tibia, the costa extends nearer to the wing middle, the first division being only twice as long as the second, the costal fringe is much shorter and closer, having six bristles from end of costa to end of first vein instead of three to four, as in *atra*; the abdomen is also a deep velvety black instead of dull black, and shows distinct narrow pale hind margins to the segments which are not present in *atra*.

Described as a variety of *atra* Meigen, by Brues.¹ Grenada, West Indies.

Type in U. S. National Museum collection. (Cat. No. 7756.)

CONICERA ATRA Meigen.

Common throughout Europe and evidently widely distributed in America. Known in the male sex from all other Phoridae except the above species by its black color, conical third antennal joint, apical arista, and unforked third vein.

Localities of specimens examined: District of Columbia, Boston and Horse Neck Beach, Massachusetts; and Ithaca, New York.

Genus PHORA Latreille.

*Phora*² LATREILLE, Hist. Nat. Crust. et Ins., vol. 3, 1802, p. 464.

Trineura MEIGEN, Ill. Mag., vol. 2, 1803, p. 276.

I am adopting *Phora* of Latreille for this genus because this name has priority over Meigen's name by one year, and the same species was cited as the type of both.

Brues recognized the fact that Latreille's name had priority over Meigen's, but did not adopt it because of the old established usage of those names for different genera.³

¹ Trans. Amer. Ent. Soc., vol. 29, 1903, p. 380.

² *Phora* was first used by Latreille in 1796 (Précis, p. 169), but no species was cited for it until 1802, which must be considered as the date of its creation, instead of the earlier one.

³ Gen. Ins. Phor., 44th fas., 1906, p. 1.

TABLE OF SPECIES.

1. Hind tibiæ with two bristles on basal half.....*occidentata*, p. 438.
 Hind tibiæ with only one bristle on basal half.....2.
2. Small species, 1½–2 mm.; fore tarsi not distinctly dilated though broader than other tarsi; frons of male parallel-sided.....*aterrima*, p. 439.
 Larger species, at least 2½ mm.; fore tarsi very distinctly dilated; frons of male wider above antennæ than at vertex.....3.
3. Fore tarsal joints 2–5 at least as broad as long; fourth vein much bent at base.
montana, p. 439.
 Fore tarsal joints all distinctly longer than broad; fourth vein slightly bent at base.....*velutina*, p. 439.

PHORA OCCIDENTATA, new species.

Like the other species of the genus, a deep velvety black, the female less velvety than male, but opaque black, frons nearly parallel-sided in female, in male distinctly broader at above antennæ than at vertex, the third pair of frontal bristles distinctly lower on frons than anterior ocellus in male, less distinctly so in female; thorax with numerous strong lateral bristles, two scutellar bristles; abdomen with second and sixth segments elongated, hypopygium very large and incurved, glossy black, with numerous long hairs, legs black, the fore tibiæ and all tarsi paler, fore tibiæ with distinct hair-like setulæ on antero-dorsal surface, longer on the middle, tarsi much dilated and except at base of metatarsi as broad as tibiæ, similar to those of *velutina*, mid tibiæ with two antero-dorsal spines in both sexes, postero-dorsal surface in male with six, in female with three or four spines, the lower one at about two-fifths from apex, and the remaining portion of tibiæ with hair-like setulæ, hind tibiæ with two spines, the smallest at one-fifth from base, the largest at rather more than two-fifths from base, one spine at apex, all on antero-dorsal surface, tip of dorsal surface of tibiæ bare and glossy; wings clear, costa to near middle in male, short of it in female, first division shorter than second in male, as long as second in female, fourth vein slightly bent at base and ending near to wing tip, seventh vein indistinct but complete; halteres black.

Length, 3–5 mm.

Popoff Island, Alaska, July, 1899 (Harriman Exp., Kincaid), labeled *aterrima* Meigen, by Coquillett, and recorded as such in the Papers on the Expedition; White Mountains (Morrison); Kussiloff, Alaska (W. H. Evans); Torrey's Lake, Wyoming (labeled *velutina* Meigen, by Brues); and one specimen evidently of the same species from Los Angeles, California (collection of Coquillett). Possibly this last wrongly labeled as to locality.

Type.—Cat. No. 14832, U.S.N.M.

PHORA ATERRIMA Meigen.

The smallest species of the genus so far described. The frons of the male is parallel-sided; the thoracic bristles are strong, especially those on near lateral margins of dorsum above wing base, but they are not so numerous laterally as in the larger species, the fore tibiæ have no distinct setulose hairs, though broader than other tarsi the fore pair are narrower than tibiæ, mid tibiæ with one antero-dorsal bristle in both sexes, postero-dorsal surface with four long spines in male and two or three in female; hind tibial bristles at about basal third and apex; wings clear, costa to middle, gradually thickening toward apex, first division distinctly but not greatly longer than second, fringe barely longer than diameter of costal vein, fourth vein slightly curved at base and ending very near to wing tip, halteres black.

Length, $1\frac{1}{4}$ –2 mm.

Two males, Natrona, Pennsylvania, July, 1895 and 1896 (no collector's name). I have also seen it from Chicago, and Ithaca, New York (O. A. Johannsen). Brues records it from Mississippi, Pennsylvania, Kansas, South Dakota, Illinois, Michigan, and Texas.

PHORA MONTANA Brues.

A very distinct large species. There are five or six spines on postero-dorsal surface of mid tibiæ in male and only two in female, the antero-dorsal surface has only one bristle, the hind tibiæ have one bristle; and the base of fourth vein is more distinctly bent than in the other species of the group.

Type-locality, Magdalena Mountains, New Mexico. Types in collection of the U. S. National Museum.

PHORA VELUTINA Meigen.

A common and very widely distributed species. Separable from the above by its having five to seven postero-dorsal mid tibial spines in male and two to three in female; the fourth vein is also less bent at base; the hind tibiæ have only one spine; there are also generally two spines on antero-dorsal surface of mid tibiæ.

Localities.—California, Idaho, Massachusetts, Kansas, Michigan (Brues), Alaska, White Mountains (in collection).

PSEUDOHYPOCERA, new genus.

Head large, frons with two post-antennal, nearly erect bristles, two reclinate bristles nearly in line horizontally with these, all four occupying but little more than one-third the width of the frons and nearly on the front margin, sometimes a very minute pair of bristles is present anterior to the central pair in the female, a second row consisting of two lateral bristles very near to the eye margin and nearly midway to the antero-ocellar row of four, vertical row as in *Aphiochæta*; male antennæ elongate-oval, large, arista subapical, bare,

female antennæ oval not elongate, clypeus slightly produced in male very much in female, palpi large, male proboscis small, retracted, female proboscis large and fleshy, female ovipositor retracted, male hypopygium retracted, anal protuberance very conspicuous; wings large, third vein forked, mediastinal vein absent, seventh vein incomplete in female, traceable to near margin of wing in male, legs as in *Aphiochæta*, with apical spurs well developed on four posterior tibia.

Type of the Genus.—*Pseudohypocera clypeata*, new species.

PSEUDOHYPOCERA CLYPEATA, new species.

Plate 35, figs. 10-12.

Male and female.—Black; frons glossy black, the bristles rather weak, frontal suture indistinct in male, present in female only as a circular depression behind the post-antennal bristles, ocellar triangle small, antennæ yellow, third joint darkened at apex, rather pointed in male, arista bare, palpi large in both sexes and strongly bristled, clypeus very much produced in female, chitinous, yellow, with a transverse depression above, proboscis in female large, slightly bristly; thorax brownish black, humeri and pleuræ yellowish, about 8 bristles on the posterior margin of thorax besides the dorso-central pair and one pair beyond them forming a continuous row to the pre-scutellar pair, scutellum very short and broad, at least four times as broad as long, four strong bristles present, second segment of abdomen lengthened, hypopygium of male very inconspicuous, anal protuberance yellow, sixth segment in female with numerous hair-like bristles; wings clear, thick veins yellow or brownish, costa to middle of wing, first division equal to the remainder, humeral vein bent, fork of third vein indistinct, fourth vein leaving third vein with a curve and running in a gentle sweep to very near to wing tip, fifth vein nearly straight, ending much behind wing tip, seventh vein very indistinct, not reaching the wing margin in female but in male traceable to margin, legs yellow, anterior tibiæ with numerous hairs and a row of setulæ on the antero- and postero-dorsal surfaces, all femora distinctly hairy especially on the ventral surfaces, hind tibia with a distinct dorsal ridge, setulæ on postero-dorsal surface hair-like, hind metatarsus with about 10 transverse rows of stiff hair-like bristles; halteres yellow.

Length, $3\frac{1}{2}$ – $4\frac{1}{2}$ mm.

Type.—Cat. No. 14833, U.S.N.M.

Eighteen specimens, Tabasco, Mexico. Manuscript label "on honey and wax," but no date or collector's name.

A very distinct species not referable to any genus already described. Has much the general appearance of a *Hypocera* but differs from the species in that genus by having no tibial subapical spines, and the third vein being forked.

Genus BECKERINA¹ Malloch.

TABLE OF SPECIES.

Halteres black, costa but little beyond middle of wing, fringe long.

umbrimargo, p. 441.

Halteres yellow, costa very much beyond middle of wing, fringe very short.

orphnephiloides, p. 441.

BECKERINA UMBRIMARGO Becker.

This species is not recorded from America. These two species may be known by the erect post-antennal bristles from the species included in *Aphiochæta*. There are also other structural differences which caused me to separate the then existing single species from *Aphiochæta* in the paper above mentioned. It is not unlikely that *umbrimargo* will occur in this country. It is not uncommon in Britain and occurs in damp woods. Like the next species it has the mesopleuræ and hind tibia without bristles, has four strong scutellar bristles, and the costa decidedly swollen on the outer half, it is smaller than next species, being $2\frac{1}{2}$ mm.

BECKERINA ORPHNEPHILOIDES, new species.

Plate 36, figs. 8, 10.

Black; head small, frons one and one-half times as broad as long, ocelli rather close together, triangle raised, frontal suture indistinct, bristles strong, post-antennal four erect and in almost a straight line, center pair of bristles in lower row close to post antennal bristles, center pair in second row in line with outer pair in first row, outer pair in second row in usual position in line almost with front ocellus, third joint of antennæ round, pubescent, large, arista pubescent, very long, as long as front tibia, basal joints short, not much swollen; palpi almost as large as antennæ, brown, weakly bristled; thorax brown, pleuræ lighter, two dorso-central bristles, four strong scutellar bristles, mesopleuræ bare, abdomen long and narrow, second segment elongate, with several long hair-like bristles on lateral posterior margins, hypopygium large, central processes lamelliform, anal protuberance small, yellowish; legs very long and slender, femora but little thickened, yellow, the coxæ brown at base, legs almost entirely bare, hind tibiæ with only fine, close-placed hairs, no distinct setulæ, tibial spurs well developed, wings long, costa to two-thirds the wing length, apical two-thirds much swollen, first costal division about equal to second, third one-half as long as second, fringe short and fine, not longer than diameter of costa, fourth vein leaving at midway beyond fork with a distinct curve, and running nearly straight to wing tip, fifth and sixth veins very close together; halteres yellow.

¹ Ann. and Mag. Nat. Hist. (Scot.), 1910, p. 90.

Length, 5 mm.

Two males November 3, 1906 (A. K. Fisher); 1 female, November 18, 1906 (W. L. McAtee), Plummers Island, Maryland.

Type.—Cat. No. 14834, U.S.N.M.

Genus APOCEPHALUS Coquillett.

TABLE OF SPECIES.

1. The second pair of frontal bristles placed near the center of frons and almost directly in line above the lower pair; ovipositor of female parallel-sided for about its basal half, then narrowing into an obliquely pointed apical fourth. *wheeleri*, p. 442.
- The second pair of frontal bristles placed near the eye margins and not nearly straight above lower pair. 2.
2. Costa distinctly short of the wing middle, fringe long and sparse, fork of third vein indistinct; nearly coalescent with the apex of third, ovipositor of female parallel-sided at base, contracted at tip third and with two bristle-like projecting organs at tip. *spinicosta*, p. 442.
- Costa to about wing middle, fringe short and delicate. 3.
3. Ovipositor spatulate at tip. *coquilletti*, p. 443.
- Ovipositor not spatulate at tip. 4.
4. Ovipositor about one-half as broad at its broadest part as long. *pergandei*, p. 443.
- Ovipositor about one-third as broad at its broadest part as long. *similis*, p. 444.

With the exception of three males in the United States National Museum collection none of the species are known in that sex. That the last three species are closely allied there can be no doubt, but I am quite certain they are not varieties of one species.

APOCEPHALUS WHEELERI Brues.

Plate 38, figs. 1, 5, 9.

The type-specimen of this species is in the collection. Quite distinct from any of the other recorded species. In this species the arista is apical.

APOCEPHALUS SPINICOSTA, new species.

Plate 38, figs. 2, 8, 11.

A single specimen of this very pretty species standing unidentified in the collection. In the position of the frontal bristles it resembles the next three species, but in other respects it is very different.

Description: Yellow; frons black, bristles as in *pergandei* Coquillett; antennæ yellow, third joint nearly round, arista dorsal rather thick and short, not longer than frons; palpi yellow, weakly bristled; thorax clear yellow, scutellum with only two apparent strong bristles, abdomen brown, only the basal segment yellowish, very narrow, second segment the longest; no distinct bristles except on the sixth where they are very strong, ovipositor highly polished, parallel-sided

on basal two-thirds, then narrowed to apex which is truncate, the two projecting organs giving it an acutely pointed appearance; legs yellow, spurs on posterior four tibiæ minute, of equal length on both pairs; hind femora with a fringe of soft hairs on their ventral surface; hind tibia delicately setulose; wings with the costa decidedly short of middle, first section about three times as long as second, fork of third vein hardly visible except with a high power, fringe very long on tip half of costa, short at base, consisting of about 10 bristles; fourth vein leaving third with a hardly perceptible curve running nearly straight to tip of wing, ending with a slight downward curve, seventh vein distinct; halteres yellow.

Length, $1\frac{1}{2}$ mm.

Localities.—Brownsville, Texas, May 7, 1904 (H. S. Barber). A manuscript label, "Flying erratically over ants, Esperanzo Ranch 7-5" is also on the pin, but no note of the species of ant it was attending.

Type.—Cat. No. 14835, U.S.N.M.

APOCEPHALUS COQUILLETTI, new species.

Plate 38, fig. 4.

This is the species Brues described and figured as *pergandei* Coquillett.¹ It is quite distinct in the shape of the ovipositor from that species which is correctly figured and described by Coquillett,² and to Brues's description I would only add that like *pergandei* it has four scutellar bristles, the anterior pair much reduced and the spurs on the hind tibiæ are only half as long as those on the mid tibiæ. I found a single specimen in the collection here with the manuscript labels "5415, chasing *Camponotus*" and "*Phora* sp.?" On reference being made to the diary it was discovered that the specimen was received June 8, 1912, from P. C. Newkirk, Jalapa, Tennessee. I have seen the specimen mentioned by Brues from Frankford, Pennsylvania, with specimen of *C. pennsylvanicus* on card, and it is identical with that from Tennessee. I accordingly have named this species *coquilletti* in honor of the late Mr. D. W. Coquillett, who first described the genus. Brues records the Texan specimen as attacking *Camponotus maculatus*, var *sansabeanus* Buckley.

Type.—Cat. No. 14836, U.S.N.M.

APOCEPHALUS PERGANDEI Coquillett.

Plate 38, figs. 3, 6, 10, and plate 41, fig. 6.

This species is represented in the collection by eight specimens, five, from which the original description was drawn, with the locality, Cabin John Bridge, Maryland, and three from Washington, District

¹ Trans. Amer. Ent. Soc., vol. 29, p. 373.

² Proc. Ent. Soc. Wash., vol. 4, 1901, p. 501.

of Columbia. The species attacks *Camponotus pennsylvanicus*. I have also seen one specimen from Cranmoor, Wisconsin. June 12, 1910 (C. W. Hooker).

APOCEPHALUS SIMILIS, new species.

Plate 38, figs. 7, 12, 13.

This is similar in practically all respects to the above species, but differs in having the ovipositor of the female much narrower at base than in *pergandei*. In every other respect it agrees with this species and I should have considered it as only a variety of *pergandei* had it not been for the constancy of the form of the ovipositor in the series of that species before me, and the fact that it came from a widely different locality—Madero Canyon, San Rita Mountains, in Arizona, and attacks a species of *Camponotus* which, while unable to decide exactly what it is, Mr. Rohwer assures me is not *pennsylvanicus*.

I have hesitated to tabulate the males of this genus, as it is difficult to assign them to the proper species without their being taken at the same time and place, none of this sex having been previously described. However, I have obtained three specimens that represent different species and consider that it may be better to indicate their characters so far as my limited material will permit.

TABLE OF MALES.

- | | |
|---|----------------------------|
| 1. Halteres black, small species, under 1 mm..... | <i>aridus</i> , p. 444. |
| Halteres yellow, larger species, 1½-2 mm..... | 2. |
| 2. Third costal division one-third as long as second, 10-11 costal bristles from end of first vein to end of costa..... | <i>pergandei</i> , p. 443. |
| Third costal division one-half as long as second, 6-7 costal bristles from end of first vein to end of costa..... | ? <i>similis</i> , p. 444. |

APQCEPHALUS ARIDUS, new species.

Plate 41, fig. 7.

Male.—This species is easily known from the others in the genus by its comparatively small size. Yellow-brown, subshining; frons distinctly shining, about as long as broad, second pair of bristles as in *pergandei* Coquillett, antennæ yellowish-brown, third joint not elongated as in other species but almost round, of rather small size, arista thick and short, not longer than breadth of frons, nearly bare, mesopleuræ bare, anterior scutellar bristles very minute, lower part of pleuræ yellow; abdomen dark brown, second segment elongate, third to fifth gradually decreasing in size, sixth elongated, hypopygium yellow, glossy, large, globular, ventral processes large, protruding, anal protuberance very long, with two terminal hairs; legs entirely yellow, hind tibial ridge pronounced, the setulæ weak and widely placed; wings rather broad, costa to short of middle, first division distinctly but not greatly longer than other two together, third division about one-third as long

as second, fringe rather short and sparse—five bristles between end of first vein and end of costa—fourth vein leaving at beyond fork, regularly arcuate and ending distinctly in front of tip of wing; halteres black.

Length, barely 1 mm.

One specimen Córdoba, Vera Cruz, Mexico, April 20, 1908 (Dr. A. Fenyès).

Type.—Cat. No. 14838, U.S.N.M.

A comparison of the figures of this and the other two species will serve to distinguish them. The anal protuberance in figure 12, Plate 38, is turned ventral surface out and in normal situation is much as figured on Plate 41, figure 5.

Genus APHIOCHÆTA Brues.

TABLE OF GROUPS.

1. Wings with a distinct spot-like brown patch between the fourth and fifth veins at tip.....Group A, p. 445.
Wings without any spot-like darkening at tip.....2.
2. Front tarsi dilated, short, the metatarsi as thick as tibiæ at tip....Group B, p. 446.
Front tarsi not noticeably thickened, the metatarsi always thinner than the tibiæ at tip.....3.
3. Hind tibiæ with two rows of setulæ—one on the antero, and one on the postero-dorsal surfaces.....Group C, p. 447.
Hind tibiæ with only one row—that on the postero-dorsal surface—or setulæ indistinct.....Group D, p. 452.

Genus APHIOCHÆTA, Group A.

APHIOCHÆTA CONGLOMERATA, new species.

Male.—Black, hardly shining; frontal bristles strong, antennæ brownish, palpi yellow, rather strongly bristled; dorso-central bristles on thorax small, scutellum with two strong bristles and two minute hairs anterior to them; abdomen weakly bristled laterally on second segment, segments of nearly equal length, hypophygium large, anal protuberance brown, with a few hairs; mesopleura weakly bristled, halteres black, legs brownish yellow, the hind pair darker, hind tibia finely setulose; wings grayish, tip narrowly brownish on anterior margin and a rounded patch between the fourth and fifth veins of the same color, this darkening is caused by the approximation of the very minute hairs on the surface of the wings and is quite distinct from any thickening or darkening of the membrane of the wing; costa to the middle, first section slightly longer than the remaining portion, third section about one-third as long as second, fringe very long and widely placed, each side consisting of about 13 to 14 bristles, fourth vein leaving at fork of third with a gentle curve and running nearly straight to near the tip of wing, seventh vein distinct, halteres black.

Length, 2 mm.

Locality.—Kaslo, British Columbia (A. N. Caudell), one male.

Type.—Cat. No. 14839, U.S.N.M.

I know of no species of *Aphiochæta* with the wing tip darkened as here. It is a very distinct insect allied to *agarici* Lintner, but the characters given in description should separate it from any described species.

Genus APHIOCHÆTA, Group B.

TABLE OF SPECIES.

1. First costal division only about as long as second, and decidedly shorter than second and third together; male palpi dilated, costal fringe very short.
magnipalpis, p. 446.
- First costal division at least one and one-half times as long as second, and as long as, or longer than, second and third together, costal fringe of moderate length. .2.
2. Male palpi dilated and almost bare, first costal division in male about twice as long as second, in female about one and one-half times as long, halteres clear yellow.
projecta, p. 446.
- Male palpi normal, and rather strongly bristled; first costal division three times as long as second; halteres brown*californiensis*, p. 447.

APHIOCHÆTA MAGNIPALPIS Aldrich.

This was originally described ¹ from specimens taken in St. Vincent, West Indies. The description there given is too brief to identify the species if any closely allied forms are found, as no mention is made of most of the principal characters by means of which the species in this group are generally separated. Brues in redescribing it gives the scutellar bristles as two, though the table gives it as belonging to the four-bristled group, and in neither description is there any mention of the dilated fore metatarsi. The costa is extremely fine fringed and the hairs on the arista are very distinct, being more easily seen than the costal fringe, the hind tibia is destitute of distinct setulæ, having only weak hairs on the postero-dorsal surface, and the scutellum has four distinct bristles. There are two specimens (the types) in the collection representing both sexes. They are not in very good condition, but they seem to have the mesopleura bare.

APHIOCHÆTA PROJECTA Becker.

I find a male of this species and what is very probably a female also in the collection from White Mountains, New Hampshire (Morrison). It has not been previously noticed, so far as I am aware, from this country though it is a very common European species, and is attached to fungi in Britain. It may be known in the male sex by the large projecting palpi, and in both sexes by having four strong post-antennal proclinate bristles, mesopleuræ with several bristles, four scutellar bristles, costa to slightly beyond middle of wing, long fringed, halteres yellow, fore tarsi distinctly thickened, the metatarsi being

¹ Trans. Lond. Ent. Soc., 1906, p. 438.

as thick as the tibia; the legs all yellow, hind femora fringed at base with rather long soft hairs, hind tibiæ distinctly, but finely setulose on postero-dorsal surface.

Length, 2½ mm.

One male taken in U. S. National Museum, Sept. 3, 1912, evidently belongs to this species, though the fore tarsi are both broken off. (H. L. Viereck.)

APHIOCHÆTA CALIFORNIENSIS, new species.

Male and female.—Brownish black; frontal bristles strong, post-antennal bristles of almost equal size; antennæ brown, rather large, aresta slightly pubescent, palpi yellow, normal size, strongly bristled, mesopleura bristly, scutellum with four equally strong bristles, halteres brown, second abdominal segment but little longer than third, not noticeably bristled laterally, anal protuberance of male brown, small, ovipositor of female not exerted, inconspicuous, wings fuscous, veins brown, costa fully to middle of wing, first division at least three times as long as second, fringe of moderate length, fine, and rather loose, legs brownish yellow, fore legs paler, fore tarsi thickened, metatarsi rather wider than tibiæ, hind tibiæ ciliated on postero-dorsal surface with very weak setulæ.

Length, 2 mm.

This species is very distinct from the other two in this group in color, neurulation, and in having the metatarsi more dilated than in either. The only other species that it can be confounded with is *palmeri* Becker, but that species has the antennæ very much enlarged, conical, and almost as large as the eye in the male.

One male, one female, Fieldbrook, Humboldt County, California, May 30, 1903 (H. S. Barber). Mounted on same card. Standing among the duplicates of *A. rufipes* Meigen.

Type.—Cat. No. 14840, U.S.N.M.

Genus APHIOCHÆTA, Group C.

TABLE OF SPECIES.

1. Frons very narrow, twice as long as broad, highly polished, and punctured....2.
Frons about one-half longer than its breadth, the post antennal bristles very small.....3.
2. Scutellar bristles of equal size, hind margin of throax and base of scutellum black.
longifrons, p. 449.
Anterior pair of scutellar bristles much reduced in size, throax and scutellum yellow.
epeiræ, p. 450.
3. First section of costa about equal to the other two together; entirely black except legs.
halictorum, p. 450.
- First section of costa much longer than the other two together; or species mostly yellow.....4.

4. Costa about two-fifths the length of the wing; hind tibia entirely yellow.
fasciata, p. 448.
 Costa longer, but not reaching middle of wing, hind tibia black at apex posteriorly.
nedæ, p. 448.
5. First costal division at most one and one-half times as long as the second; species mostly yellow with black marks on abdominal segments.....6.
 First costal division twice as long as second, species with at most the thorax reddish, and whitish or yellowish marks on abdomen.....7.
6. First division of costa shorter, or only as long as second.....*subpicta*, p. 452.
 First division of costa one and one-half times as long as second.....*picta*, p. 451.
7. Humeri and postalar calli yellow, hind margins of abdominal segments narrowly yellowish.....*barberi*, p. 450.
 Thorax sometimes reddish, abdomen black with male hypogium and female ovipositor whitish, a yellow streak over insertion of antennæ on frons.
giraudii, p. 451.

APHIOCHÆTA FASCIATA Fallen.

A species represented in the collection by two specimens from Malaga, Spain; the species standing as *fasciata* being that described below. The costa in *fasciata* only reaches to about two-fifths of the wing length, the first division being more than twice as long as the remainder; the frons is rather longer than broad, the post-antennal pair of bristles are very small, the third joint of antennæ is large and oval, the arista is short, the abdomen in male is all black except the basal segment, and sometimes the apical two slightly, and the venter which are yellow; the antero-dorsal bristles on hind tibia are on basal half only, hind metatarsi as thick as tibia, rather more thickened in female than in male. Schiner mentions that this species is parasitic on *Coccinella* species. The species recorded by Aldrich¹ could not have been *fasciata* Fallen, as it is a much smaller insect than *picta* Lehm, whereas he says his specimens were on the average larger.

I have seen one of the specimens named for Mrs. Slosson by Coquillett as *fasciata* and find that it is *epèiræ* Brues. This name, like *giraudii* Egger, had better be removed from list of American species.

APHIOCHÆTA NEDÆ, new species.

Very similar to *fasciata* Fallen, but in color it is brighter, and in size rather larger than that species. The principal distinctions are: Head, thorax, and abdomen yellow, except the ocellar triangle, and triangular patches on the lateral margins of segments three and four, in both sexes, which are black; the post-antennal bristles are very small but both pairs are present; there are two very fine hairs anterior to the usual two scutellar bristles; the costa reaches to short of the wing middle, but is longer than in *fasciata*, the cells between the thick veins are broader; the legs are yellow except

¹ Trans. Lond. Ent. Soc., 1896, p. 436.

the mid-tarsi which are dusky and the tip of the posterior surface of hind tibia and metatarsi which are glossy black, last four joints of tarsi dusky; setæ on antero-dorsal surface of hind tibia extending to two-thirds of length of tibia, metatarsi not as broad at tibiæ.

Type.—Cat. No. 14841, U.S.N.M.

Two males and two females, Oaxaca, Mexico (Koebele). "Bred from *Neda marginata*." *N. marginata* Linnæus is a Brazilian beetle and *N. marginalis* Mulsant is Mexican.

It is possible that an error in the name has been made here which can only be determined by an examination of specimens of the host.

APHIOCHÆTA LONGIFRONS Brues.

Yellow; frons long and narrow, shining, punctured, about twice as long as broad, post-antennal bristles very minute, other bristles large, arranged in lateral rows of four about equidistant at close to the eye margins, and two almost immediately behind and two rather farther in front of the ocelli, which are black; antennæ yellow, small, round, half hidden in cavity, arista yellow at base, nearly bare; palpi small, pale yellow, weakly bristled; dorsum of thorax posteriorly narrowly suffused with black extending along the sides to in front of base of wing where it is most distinct and continuing posteriorly in a streak down over the pleuræ to behind wing base; scutellum blackened at base, posteriorly pale yellow, four strong bristles present; abdomen yellow, segments 1-4 with lateral triangular black patches continued across on segments 1-3 in a narrowing band, fifth segment yellow, sixth yellow at base, apical four-fifths glossy black, ovipositor exerted, glossy black, much as in genus *Apocephalus* Coquillett, mesopleuræ bare; legs yellow, tarsi darker, hind femora with apex broadly black, all tibiæ with two serial rows of setulæ on the antero- and postero-dorsal surfaces, those in the postero-dorsal surface of hind tibia (9-10) very strong; wings narrow, grayish, veins brown, costa to middle, first division rather longer than the other two together, angle at which veins join costa very acute, and cells inclosed by those veins narrow, costal fringe fine, rather short, and close, fourth vein leaving third at fork with a gentle curve and running straight to margin of wing at considerably in front of tip; halteres yellow.

Length, 3 mm.

One female, Plummers Island, Maryland, Sept. 8, 1909 (W. L. McAtee). I have also seen 1 male and 1 female from Ithaca, New York (O. A. Johannsen). A close ally of *epeiræ* Brues. Described by Brues from Milwaukee, Wisconsin (1906), (male only). The male has the apical third of wing infuscated and in other respects differs somewhat from the description given above. The Milwaukee specimens were taken hovering about the burrows of *Tremex columba*, where *Thalessa lunator* and *T. atrata* were ovipositing.

APHIOCHÆTA EPEIRÆ Brues.

A very distinct species allied to the above in the form and bristling of frons. The thorax and scutellum are entirely yellow, and the abdomen has generally four black spots, two each on the lateral surfaces of the first and second segments; a tuft of black bristles is situated in the center of the black part on second segment; the hind femora are entirely yellow; the costa in middle is distinctly dilated and yellow, whereas in the foregoing species it is not swollen at this part and is black-brown; it is also a rather smaller species, and the anterior pair of scutellar bristles are greatly reduced. The mesopleura has some short bristles, and one very long and conspicuous one high up on the posterior margin, which is sometimes duplicated. Represented by a large number of specimens in the collection from the District of Columbia; Mount Washington, New Hampshire; Rock Ledge, Florida; and Twining City, Maryland. Bred from spiders' eggs.

APHIOCHÆTA HALICTORUM Melander and Brues.

I have not seen this species, but it is evidently quite a distinct species judging from the description given by Brues. It is the only black species in the group. Allied to *fasciata* Fallen, and *longifrons* Brues, in neuration; it is separated by color characters and also by its having four scutellar bristles. The costa reaches nearly to the middle of the wing, but the first division is only a little longer than the second and not longer than the second and third together.

APHIOCHÆTA BARBERI, new species.

Plate 36, fig. 7.

Allied to the above, but larger and with several characters by which it may be easily separated from it. Description: Brownish-black; frons black, both pairs of post-antennal bristles very strong, the upper pair more widely placed than the central pair in front of ocelli, ocelli raised, frontal suture distinct, antennæ moderately large, brown, arista long, nearly bare, palpi clear yellow, large, and strongly bristled (5-6); thorax brown, postalar celli and humeri yellow, mesopleuræ bare, one pair of dorso-central bristles, four equally strong scutellar bristles; abdomen brownish black, hind margins of segments narrowly yellow, second segment lengthened, laterally dilated at middle, and with a group of bristles (5-6) on the projecting part; legs and coxæ yellow, the apex of hind femora broadly brown, hind tibia and tarsi dusky, mid tibia with a row of serial, rather short but strong bristles on the dorsal surfaces for two-thirds of their length, apical third of anterior surface clothed with

short, closely placed, strong hairs; hind femora strong, hind tibia with the row of bristles on the antero-dorsal surface confined to the basal half (4-5), those on the postero-dorsal surface (9-10) long and strong; costa to about middle of wing, first division equal to the other two together, fringe moderately long; fourth vein leaving the third with a gentle curve and running with a slight upward curve to much in front of the wing tip, where it recurves and runs somewhat obsoletely along the margin of wing to nearer the tip; halteres yellow.

Length, 3 mm. One male, one female, Las Vegas, New Mexico (August 14, 1901), H. S. Barber.

This very distinct species comes nearest to *halictorum* Melander and Brues, but there should be no difficulty in separating the two.

Type.—Cat. No. 14842, U.S.N.M.

APHIOCHÆTA GIRAUDII Egger.

Recorded as American, but those specimens standing as such in the collection¹ are widely different from the European species. The typical *giraudii* is 2-2½ mm. in length; those specimens are 1-1¼ mm. In no respect do they agree with the description of the species they are standing as. The European insect is very variable in color. The thorax and abdomen are generally black, though the former is sometimes reddish or yellow; the frons is gray with a yellowish band above the insertion of the antennæ, the antennæ are black, though in the female the third joint is sometimes orange; the male hypopygium is mostly whitish, and the ovipositor is whitish in the female, showing a marked contrast with the black abdomen. I have not seen American representatives of this species, and have been unable to find the specimens on which Coquillett based his determination. It had better be consigned to the list of unrecorded or doubtful species.

APHIOCHÆTA PICTA Lehm.

Plate 36, fig. 1.

A species closely allied to *scalaris* Loew, but easily separated by the presence of the row of setulæ on the antero-dorsal surface of the hind tibia. The two specimens in the collection are in all respects identical with European examples, except that the anterior pair of scutellar bristles are rather weaker. In Brues's paper he omits any mention of the triangular black lateral patches on the abdomen in this species. The first section of the costa is as long as the other two together. The frontal bristles are arranged as in sketch. The mesopleura is bare, the frons, thorax, and abdomen are yellow, the latter with fore-marginal black bands which are triangularly dilated laterally; sometimes nearly the whole segment is suffused except the hind margin; the sixth

¹ *A. chaetoncura*, new species, p. 490.

segment is usually entirely black; there is also a black spot on the pleuræ between the wing base and another on the posterior surface of the mid coxæ; hind femora dilated, apices black, halteres entirely yellow.

One specimen, Plummers Island, Maryland, April 26, 1908 (W. L. McAtee), and one, White Mountains, New Hampshire (Morrison).

APHIOCHÆTA SUBPICTA, new species.

Plate 36, fig. 3.

This is very closely allied to *picta* Lehm., and also to *scalaris* Loew.

Female.—Head, thorax, and abdomen yellow, the latter with hind marginal bands dilated laterally on each segment, frontal bristles arranged as in sketch, frons rather narrowed in front, scutellum with four equally strong marginal bristles, mesopleura bare, a black spot on the posterior surface of mid coxæ, hind femora as in *picta*, hind tibial antero-dorsal bristles distinct on basal two-thirds, second abdominal segment long, dilated laterally and with a row of about six strong bristles on the lateral surface, costa to well beyond the middle of wing, first section shorter than the second, fringe moderately long and close, fourth vein leaving at fork of third with a gentle curve and reaching margin at well in front of the tip of wing, halteres infuscated at tip.

Length, $2\frac{1}{2}$ mm. A single female from Biscayne Bay, Florida (Mrs. A. T. Slosson).

This species is very like *scalaris* Loew, but the hind tibia has only one row of setulæ in *scalaris*, that on the postero-dorsal surface.

Type.—Cat. No. 14843, U.S.N.M.

Genus APHIOCHÆTA, Group D.

TABLE OF SPECIES.

1. Scutellum with four bristles and mesopleura with a group of numerous bristles on the upper posterior angle. (In *macrochæta* and *spinifemorata* there are only sometimes one or two small indistinct hairs besides the large bristle present, and the anterior scutellar bristles are mere hairs.).....2.
- Scutellum with four or two bristles, but if the mesopleura is bristly as in above species then only two scutellar bristles are present.....7.
2. One very long and strong backwardly directed bristle besides the numerous smaller bristles on mesopleura (conf. *monochæta* and *spinifemorata*).....3.
- Mesopleural bristles irregular—two or three of those on the posterior margin rather larger in size—black species*arcuata*, p. 460.
- Mesopleural bristles all small, and of nearly equal size; yellow species.....6.
3. Black species; only the hind margins of the abdominal segments narrowly, and the legs yellow.....4.
- Yellow species; thorax and frons entirely yellow, abdomen more or less yellow...5.
4. Frons broader than long, center pair of bristles in first row very little lower on frons than outer pair, arista distinctly longer than frons*marginalis*, p. 457.

- Frons distinctly longer than broad, center pair of bristles much lower on frons than outer pair which are not very close to eye-margin, arista only at most as long as frons. *submarginalis*, p. 458.
5. Hind tibial cilia (7-8) very weak. *juli*, p. 459.
Hind tibial cilia (12-13) strong. *perdita*, p. 459.
6. Antennæ brown-black, scutellar bristles of equal size, arista thin and much longer than frons. *nigriceps*, p. 460.
Antennæ yellow, arista short and thick, barely as long as frons, anterior scutellar bristles much reduced in size. *winnemana*, p. 461.
7. Thorax¹ wholly and abdomen wholly or partly yellow. If there should be any doubt as to whether a species falls into this section it may be decided by an examination of the pleuræ; which in this group is always yellow, being lighter in color as a general rule than the dorsum.) 8.
Thorax black or brown, abdomen black or brown, with only the hind margins of the segments narrowly paler, yellow or whitish. 30.
8. Scutellum with four bristles, the anterior pair being at least half as large as posterior pair in female, but sometimes much reduced in size in male. 9.
Scutellum with only two distinct bristles in female, sometimes two weak hairs may be present but they are always much weaker than one-half the posterior pair, and not bristle-like. 17.
9. First costal division much longer than the second, at least one and one-half times as long, fringe long. 10.
First costal division only about as long as second, never noticeably longer, fringe generally short. 13.
10. Costa distinctly short of wing middle, first division three times as long as second, frons with yellow pubescence anteriorly; small species 1-2 mm. *aletæ*, p. 462.
Costa to about wing middle, first division about twice as long as second. 11.
11. Female ovipositor exerted, chitinous; third segment of abdomen with a regular preapical row of hair-like bristles, and several on the lateral margins; abdomen conical. *conica*, p. 462.
Female ovipositor not chitinous, abdomen normal, without noticeable bristles on third segment as in *conica*. 12.
12. Female proboscis large and fleshy, protruding; antennæ yellow, darker at apex. *fisheri*, p. 463.
Female proboscis normal, retracted, antennæ brown. *inæqualis*, p. 464.
13. Mesopleuræ with one strong backwardly directed bristle, small bristles very indistinct or absent, anterior pair of scutellar bristles unusually reduced. 14.
Mesopleura bare, the anterior pair of scutellar bristles always strong in female but sometimes much reduced in male. 15.
14. Two pairs of nearly equal post-antennal bristles, costal fringe of moderate length, hind and mid femora without strong bristle-like hairs on ventral surface. *macrochæta*, p. 464.
Only one very short pair of post-antennal bristles, fringe very long, hind and mid femora with 2-3 very long curved bristle-like hairs on apical third of ventral surface. *spinifemorata*, p. 465.
15. Hind tibial cilia on basal two-thirds very strong and widely placed except at extreme base, ceasing abruptly at apical third to be replaced by 4-5 small hair-like setulæ, one very long terminal setula at apex, second abdominal segment with 4-5 very long and strong bristles on lateral margins in both sexes. *ruficornis*, p. 466.
Hind tibial setulæ not abruptly reduced on apical third, generally strongest on that part, lateral bristles on second segment more numerous but weaker. 16.

¹ Immature specimens are always paler in color, even in the black section.

16. Costa to much beyond wing middle, fringe very short, abdomen orange-red, apically blackened, legs wholly yellow.....*aurea*, p. 467.
 Costa to slightly beyond middle, fringe longer, abdomen yellow, with lateral black spots or bands on segments, tips of hind femora blackened.
a, halteres yellow, thorax clear yellow.....*scalaris*, p. 467.
b, halteres brown, thorax brownish yellow.....*cordobensis*, p. 467.
17. Mesopleura with one strong backwardly directed bristle, or with numerous small bristles.....18.
 Mesopleura bare.....19.
18. Mesopleura with numerous small bristles.
a. Arista thick and short, barely longer than frons.....*subtutea*, p. 468.
b. Arista thin, distinctly pubescent, and at least one-third longer than frons.....*carlynnensis*, p. 468.
 Mesopleura with one strong backwardly directed bristle.....(see 14).
19. First division of costa not longer than the second and third together, the fringe short.....20.
 First division of costa longer than the other two together.....21.
20. Frons gray-brown, lower pair of post-antennal bristles about one-half as long as upper pair, second abdominal segment weakly bristled laterally, first costal division shorter than second.....*flava*, p. 469.
 Frons yellow, darker on vertex, lower post-antennal bristles about one-fourth as large as upper, second abdominal segment with several distinct bristles laterally, first costal division as long as second.....*subflava*, p. 469.
21. Center pair of bristles in first row very much lower on frons than outer pair, and directly under them near the eye margins, so that it looks as if there were two rows of two bristles each, instead of one row of four on front of frons; post-antennal bristles of equal size.....*atlantica*, p. 470.
 Center pair of bristles in first row very slightly lower on frons than outer pair, and further from the eye-margins.....22.
22. Costa reaching to middle of wing.....23.
 Costa short of the middle of the wing.....26.
23. First costal division very slightly longer than second and third together, the fringe of moderate length and widely placed, fourth dorsal abdominal segment of female with a lateral transverse incision, which appears to divide the segment, at slightly beyond basal third.....*incisa*, p. 470.
 First costal division distinctly longer than other two together.....24.
24. Frons, antennæ, and halteres yellow; costal fringe long, first costal division more than twice as long as second.....*lutea*, p. 471.
 Frons and antennæ brown or black.....25.
25. Small species, about 1 mm. in length, first costal division about one and one-half times the length of second; frons, antennæ, and halteres brown; fringe of moderate length but sparse and delicate; halteres brown.....*obscura*, p. 471.
 Larger species, about 1½ to 2 mm. in length, first costal division about twice as long as second, fringe extremely long and strong, halteres yellow.
evarthæ, p. 472.
26. Frons black or brown.....27.
 Frons and antennæ yellow, sometimes infuscated above on frons, and at tip of antennæ.....*straminipes*, p. 474.
27. Antennæ yellow; hind tibiæ without distinct setulæ.....*straminea*, p. 472.
 Antennæ black or brown.....28.
28. Lower post-antennal bristles but slightly smaller than the upper, thorax reddish yellow, fifth segment of abdomen in female about one-third as long as fourth, seventh segment pale whitish yellow.....*fungorum*, p. 473.
 Lower post-antennal bristles about half as large as upper, generally less; fifth segment in female not shortened.....29.

29. Hind tibial setulæ strong and distinct; wings long, the first costal division but little longer than second and third together *longipennis*, p. 473.
Hind tibial setulæ small and indistinct; wings normal, costa rather shorter than in *longipennis*, and longer fringed, first division distinctly longer than second and third together (about as in *fungorum*) *cayuga*, p. 474.
30. Scutellum with four subequal bristles 31.
Scutellum with only two distinct bristles, sometimes two weak hairs present anterior to the ordinary bristles 34.
31. Halteres black-brown 32.
Halteres yellow 33.
32. Scutellar bristles on margin of scutellum *johannseni*, p. 474.
Scutellar bristles not on margin, the posterior pair nearly on center of disk.
brunnipes, p. 475.
33. Scutellar bristles rather weaker, the anterior pair slightly smaller than the posterior pair; a distinct bristle on base of third longitudinal vein.
iroquoiana, p. 476.
Scutellar bristles strong, the anterior pair at least as strong as the posterior.
ursina, p. 476.
34. Female proboscis exerted, very prominent, sometimes chitinised 35.
Female proboscis not exerted and chitinous, generally retracted and always fleshy 37.
35. Mid and hind tibiæ with a single minute apical spur each 36.
Mid tibial apical spur very long, hind tibial spur minute *proboscidea*, p. 477.
36. Female proboscis very large and swollen, fleshy, bifurcate; costa to distinctly beyond wing middle *rostrata*, p. 477.
Female proboscis stout and chitinous, costa to short of wing middle *cata*, p. 477.
37. Mesopleura bristly 38.
Mesopleura bare 51.
38. Halteres black 45.
Halteres yellow 39.
39. Mesopleura with one very strong backwardly directed bristles besides the numerous short bristles; costa to about middle of wing, fringe very short; fourth abdominal segment in female very short *ciliata*, p. 481.
Mesopleural bristles of equal sizes, no one bristle noticeably longer than the others 40.
40. Frons glossy black, as long as broad, costa to short of middle of wing, fringe short, small species, 1 mm *retardata*, p. 482.
Frons dusted, generally broader than long; fringe of moderate length, larger species generally 1½ mm. or over 41.
41. Extreme margin of wing tip dark-bordered, costa short of wing middle, first division shorter than other two together *approximata*, p. 483.
Extreme margin of wing tip not dark-bordered, only sometimes the front margin of wing beyond costa a little thickened and darker, but never round apex of wing 42.
42. Shining black species with brown legs, only the anterior pair paler, first costal division equal to other two together *vulgata*, p. 483.
Brown-black species, legs yellow, sometimes the posterior pair darker 43.
43. Small species, 1½-2 mm. *difficilis*, p. 484.
Larger species, over 3 mm. 44.
44. First costal division about as long as other two together, fringe very long.
anomala, p. 484.
First costal division distinctly longer than other two together, fringe of moderate length *subobscurata*, p. 485.

45. Mesopleura with one bristle noticeably longer and stronger than the others. . . . 46.
 Mesopleural bristles of nearly equal lengths, no one bristle particularly long and strong. 47.
46. One very long, and strong, backwardly-directed bristle; male third antennal joint half as large as eye; costa to two-fifths of wing length. *arizonensis*, p. 478.
 One bristle noticeably longer than the others but not remarkably long nor strong, male third antennal joint of normal size; costa to about middle of wing. *monticola*, p. 479.
47. Costa to near the middle of wing. 48.
 Costa at most two-fifths of wing length. 49.
48. Small brownish species (1½ mm. at most); first costal division about one and one-half times as long as other two together, fringe long. *franconiensis*, p. 479.
 First costal division at least twice as long as other two together; species about 2½ mm. in size. *dubitata*, p. 480.
49. Costa very short, about one-third the wing length, frons longer than broad, distinctly shining, fourth and fifth wing veins divergent from base to tip. *divergens*, p. 480.
 Costa to two-fifths the wing length; frons about as broad as long, gray dusted anteriorly, fourth and fifth wing veins parallel on basal half. 50.
50. First costal division about one and one-half times as long as other two together. *atomella*, p. 481.
 First costal division distinctly more than twice as long as other two together. *subatomella*, p. 481.
51. Halteres black or brown. 52.
 Halteres yellow. 58.
52. Costal fringe very short. 53.
 Costal fringe long. 54.
53. Costa short of wing middle, first division distinctly longer than other two together; hind tibial setulæ indistinct, brownish black species. *fungicola*, p. 485.
 Costa to middle of wing, first division only as long as other two together; hind tibial setulæ distinct; black species.
 a. Two pairs of post-antennal bristles present. *furtiva*, p. 486.
 b. Only one pair of post-antennal bristles present. *bicolorata*, p. 486.
54. Costa to middle of wing. 55.
 Costa short of middle of wing. 56.
55. Costa distinctly swollen, halteres brown. *conspicualis*, p. 487.
 Costa normal, halteres black. *inornata*, p. 488.
56. Frons longer than broad, upper post-antennal bristles separated by more than one-third the breadth of frons, lower pair by about one-fourth; palpi yellow. *borealis*, p. 488.
 Frons broader than long, upper post-antennal bristles separated by about one-fourth the breadth of frons, lower pair but little closer; palpi black. 57.
57. Halteres brown, abdomen with short hairs, longer and quite prominent on ventral surface at near tip. *rusticata*, p. 489.
 Halteres deep black, abdomen nearly bare, the ventral surface near tip with only a few rather short hairs. *perplexa*, p. 489.
58. Costa to distinctly beyond middle (see *smithii* Bruce). 59.
 Costa to middle, or short of it. 62.
59. Hind tibial setulæ distinct and not particularly numerous. 60.
 Hind tibial setulæ hair-like and very numerous or indiscernible. 61.
60. Small glossy brownish species (1-1½ mm.); both pairs of post-antennal bristles present. *claxtoneura*, p. 490.
 Larger black species (3½ mm.); only one distinct pair of post-antennal bristles. *infumata*, p. 490.

61. Antennæ brownish yellow, cave species *cavernicola*, p. 491.
 Antennæ black *peregrina*, p. 492.
62. Hind tibiæ with distinct setulæ, which are not particularly numerous nor closely placed 63.
 Hind tibial setulæ indistinct, hair-like and very numerous in the species with long costa; if the setulæ are somewhat more distinct and sparse then the costa is very short..... 65.
63. Two distinct post-antennal bristles, frons not longer than broad nor noticeably polished..... 64.
 Frons noticeably longer than broad, distinctly polished, four post-antennal bristles present; costal fringe very short, fourth vein nearly straight at base. *minor* male, p. 494.
64. Black species; costa to near middle, fourth vein distinctly bent at base, fringe long, thick veins black *dyari*, p. 493.
 Brown-black species; costa to two-fifths of wing length, fringe of moderate length, fourth vein nearly straight at base, thick veins flavous..... *flavineris*, p. 493.
65. Costa to middle of wing or near to it, always more than one-third the wing length..... 66.
 Costa to barely more than one-third the wing length..... *pygmæa*, p. 499.
66. Four large and nearly equal post-antennal bristles..... 67.
 Lower pair of post-antennal bristles very much reduced in size or absent..... 71.
67. Costa to middle of wing, fringe very long..... 68.
 Costa to short of wing middle, fringe very short..... 70.
68. Abdomen in male with long scale-like hairs, female abdomen with scattered hairs, fourth vein bent at base..... *rufipes*, p. 494.
 Abdomen in male with only the ordinary hairs..... 69.
69. First costal division not longer than second and third together . . *pulicaria*, p. 495.
 First costal division distinctly, but not greatly longer than second and third together *evarthæ*, p. 472.
70. Black species; frons longer than broad, highly polished; legs strong, fourth vein very slightly bent at base, costa to just short of wing middle, wings infuscated. *minor*, p. 494.
 Brownish or yellowish species, costa distinctly short of middle, frons not highly polished..... *setacea*, p. 495.
71. Hind tibiæ in male flattened on the apical third of dorsal surface 72.
 Hind tibiæ normal..... 73.
72. Last abdominal segment to male with distinct long hairs; costa to short of or near to middle of wing..... *albidohalteris*, p. 496.
 Last abdominal segment in male without such long hairs, costa to beyond middle. *smithi*, p. 497.
73. Frons distinctly shining, longer than broad, lower pair of post-antennal bristles about half as large as upper pair, center pair of bristles in first row much lower on frons than outer pair *fuscopedunculata*, p. 498.
 Frons barely shining, broader than long, center pair of bristles in first row nearly in transverse line with outer pair..... *agarici*, p. 499.

APHIOCHÆTA MARGINALIS, new species.

Female.—Black; frons dull black, four strong, nearly equal-sized post-antennal bristles, the lower pair much closer than the upper, antennæ brown, normal in size, palpi yellow, moderately bristled; thorax somewhat shining, scutellum with six bristles, the outer and center pairs weaker, mesopleuræ with one long and very strong bristle

directed backward besides the numerous small ones, abdomen with the segments subequal, lateral bristles on second segment weak, segments 1-4 narrowly margined posteriorly with yellow, 5-6 entirely black, the latter with a few hairs; legs yellow, posterior femora and tibiæ dusky apically, mid and hind tibiæ setulose on the postero-dorsal surfaces, those on hind tibiæ distinct, wings grayish, costa to middle, first division more than twice as long as second, second twice as long as third, fringe moderately long, fourth vein leaving at fork of third with a gentle curve and running slightly upward to before the tip of wing, ending as much before wing tip as fifth does behind it, halteres brownish yellow.

Length, 2 mm.

Type.—Cat. No. 14844, U.S.N.M.

Two specimens; label, "2m. W. St. Louis, Mo., 9-VI-1904" (W. V. Warner).

The peculiar very long mesopleural bristle should distinguish this species, as well as the number of scutellar bristles. I am, however, not inclined to consider the latter, owing to their size, as the normal number in this species, as there may really only be four in some specimens. The only Palearctic species that I know of with this exceptional number of bristles on the scutellum is *flavicoxa* Zetterstedt, which has six equal-sized bristles, though one in Zetterstedt's collection has seven, as has also one in my collection in the Royal Scottish Museum, Edinburgh. In some much smaller species in *Aphiochæta* there is the remarkable lengthening of one of the mesopleural bristles, but except next species they are considerably smaller with only two scutellar bristles and other characters which easily separate them from the above. (See also *A. juli* Brues and next species after it in table.)

APHIOCHÆTA SUBMARGINALIS, new species.

Resembles in most respects the above species but the frons is as stated in table, the antennæ are rather smaller and the arista shorter than in *marginalis*. The long mesopleural bristle is also comparatively shorter, the palpi are not so bright in color, the legs, especially the hind pairs, are darker, the abdomen is entirely dark, the posterior pair of legs are very strong, and the hind tibial setulæ are short, though strong, and regular on the apical two-thirds but absent on the basal third. Otherwise as *marginalis*.¹

Type.—Cat. No. 14845, U.S.N.M.

One female, Plummers Island, Maryland (A. K. Fisher).

¹ The scutellum is in poor condition so that I can not detect whether the additional bristles are present as in *marginalis*.

APHIOCHÆTA JULI Brues.

Yellow; frons yellow, upper part brownish, or all brown, lower post-antennal bristles very small, not half the size of the upper pair, antennæ brownish-yellow, palpi yellow, normal; thorax dull yellow, four nearly equal scutellar bristles, mesopleuræ with a number of very short bristles and one long and very strong backwardly directed bristle, abdomen with the apex of first segment with a black band, the other segments dark brown except the narrow hind marginal bands which are yellow, several bristles on sides of second segment; legs yellow, the apices of hind femora darkened, hind tibial setulæ (7-8) very weak but long and widely placed; costa to middle of wing, first division as long as other two together, third division about one-third as long as second, fourth vein leaving at just beyond fork, slightly curved at base and ending before wing tip; halteres dusky.

Length, 2 mm.

Mr. H. S. Barber obtained a good series of females and one male at Plummers Island on May 12, 1912, which came to myriapods he had placed in a jar. The male differs only in having an entirely black abdomen.

Later the same observer succeeded in rearing a number of specimens from a myriapod and informs me that it is freely attracted to specimens of *Spirobolus marginatus* if they are placed in an exposed place on Plummers Island.

This is the species described as *xantippe*, Banks¹. Brues describes his species as a *Plastophora* and at first I had difficulty in associating it with Banks' species.

APHIOCHÆTA PERDITA, new species.

Female.—Yellow; frons clear yellow, longer than in *xantippe* Banks, the anterior pair of post-antennal bristles are about half as large as the posterior or upper pair, the center pair of bristles are also much lower on frons than in *xantippe*, the anterior pair of scutellar bristles are only half as large as the posterior pair, the small mesopleural bristles are more distinct, the large one being smaller than in *xantippe* and situated much lower on the mesopleuræ, the abdomen is yellow with the apex of first, the whole of second, and most of third segments, as well as extreme tip of abdomen black, the second segment is much elongated, and dilated laterally on basal half with two to three bristle-like hairs on the dilated portions; the legs are colored as in the previous species, but the hind tibial setulæ are much more distinct, closer placed, and more numerous (12-13) than in *xantippe*; halteres yellow.

Length, 2½ mm.

¹ Trans. Wash. Ent. Soc., 1911, p. 212.

One female, Plummers Island, Maryland, 27-6-09 (W. L. McAtee); one female, Holly Springs, Mississippi (F. W. Mally). The enlarged bristle on mesopleura separates it from the next species, and the points enumerated in description from *xantippe* Banks, which is most closely allied to it.

Type.—Cat. No. 14846, U.S.N.M.

APHIOCHÆTA ARCUATA, new species.

Female.—Black, distinctly shining; frons shining, slightly gray pollinose, longer than broad, upper post-antennal bristles small and very close together, occupying about one-seventh the breadth of frons, lower pair minute, center pair of bristles in first row slightly lower on frons than upper post-antennals and midway between them and outer pair in first row which are very slightly higher on frons, center pair in second row about one-fifth the distance from ocellar triangle to post-antennal bristles, antennæ very small, brown, arista very short, barely two-thirds as long as frons, bare, palpi dusky yellow, of moderate size, weakly but numerous bristled; disk of thorax very thickly covered with minute hairs, mesopleuræ with numerous bristles, two or three of which on the lower posterior margin are distinctly longer than the others, scutellum with four bristles, the anterior pair weaker than the posterior; abdomen broad and rather short, egg-shaped, broadest at apex of second segment, second and third segments with several short lateral hairs, the others almost bare; legs piecous, fore coxæ and all tibiæ paler, hind femora with rather long hairs on ventral surface, mid tibiæ without setulæ, hind tibiæ very strong, the dorsal ridge very distinct causing the dorsal surface to present an arcuate appearance when viewed laterally, setulæ distinct; wings distinctly infuscated, costa to middle, first division distinctly, but not greatly, longer than other two together, third one-third as long as second, fringe nearly as long as fork of third vein, very delicate, fork of third vein acute, fourth vein very slightly bent at base and regularly arcuate, ending distinctly in front of wing tip; halteres yellow.

Length 2 mm.

One female, Cabin John Bridge, Maryland, April 28, 1912 (Knab and Malloch).

Type.—Cat. No. 14847, U.S.N.M.

APHIOCHÆTA NIGRICEPS Loew.

Yellow; frons dull black, four post-antennal bristles, the lower pair half the size of the upper, antennæ black-brown, of moderate size, arista pubescent, palpi yellow, large, distinctly bristled, thorax yellow, indistinctly striated, scutellum with four almost equal-sized bristles, mesopleuræ with a number of small bristles on upper posterior angle; abdomen with only the base of the first segment and the apices of the

third and fourth narrowly yellow, fifth and sixth brownish, second segment elongate and dilated laterally, with several bristles on lateral angles, ovipositor retracted, yellow; pleuræ with a black spot behind wing base, mid coxæ with a black spot anteriorly and posteriorly; legs yellow, apices of hind femora dusky, mid and hind tibiæ distinctly setulose on their postero-dorsal surfaces, 6 to 7 on basal half of mid and 11 to 12 on hind tibiæ from base to tip; wings with costa to slightly beyond middle, first division equal to other two together, third division about one-third the length of second, fringe long, the bristles longer than fork of third vein, fourth vein curved at origin rather beyond fork of third and running almost straight to near the wing tip, seventh vein distinct, halteres clear yellow.

Length, $3\frac{1}{2}$ –4 mm.

There were quite a number of specimens standing as this species in the collection, but all that I can find to agree with the description are five from Mount Washington, four of which did duty as *scalaris* Loew and one of which is labeled "Phora nigriceps, Lw." There is another specimen from Mount Katahdin, Maine, summit 5,215 feet, August, 1902. No collector's name. I have also seen it from Massachusetts and Rhode Island (Johnson). On the testimony of Coquillett, Brues accepted *aletiæ* Comstock as a synonym of this species in his paper already quoted, but there is a good distinction between these species, and the series in the collection that stood as *nigriceps* was principally *aletiæ* Comstock.

APHIOCHÆTA WINNEMANA, new species.

Female.—Yellow; frons black, anterior post-antennal bristles extremely small, antennæ yellow, arista dark, short, not longer than frons, thick, indistinctly pubescent; dorsum of thorax dark reddish yellow, paler at sides, pleuræ and coxæ immaculate, anterior pair of scutellar bristles about one-half the size of posterior pair; abdomen yellow, second segment but little longer than third, lateral bristles present, segments 2–4 broadly banded with black posteriorly, sixth centrally and apically yellow, ovipositor extruded, blackish brown; legs yellow, apices of hind femora broadly brown, mid tibiæ without distinct setulæ, those on apical three-fifths of hind tibiæ (7–8) large and distinct; wings much as in *nigriceps*, but the fringe is comparatively longer and the costa reaches distinctly beyond the middle of the wing; halteres yellow.

Length, 2 mm.

Very similar to *nigriceps* Loew, but the points mentioned in the description should serve to distinguish them.

One female, Plummers Island, Maryland (H. S. Barber).

Type.—Cat. No. 14848, U.S.N.M.

APHIOCHÆTA ALETIÆ Comstock.

Yellow; frons black-brown, paler in front, with yellowish rather thick pubescence anteriorly and centrally, lower post-antennal bristles not half as large as upper pair; antennæ brown, arista with distinct pale pubescence; palpi yellow; thorax yellow, sometimes reddish tinted, scutellum with two strong bristles and two pale hair-like bristles anterior to them, less distinct in the male; abdomen with the dorsum sometimes entirely brown except the narrow hind-marginal yellow bands, and sometimes with lateral spots carried across in a more or less narrow band posteriorly, varying in intensity from reddish brown to black; legs yellow, apices of hind femora brownish, basal half of hind femora with a series of curved hairs, hind tibial setulæ very fine, only those on apical half strong; wings clear, neuration as in table but the male generally has the first section comparatively longer and the second and third more nearly equal in length than the female; halteres yellow.

Length, 1-2 mm.

This species was originally described by Comstock in the Report on Cotton Insects, 1879. It was then considered as a parasite on *Aletia argillacea* (the cotton worm), but this has since been proven a mistake. As already stated, Brues gave *aletix* as a synonym for *nigriceps* in his monograph on the Phoridae, but an examination of a number of Comstock's original specimens still in the Museum has shown that it is not that species, and the figure given with the original description, while not what one might desire, is sufficiently clear to show that it is a distinct species from that figured by Brues. The original specimens are labeled August 27, 1879, and stood in the collection labeled by Coquillett *nigriceps* Loew. I have no other course than to reinstate this species as it is already shown distinct from *nigriceps*, being in fact much nearer to *fungicola* Coquillett than to any other species and possibly this is the species referred to by Brues as *fungicola* var. with pale halteres. Reared from *aletia* pupæ (Comstock). I have also seen a specimen reared from garbage by Professor Johannsen (Ithaca, New York.)

APHIOCHÆTA CONICA, new species.

Plate 36, figs. 5, 6, 11.

Female.—Yellow; frons brownish toward vertex, ocellar triangle broad but very short, frontal suture distinct, bristles moderately strong, only two post-antennal bristles, central pair of bristles in front row very wide apart and placed low down at near the lateral angles of frons, nearly in line with post-antennal pair, and but little farther from eye margin than outer bristles above them, the second row of bristles almost equidistant from each other and nearly in a straight line, antennæ yellowish, third joint nearly round, arista

rather thick, palpi large, moderately bristled, proboscis yellow, long, projecting, rather tapering and chitinised; two dorsocentral thoracic bristles; scutellum with two strong bristles and two anterior hairs, mesopleuræ bare; abdomen with first and sixth segments mostly yellow, the others black, second segment laterally dilated, several bristles on lateral margins, third segment with a regular row of strong hind-marginal and several lateral bristles, sixth segment elongated, with several long bristles at apical third; ovipositor exerted, chitinised, of nearly equal width for its entire length, about two and one-half times as long as broad, truncate apically; legs yellowish, hind pair darker, hind tibiæ with setulæ on postero-dorsal surface, those on apical half very distinct; costa to middle of wing, first division one and one-half times as long as second, fork of third vein acute, costal fringe of moderate length, as long as fork of third vein, fourth vein leaving at fork of third with a gradual bend and running with a sweep to near tip of wing, fourth, fifth, and sixth veins at nearly equal distances from each other in disk of wing; halteres pale yellow.

Length, 2 mm.

One female. "Bred from abdomen of *Camponotus pennsylvanicus*," August 22, 1901 (T. Pergande), Washington, District of Columbia.

The chitinised ovipositor may be for the same purpose as that of *Apocephalus pergandei* Coquillett, and the fact that this specimen was bred from the same host would seem to bear this out.

Type.—Cat. No. 14850, U.S.N.M.

APHIOCHÆTA FISHERI, new species.

Female.—Yellow; frons black, yellowish above the antennae, lower pair of post-antennal bristles rather more than half the size of upper pair, which are strong; antennæ yellow, brownish at tip, arista longer than frons, pubescent, palpi yellow, with normal bristles; proboscis large and fleshy, protruding; thorax clear yellow, anterior pair of scutellar bristles reduced slightly in size, abdomen with either the hind margins of segments narrowly yellow, or the lateral margins broadly black carried across on the anterior margins in a narrow band, second segment not elongated, but with some inconspicuous bristles laterally; legs yellow, hind femora with apices infuscated, mid tibial setulæ indistinct, those on apical half of hind tibia (8-9) large and distinct, wings grayish, veins brown, neuration as in table, halteres yellow.

Length, $2\frac{1}{2}$ –3 mm.

Type.—Cat. No. 14851, U.S.N.M.

Two females, Plummers Island, Maryland, May 16, 1907 (A. K. Fisher); May 30, 1907 (W. L. McAtee).

Easily separated from its allies by the large fleshy proboscis of the female, but the male may not be so easily recognized, as that organ is very probably of normal size and retracted in that sex. Like the next species the male will very probably have the scutellar bristles more unequal. A female from Delaware Water Gap, New Jersey (C. W. Johnson), has the proboscis less prominent, but agrees in other respects with those from Plummers Island. One female, Hyattsville, Maryland, September 1, 1912 (Malloch and Knab).

APHIOCHÆTA INÆQUALIS, new species.

Male and female.—Yellow; frons black, gray dusted, lower post-antennal bristles in male nearly as large as upper pair, in female much smaller; antennæ brown, arista yellow at base, almost bare, palpi yellow, normal; thorax yellow, darker in male, anterior scutellar bristles very small and weak in male, but about three-fourths as large as the posterior pair in female, abdomen black, with narrow, yellow hind-marginal bands, that on sixth segment more distinct in female, first, fifth, and sixth segments nearly all yellow, merely laterally infuscated in male, second segment very slightly elongated and with several lateral, weak, but distinct bristles, male hypopygium large, yellowish brown, the anal protuberance long and yellow, with 2 very slender long terminal hairs, female ovipositor yellow; wings grayish, veins brown, costa to middle of wing, first division about twice as long as second, third vein thicker than costal vein, fringe long and thick; legs yellow, hind femora dusky at apices and with a series of longish, black, curled hairs on basal half of ventral surface, hind tibiæ darkened at apex posteriorly, setulæ on basal half weak, but the 5-6 on apical half strong and nearly equal in size; halteres yellow.

Length, 2-3 mm.

A pair from Ithaca, New York (O. A. Johannsen), and one female from Fieldbrook, California, May 29, 1904 (H. S. Barber), that evidently belongs to the same species. I have also seen three females from Hanover, New Hampshire (Johnson).

Type-locality.—Ithaca.

Except that the lower post-antennal bristles are very small, almost imperceptible, I can see no difference that would cause me to separate the Californian specimen from the type.

Type.—Cat. No. 14852, U.S.N.M.

APHIOCHÆTA MACROCHÆTA, new species.

Female.—Yellow; frons yellow, bristles strong, post-antennal bristles of nearly equal size, strong, upper pair widely placed; antennæ yellow, arista distinctly pubescent, longer than frons, palpi yellow, strongly bristled; thorax yellow, anterior pair of scutellar bristles very weak, hardly more than weak hairs; mesopleuræ with one strong,

backwardly directed bristle, but in the specimen before me I can not detect the usual short bristles, abdomen yellow, first segment with the disk, second segment with lateral and posterior margins narrowly, and remaining segments entirely darkened, venter yellow, second dorsal segment with 2 to 3 bristle-like hairs; legs entirely yellow, mid tibial setulæ distinct, hind tibial setulæ (9-10) large and distinct, the terminal one at apex especially so; costa to middle of wing, first division rather longer than second, but not longer than second and third together, third about one-fourth as long as second, fringe about three times as long as diameter of costa, fourth vein leaving at fork of third, very slightly curved at origin and running nearly straight to in front of wing tip; knob of halteres yellow, pedicel darkened.

Length, 2 mm.

A species that may fall easily into that section with only two scutellar bristles, and very probably the male has only two. It is quite distinct from any of the other species that I have seen either here or in Europe.

Locality.—Arroyo, Porto Rico, February, 1899 (A. Busck), one female.

Type.—Cat. No. 14853, U.S.N.M.

APHIOCHÆTA SPINIFEMORATA, new species.

Plate 36, fig. 4.

Female.—Yellow; frons yellow, about one-half broader than long, only the ocelli black, one pair of very long and strong post-antennal bristles, rather widely placed, divergent, first row of frontal bristles very low down and forming a convex line with the post-antennal pair, the space between them being much less than that between the center one and the post-antennal, second row nearly straight, midway between the ocelli and the post-antennal bristles, antennæ rather large, yellow, slightly darkened at insertions of arista, arista distinctly thickened on basal joints, the apical portion very thin and nearly bare, palpi yellow, of good size, and strongly bristled; the two bristles below the eye very prominent; thorax darker than frons, with the usual bristles, mesopleuræ with one very strong backwardly directed bristle, the usual small bristles absent, scutellum with two weak hair-like bristles in addition to the two large marginal bristles posterior to them, abdomen broad, more or less suffused with black-brown laterally and posteriorly, except the sixth segment, and the usual narrow hind-marginal bands which are yellow, second segment slightly elongate, sixth elongate and rather conical, all segments with 2 to 3 strong lateral, marginal bristles, ovipositor exerted, somewhat similar in size and shape to that of *conica*, not chitinous; legs yellow, the apices of hind femora darkened, bristles on coxæ and legs strong, hind and mid femora with row of bristles on ventral surfaces, three or

four on apical third very strong, curved, and widely placed; hind tibiæ with numerous strong hairs, those on antero-dorsal surface strong, but not so markedly different from the others that it could be placed in Group B, the postero-dorsal bristles (9-10) large and row complete; wings yellowish, costa to fully wing middle, first division equal to second, third about one-fourth the length of second, costal fringe very long and strong, its bristles equal in length to width of basal costal cell; halteres dusky yellow.

Length, $1\frac{1}{2}$ mm.

One female Mandrilla, Jamaica (T. D. A. Cockerell).

Standing in collection as "*Phora scalaris*, Lw."

Type.—Cat. No. 14854, U.S.N.M.

APHIOCHÆTA RUFICORNIS, Meigen.

Yellow; frons in female clear yellow, in male browned above, lower post-antennal bristles less than half the size of the upper pair; third joint of antennæ in male large and oval, in female smaller, and not so much darkened at tip, arista distinctly pubescent, palpi yellow, normal; thorax slightly darkened posteriorly; four equal sized scutellar bristles; abdomen yellow, first segment with a narrow, preapical, black band, the others with broad, lateral spots which suffuse nearly the entire segments 2-4, segments 5-6 yellow on disk, second segment slightly elongate and dilated in male and in both sexes with 4 to 5 very long hair-like bristles laterally; legs yellow, hind femora blackened at tips, and ciliated with hairs on the apical third of their ventral surfaces; bristles on mid tibiæ weak, those on hind tibiæ weak at base but rapidly increasing in size to beyond middle then abruptly ceasing, very long and widely placed, the apical third occupied by 4 to 5 very small setulæ and one long bristle at apex; wings yellowish, veins brown, costa to beyond middle, first division shorter than second, first vein joining the costa at an obtuse angle, third division about one-fourth the length of second, halteres yellow.

Length, $3\frac{1}{2}$ mm.

There are two specimens (male and female) from Franconia, New Hampshire (Mrs. Slosson), and one male from Plummers Island, Maryland (A. K. Fisher), which I am unable to separate from the European species except by color. In this group color is an unsatisfactory character to base a specific distinction upon and I prefer to consider this species as identical with that of the European fauna, which in Britain varies from yellowish to black, and would probably be much more prone to vary to the lighter forms in this country. I have also seen one female of this species from Ithaca, New York (O. A. Johannsen), and one female from Delaware Water Gap, New Jersey, July 12. (This last is in the collection, but there is no collector's name on it.)

APHIOCHÆTA AUREA Aldrich.

Yellow; frons, antennæ and palpi yellow, scutellum with four marginal bristles, abdomen bright orange red, the apex more or less blackened, legs entirely yellow, hind femora with a few bristles near the tip, hind tibiæ with 10 to 11 setulæ; costa to much beyond wing middle, first division of costa about as long as second, costal bristles very short, not much longer than diameter of costal vein, halteres sometimes darkened.

Length, 1.3–1.7 mm.

Type specimens from Grenada, West Indies, in collection.

APHIOCHÆTA SCALARIS Loew.

Yellow; frons clear yellow in female, darkened on upper portion in male, lower post-antennal bristles about one-half the size of upper pair in male, more nearly equal in female; antennæ yellow, arista pubescent, thorax rather dark in male, clear yellow in female; four nearly equal scutellar bristles in female, in male the anterior pair much reduced in size; abdomen yellow in both sexes, with a narrow, black, subapical band on first segment, large lateral spots carried across in more or less narrow bands posteriorly on all the segments, second segment slightly elongate, and dilated laterally, with several bristles on lateral angles, not so strong as, and more numerous than in *ruficornis* Meigen; legs yellow, the apices of hind femora black, ventral surface of hind femora with some distinct hairs; mid tibiæ with double row of bristles, the antero-dorsal row weak, hind tibiæ with continuous series of moderately strong bristles (8–9 in male, 10–11 in female); costa to a little beyond middle of wing, first division rather shorter than second in male, about same length in female, third about one-fifth as long as second, fringe short and close; halteres yellow.

Length, 2–3½ mm.

Three specimens "From onions, Tobago, W. I., June 4th, 1903;" from decaying insects, Pernambuco, Brazil, February, 1883 (six specimens); four specimens, "Host, *Hyphantria cunea*, November 8, 1895" (diary date which refers to specimens of *Phora venusta* Coquillett). Date on specimens which bear same diary number October, 19–28, 1895. One specimen Orlando, Florida (Chittenden); and eight specimens from Baracoa, Cuba (A. Busck). This specific name seems to have been like *nigriceps* the general repository of all unidentifiable yellow *Phoridæ*.

APHIOCHÆTA SCALARIS var. CORDOBENSIS, new variety.

Plate 36, fig. 9.

In most particulars as the above, but a more robust insect with a darker color over all; the wing neuration is as figured and the legs are rather stouter, while the halteres are brown instead of yellow. It

is possible that this may be a distinct species, but there is only a single specimen in the collection from Cordoba, Mexico (F. Knab), and I am averse to describing it as a new species owing to the fact that *scalaris* has a very wide range, and shows considerable variation in size, and intensity of coloring though not to the extent shown in this specimen.

Type.—Cat. No. 14855, U.S.N.M.

APHIOCHÆTA SUBLUTEA, new species.

Female.—Pale yellow; ocellar triangle and upper part of frons brownish, upper pair of post-antennal bristles slightly stronger than lower, separated by about one-half the breadth of frons, lower pair by about one-fourth, center pair of bristles in first row directly below the outer pair and a little below the transverse line of upper pair of post-antennals, antennæ yellow, arista yellow at base, basal joints thick, apical portion dark, pubescent, rather longer than frons, palpi yellow, normal; thorax clear yellow, only two distinct scutellar bristles and anteriorly two microscopic hairs, mesopleuræ with numerous short bristles one of which is slightly longer than the others, but not remarkably so, abdomen yellow, segments subequal, each segment, except sixth, with a narrow preapical black band, dilated anteriorly laterally, bristles on second segment indistinct; legs yellow, apices of hind femora dusky, setulæ on hind tibiæ (11–12) in a regular row of moderate strength; first division of costa more than twice as long as second, third division about one-third as long as second, fringe long, fourth vein nearly straight at base, ending much in front of wing tip, halteres yellow.

Length, $2\frac{1}{2}$ mm.

Two females, Franconia, New Hampshire (Mrs. Slosson). (Collection of Coquillett.)

Type.—Cat. No. 14856, U.S.N.M.

Labeled "*Phora scalaris* Loew," from which it is very easily distinguished by the costal divisions, the absence of the anterior scutellar bristles, which must be entirely absent in male if the general rule holds, and the long costal fringe, besides several other characters mentioned in the description. I have seen a male from Shark River, New Jersey, which is similar to the female, only differing in having the frons, antennæ, and abdomen brownish, and in being smaller.

APHIOCHÆTA CARLYNENSIS, new species.

This species comes close to *sublutea*, from which it differs as follows:

The frons is almost entirely brown, the lower pair of postantennal bristles are almost as strong as the upper pair, the latter occupying one-half the breadth of frons and the former about one-third; in *sublutea* the outer bristle in first row is nearer to the center bristle in same row, which is almost under it, than to the outer one in second

row; in *carlynensis* they are almost equidistant; the arista in *sublutea* is thick, very shortly pubescent, and barely longer than frons, while in the new species it is thin, distinctly pubescent, and at least one-third longer than frons; the palpi are also darker, much more strongly bristled, and there are about six regular, strong bristles on the side of the face in *carlynensis*. Besides these points the mesopleural bristles are regular and only about 8 in number; there is a distinct black mark on the pleuræ below wing base and another behind on mid coxæ, the abdomen is, except narrow fore and hind marginal bands on segments 2-4, all brown-black; the hind tibial setulæ are strong and on apical third widely placed; the first costal division of wing is equal to the next two, the third about one-half as long as second; the costal fringe is about twice as long as diameter of costal vein; the fork of third vein is not so acute as in *sublutea*, and the fourth vein leaves at distinctly beyond fork.

Length, 2 m. m.

Type.—Cat. No. 15241, U.S.N.M.

Locality: Glen Carlyn, Virginia, August 12, 1912 (F. Knab). One female. One male, Rosslyn, Virginia, September 22, 1912, Malloch and Knab.

APHIOCHÆTA FLAVA Fallén.

Yellow; frons gray dusted, black or brown, lower pair of post-antennal bristles small, antennæ yellow, palpi yellow; thorax dark reddish yellow, narrow, only two scutellar bristles; abdomen narrow, segments subequal, the bristles on second abdominal segment very inconspicuous, hypopygium of male projecting, the anal protuberance rather small and dusky yellow, dorsum of abdomen nearly all brown-black, but indistinctly paler on first segment and base of second, costa to at least the middle of wing, first section shorter than second, costal cells narrow, fringe short; legs slim, the hind tibiæ not much thickened, the setulæ small and numerous (15-16) and very crowded on basal fourth; halteres yellow.

Length, $1\frac{1}{2}$ -2 mm.

There is one specimen in the collection from the District of Columbia.

APHIOCHÆTA SUBFLAVA, new species.

Male and female.—Yellow; frons yellow, posteriorly darkened in both sexes, lower post-antennal bristles about one-fourth the size of the upper pair, antennæ yellow; thorax yellow, two microscopic hairs anterior to the two strong bristles, abdomen broader than in *lutea*, and not so long in male comparatively, segments 2-4 with lateral black triangular marks, fifth yellow, sixth black, several distinct bristles on lateral margins of second segment, hypopygium of good size, protruding as in *flava*, but the anal protuberance is much more conspicuous, of a paler color, and has two strong hairs at the extremity

the hind tibiæ are stronger than in *flava*, and the setulæ (8-10) are weaker and much more widely placed; the third vein is much further from the costa at its base than in *flava* and the costal cells are thus much wider than in that species; halteres dusky yellowish-brown (in one specimen yellowish).

Length, $1\frac{1}{2}$ mm.

Two males and one female, Bayamon, Porto Rico (A. Busck).

Closer in general characters to *scalaris* Loew, but the very small anterior scutellar hairs separates it at once in both sexes from that species.

Type.—Cat. No. 14857, U.S.N.M.

APHIOCHÆTA ATLANTICA Brues.

Yellow except tips of hind femora and anterior lateral corners of abdominal segments; frons honey yellow, thickly covered with fine black hairs, ocellar tubercle and median furrow present, four post-antennal bristles of nearly equal size and placed in a curve, the center pair of bristles directly underneath the outer pair of front row and much below them; antennæ yellow, arista pubescent; palpi very small; thorax somewhat shining, with black pubescence; two scutellar bristles; second to fifth abdominal segments with lateral spots, sixth black; bristles on second segment weak, hind tibiæ distinctly ciliated with setulæ on postero-dorsal surface; costa extending to middle of wing, with closely placed, very short bristles, first vein ending a little nearer the tip of third than to the cross vein.

Length, 1.75-2.5 mm.

One specimen "from rotten *Aletia*, Sept. 25th '80," seems to belong to this species. The arrangement of the frontal bristles is as given by Brues, but the color is rather different, and there are two anterior hairs on scutellum as well as the two bristles. I have not seen Brues's species, and the description is not clear enough on certain points to enable one to separate it from any closely allied forms. In any case if the above specimen is not *atlantica* it must belong to an undescribed species, and I prefer to leave it this way rather than to describe it as new when it may really belong here.

APHIOCHÆTA INCISA, new species.

Female.—Yellow; frons dull black, about as long as broad, lower post-antennal bristles very small, antennæ black, arista black, longer than frons, distinctly pubescent, palpi yellow, normal; thorax reddish yellow, scutellum with two bristles, abdomen brown, apices of all segment and base of second segment laterally yellow, several short bristles on lateral margins of second segment, a transverse incision from either side, not meeting in center, at about one-third from base of fourth segment makes it appear as if the fourth segment is very short (as in *ciliata* Meigen); legs dusky yellow, hind femora

dilated, hind tibiæ strong, setulæ indistinct at base and apex, those (8-9) on central portion more distinct; costa to middle of wing, first division about one and one-fourth as long as second, third nearly one-fourth as long as second, so that the first division is barely longer than 2 and 3 together, fringe of moderate length, very delicate and widely placed, fourth vein curved at base, running nearly parallel with fifth for two-thirds of its length, ending much in front of wing tip with an upward curve; halteres brown.

Length, $1\frac{1}{2}$ mm.

One female, Minatitlan, Mexico, February 1, 1892 (H. Osborn).

Type.—Cat. No. 14858, U.S.N.M.

APHIOCHÆTA LUTEA Meigen.

Yellow; frons sometimes darkened above, the antennæ always yellow, palpi normal; thorax pale yellow, scutellum with two bristles; abdomen more or less brown or black on dorsal segments, the anal protuberance rather short and broad, legs yellow, the apices of hind femora darkened, hind tibial setulæ delicate and regular; costa to middle of wing, second division less than half the length of first, fringe long and strong, fourth vein leaving at fork of third; halteres yellow.

Length, $1\frac{1}{2}$ -2 mm.

There are several specimens in the collection that belong to this species. One from Wisconsin is labeled as such by Brues, and there are three from Delaware Water Gap, New Jersey, July 12 (no collector's name or year), while a specimen from Eureka, California (H. S. Barber), is, though larger and slightly different in some minor characters, I believe, the same species. I have also seen it from Ithaca, New York (O. A. Johannsen).

APHIOCHÆTA OBSCURA Brues.

Yellow; frons brown, the lower post-antennal bristles about one-half the size of the upper pair; antennæ brown, arista long, pubescent, brown; thorax yellow, with a brownish tinge, pleuræ yellow, scutellum with two bristles; abdomen brownish black; legs yellow, hind tibial setulæ very small and indistinct; wings grayish, costa to middle, first division about one and one-half times as long as second, fringe of only moderate length and not strong, rather widely placed, fifth and sixth veins very distinctly convergent at middle, halteres brown.

Length, 1 mm.

I have only seen the type specimen in the museum.

Locality, St. Vincent, West Indies.

APHIOCHÆTA EVARTHÆ, new species.

Male and female.—Yellow; frons black, bristles strong, the lower post-antennal pair nearly as large as the strong upper pair, antennæ black-brown, arista paler, long and indistinctly pubescent; palpi yellow, moderate in size, but with six to seven very long bristles; thorax yellow with a brownish tinge, two scutellar bristles; abdomen brown in female with paler hind margins; in male, black-brown, with very indistinct paler hind margins to segments; segments subequal, anal protuberance small, yellow; legs yellow, hind femora slightly dusky at apices; hind tibiæ very delicately setulose; wings yellowish; costa to middle, first division rather more than one and one-half times as long as second, fringe very long and strong, fourth vein leaving third at beyond fork, nearly straight, and ending distinctly in front of wing tip; halteres whitish yellow.

Length, $1\frac{1}{2}$ –2 mm.

Type.—Cat. No. 14859, U.S.N.M.

Four specimens labeled "Bred from *Evarthus ovatus*" (*Coleoptera*) June 28, 1897. No locality label. There are also seven specimens labeled "Bred from a dead *Polyphylla*" Detroit, August. These latter are darker in color of thorax and pleuræ, but quite evidently are the same species. The very long costal bristles and pale halteres distinguish this species readily, though in some cases the costa looks as if it hardly reached the wing middle, and sometimes the thorax is brownish, though the insect is readily recognized as a yellow species by its pale pleuræ and the very pale legs and coxæ. (See in section with bare mesopleura under "thorax black or brown.")

APHIOCHÆTA STRAMINEA, new species.

Male and female.—Yellow; frons black or brown, upper pair of post-antennal bristles large, lower pair about one-fourth as large as upper, antennæ small, spherical, clear yellow, arista brown, about one and one-half times as long as length of frons, pubescent; palpi yellow, normal; thorax yellow, pleuræ paler in color, scutellum with two bristles; abdomen yellow, more or less suffused with brown; several small bristles on lateral margins of second segment; legs and coxæ very pale yellow; several long curled hairs on basal half of ventral surface of hind femora. Sometimes the apex of hind femora is dusky; hind tibial setulæ very small and indistinct, only visible under a high power; costa to short of middle of wing in male, to middle in female, first division about twice as long as second, third about one-half as long as second, fourth vein leaving third at beyond fork, with a gradual bend, and ending recurved at much in front of wing tip; halteres yellow.

Length, 1– $1\frac{1}{2}$ mm.

Type.—Cat. No. 14860, U.S.N.M.

The type series of this insect is from Ithaca, New York (O. A. Johannsen).

There are also several specimens that agree with them in every particular, except that the antennæ are rather dusky, in the collection belonging to the Bureau of Entomology, which were reared from fungi (Popenoe).

APHIOCHÆTA FUNGORUM, new species.

Plate 37, fig. 4.

Female.—Yellow; frons black, gray dusted, thickly covered with short hairs, lower post-antennal bristles nearly as large as the upper pair; antennæ black-brown, arista concolorous, distinctly pubescent; thorax reddish-yellow, pleuræ brownish, coxæ very pale yellow; abdomen brownish, first segment short, segments 2-4 subequal, fifth very short, about one-third as long as fourth, seventh pale yellowish, as long as fifth; legs yellow, hind femora and hind tibiæ darkened at apices, hind tibial setulæ very small and indistinct, hair-like; costa short of wing middle, first division longer than the other two together; fringe fine and close and of moderate length; halteres yellow.

Length, $1\frac{1}{2}$ mm.

Type.—Cat. No. 14861, U.S.N.M.

Two females, Cabin John Bridge, Maryland (Popenoe).

The very short fifth abdominal segment should distinguish this species from those in the same section, in the female at least. It is quite probable that no such disparity exists in the male, in which case other characters will have to be used for distinguishing this sex.

APHIOCHÆTA LONGIPENNIS, new species.

Plate 37, fig. 3.

Female.—Yellow; frons black-brown, paler in front; lower post-antennal bristles delicate, less than one-half the size of the strong upper pair; antennæ brown, paler at base of third joint, arista brown, pubescent, palpi very pale yellow, normal in size and bristling; thorax deep yellow; abdomen yellow, suffused with brown except at base of segments, second segment with a few scattered hairs on lateral margins; segments 2-6 subequal; legs yellow, apices of hind femora darkened, hind tibial setulæ strong and distinct (12-13); wings rather long and narrow, the first costal division but little longer than the other two together; fringe long; halteres yellow.

Length, $1\frac{1}{2}$ mm.

Type.—Cat. No. 14862, U.S.N.M.

Two females, Opelousas, Louisiana, March, 1897. No collector's name or data other than given here. A male from same locality sent by C. W. Johnson has the costa rather longer and the third division about one-fourth as long as second, instead of one-half, as in the female. It has lost the head, so that I can not be certain that it belongs here.

APHIOCHÆTA CAYUGA, new species.

Yellow; frons brown, lower post-antennal bristles very minute; antennæ brown, arista brown, rather short, pubescent, palpi yellow, normal; thorax reddish yellow, abdomen brown, segments subequal except second in male, which is slightly elongated and dilated laterally, with a few bristles on the lateral margins; anal protuberance of male pale yellow; legs yellow, hind femora entirely yellow, hind tibial setulæ very small and indistinct; neuration nearly as in *fungorum*; fringe rather longer; halteres yellow.

Length, 1-1½ mm.

A large number of specimens from Ithaca, New York (O. A. Johannsen). Mr. H. S. Barber has bred this from a fungus *Lepiota procera* at Plummers Island, Maryland, September 10, 1912.

Type.—Cat. No. 14863, U.S.N.M.

APHIOCHÆTA STRAMINIPES, new species.

Yellow; frons yellow, slightly darkened towards the vertex, lower post-antennal bristles more than half as large as upper; antennæ yellow, arista brownish, long, and pubescent, palpi pale yellow, rather strongly bristled; thorax pale yellow, abdomen more or less suffused with brown, more distinctly on segments 2-4 laterally in male, segments subequal, bristles on second segment very indistinct, legs pale yellow, hind tibial setulæ very small and indistinct; costa distinctly short of wing middle, lengths of costal divisions much as in *longipennis*, but the first vein joining the costa at a much less acute angle, and fringe shorter; halteres dusky yellow.

Length, 1-1½ mm.

A number of specimens from Ithaca, New York. (O. A. Johannsen).

Type.—Cat. No. 14864, U.S.N.M.

APHIOCHÆTA JOHANNSENI, new species.

Female.—Dull black; frons distinctly gray dusted, lower pair of post-antennal bristles about three-fourths as large as the upper pair and not much closer together, neither pair divergent, central pair in first row much lower than the upper post-antennal bristles and as near to them as to the outer pair in first row; antennæ rather large, velvety black, arista not very long, indistinctly pubescent;

palpi brown, with five to six moderately strong bristles; posterior edge of thorax with several bristles in addition to the usual dorso-central pair, scutellum with four equally strong marginal bristles; abdomen entirely black, second segment elongated slightly, and dilated laterally, eight to nine bristles of moderate length on lateral margins, apical segment with a few strong pre-apical hairs, ovipositor brown; legs piceous, only the fore coxæ apically paler, hind femora with distinct hairs on basal half of ventral surface, mid tibial bristles small, those on hind tibiæ distinct and of moderate size from one-fourth from base to about one-third from apex, those on the latter part very small and crowded; wings brownish, more distinctly towards base and fore-margin, costa to middle, first division equal to the other two together, third division not one-fourth as long as second, fringe fine, but long, and closely placed, fourth vein leaving at slightly beyond fork with a distinct bend and running nearly straight to slightly in front of wing tip; halteres brownish black.

Length, 4 mm.

One female, Ithaca, New York, April, 1901. This specimen was sent by Prof. O. A. Johannsen, after whom I have named it.

Type.—Cat. No. 14865, U.S.N.M.

APHIOCHÆTA BRUNNIPES, new species.

Male.—In color identical with the foregoing species but differs in having the antennæ very large, nearly one-half as large as the eye, the palpi much smaller and with more numerous and stronger bristles, the bristles on the scutellum are not on the margin, but on the disk, the posterior pair being near the center and almost in line transversely with the anterior pair; the second abdominal segment is not noticeably lengthened or dilated, and the bristles on the lateral margins are small (3-4) and hair-like; the hind tibial setulæ are weaker, and less in number and not so noticeably reduced on the apical third; the costa reaches to the wing middle, and the third division is about one-third as long as the second, the hypopygium is large and the apex of ventral surface is highly polished; the anal protuberance is grayish.

Length, $2\frac{1}{2}$ mm.

There are two males in the collection from Plummers Island, Maryland, March 26, 1905 (E. A. Schwarz).

I had some doubt about this insect being distinct from the preceding species, but the differences except in the size of the antennal joint and the hind tibial setulæ are not such as are generally found between the sexes of one species and I have decided that it is better to keep them separate meantime, as there is every probability that they are distinct species.

Type.—Cat. No. 14866, U.S.N.M.

APHIOCHÆTA IROQUOIANA, new species.

Female.—Black, distinctly shining; frons shining, lower post-antennal bristles about three-fourths as large as upper pair, arrangement of bristles as in *johannseni*, antennæ normal, arista pubescent, short, about one-fourth longer than frons, palpi yellow, rather strongly and numerously bristled; thorax shining, several additional bristles on posterior margin, but they are rather weak, four nearly equal scutellar bristles, the anterior pair being a little weaker than the posterior pair; abdomen dull black, more shining towards the apex, bristles on lateral margins of second segment small and indistinct; legs piceous, fore coxæ, fore legs, mid tibiæ, and bases of mid and hind femora yellowish, mid tibial bristles indistinct, those on hind tibiæ widely placed and weak, very indistinct on basal third; wings grayish, costa short of middle, first division nearly three times as long as second, third more than half as long as second, fringe long, fourth vein leaving at rather beyond fork with a slight bend and running nearly straight to much in front of wing tip, a distinct bristle at base of third vein; halteres yellow.

Length, $1\frac{1}{2}$ mm.

One female, Ithaca, New York (O. A. Johannsen); one female, Detroit, Michigan (no collector's name). No date on either.

Type.—Cat. No. 14867, U.S.N.M.

APHIOCHÆTA URSINA, new species.

Male.—Very similar to the foregoing but larger; the bristles on hind margin of thorax are not so numerous, in the specimen before me only the dorso-centrals are present, and those are stronger than in *iroquoiana*, the anterior pair of scutellar bristles are at least as strong as the posterior pair; the lateral bristles on second segment are weak and the sixth segment has several long hair-like preapical bristles; the legs are piceous, the hind tibial setulæ as in previous species; the wings have the costa to near the middle, the first division about two and one-half times the length of second, third nearly one-half second, fringe longer than in *iroquoiana*, and the fourth vein as in that species. I can not see any bristles at base of third vein, which is further from the costa on distal half than in the previous species; halteres yellow.

Length, $1\frac{3}{4}$ mm.

Type.—Cat. No. 14868, U.S.N.M.

One male, London Hill Mine, Bear Lake, British Columbia, July 29, 1903, altitude 7,000 feet. (R. P. Currie.)

There is no doubt about this being distinct from the previous species. Though the front of the head is in so bad condition that it is impossible to say anything definite about the arrangement of bristles, etc., there are sufficient differences to separate it from *iroquoiana* as a quite distinct species.

APHIOCHÆTA ROSTRATA Melander and Brues.

Female.—Head shining black, especially smooth and polished on the front and vertex; frons with the normal bristles, except that the lower post-antennal pair is absent; frontal suture very distinct; antennæ black, arista distinctly plumose; proboscis piceous, very large and strongly exerted, as long as height of head, slender at base, where the rather small spindle-shaped palpi are inserted, swollen and bifurcated at apex, the bifurcation being produced by a splitting of the apex, by a horizontal slit in proboscis; thorax shining, scutellum with two bristles; abdomen nowhere bristly; legs pale yellow, tarsi sometimes brownish; hind tibiæ very distinctly ciliated and with a single weak apical spur, as have also the middle pair, on the inner side at apex the hind tibiæ have several transverse rows of short black bristles; costa to distinctly beyond middle of wing, first division slightly longer than second, fringe very short, fourth vein evenly arcuate; halteres yellowish, blackened at tip.

Length, 1.5–1.75 mm.

Described from specimens taken at Woods Hole, Massachusetts. It is unrepresented in the collection.

APHIOCHÆTA CATA Melander and Brues.

Male and female.—Head black; frons short, about as wide as long, faintly gray pollinose in male, lower post-antennal bristles absent; antennæ entirely black, enlarged, and ovate in male; in female they are normal in size and slightly yellowish at base, arista pubescent; palpi light yellow, strongly bristled; proboscis of female projecting, stout and horny; thorax shining, scutellum with two bristles; legs yellowish brown, anterior pair paler; posterior femora ciliated on apical half of ventral surface, hind tibiæ without any rows of small bristles on their outer side, four posterior tibiæ each with a single delicate apical spur; costa not quite reaching to middle, first division nearly twice as long as the other two together, fringe very short and close; fourth vein slightly but evenly curved, recurved at extreme tip; halteres yellow in female, piceous in male.

Length, 0.8–1.2 mm.

Described from same locality as *rostrata*. It is unrepresented in collection.

APHIOCHÆTA PROBOSCIDEA, new species.

Plate 36, fig. 2.

Female.—Brown-black; frons black-brown, anteriorly paler, lower post-antennal bristles small but present, central pair of bristles in first row incurved, situated distinctly lower and nearer the center of frons than the outer pair, but much nearer the outer pair than to the upper pair of post-antennals; antennæ small, brown, arista rather

short and thick, nearly bare; palpi yellow, large and strongly bristled, proboscis long, yellow, chitinous, projecting as far as end of palpi, rather thin; thorax brown, shining, mesopleura bare; scutellum rather broad and short, about three times as broad as long, two widely placed, strong, marginal bristles; abdomen broad at base, rather conical in shape, first segment rather longer than usual, about as long as second, second dilated laterally and with a few weak bristles, sixth segment elongate, very glossy, with several long preapical hairs, apex yellow, ovipositor brown; legs yellow, hind pair darker, hind femora and tibiæ very strong, the dorsal ridge of latter prominent; setulæ (8-9) on apical two-thirds strong; costa to slightly beyond middle, thickened on basal half, first division distinctly longer than other two together, fork of third vein acute, third division about one-fifth as long as second, fringe of moderate length, widely placed and delicate, fourth vein distinctly bent at base and evenly arcuate, ending slightly recurved at much in front of wing tip; halteres whitish yellow.

Length, $2\frac{1}{2}$ -3 mm.

One female, Plummers Island, Maryland, August 12, 1905 (E. A. Schwarz); three females, Cabin John Bridge, Maryland, September, 1900 (no collector's name). These latter specimens are rather darker in color than the type, and also a little smaller.

Type.—Cat. No. 14869, U.S.N.M.

APHIOCHÆTA ARIZONENSIS, new species.

Male.—Black, hardly shining; frons dull, lower pair of post-antennal bristles closer together but nearly as strong as upper pair, center pair of bristles in first row nearer to outer bristles than to post-antennals, and not much lower than the outer pair, antennæ large, oval, at least half as large as eye, black, arista nearly bare, of moderate length, palpi black, paler at tip, normal in size and bristling; thorax dull, one very long and strong mesopleural bristle situated rather low on mesopleura, the usual small bristles present; abdomen dull black, segments subequal, no particularly noticeable bristles, anal protuberance small brown-black, two weak terminal hairs; legs black, only the anterior pair brownish, hind tibial setulæ indistinguishable; wings clear, costa to about two-fifths the wing length, first division equal to about twice the other two together, fringe very long on apical two-thirds, fourth vein slightly bent at base and ending at distinctly in front of wing tip, seventh vein indistinct; halteres black.

Length, $1\frac{1}{2}$ mm.

One male, Williams, Arizona, June 30, 1901 (H. S. Barber).

Readily distinguished by its black color and the very large third antennal joint.

Type.—Cat. No. 14870, U.S.N.M.

APHIOCHÆTA MONTICOLA, new species.

Male.—Black; frons somewhat shining, lower post-antennal bristles two-thirds as large as upper pair, and much closer placed, center pair of bristles in first row in line transversely with upper post-antennal bristles and much lower and nearer center of frons than the outer pair in first row; separated by about equal distances from the outer pair and the upper post-antennals; antennæ small, brown-black, arista thickly but shortly pubescent, and only about one-fourth longer than the frons; palpi brownish yellow, normal in size and bristling; thorax black, slightly shining, mesopleuræ with distinct bristles, one of them distinctly but not greatly longer than the others, which are of irregular lengths; abdomen dull black, segments subequal, no noticeable bristling except on the lateral ventral surfaces of terminal segment where there are a few strong, hair-like bristles, anal protuberance small, yellowish brown; legs yellow, posterior pair brown, hind tibiæ with very weak, widely placed hair-like setulæ; wings broad, brownish tinged, thin veins brown, costa to near middle, first division about twice as long as the other two together, third about half as long as second, fringe sparse and delicate, but longer than fork of third vein, fourth vein slightly bent at base and ending in front of wing tip; halteres black.

Length, $1\frac{1}{2}$ mm.

One male, Kokanee Mountains, British Columbia, 8,000 feet, August 11, 1903 (R. P. Currie).

Type.—Cat. No. 14871, U.S.N.M.

APHIOCHÆTA FRANCONIENSIS, new species.

Plate 37, fig. 7.

Female.—Black-brown; distinctly shining, frons black, paler anteriorly in center in female, two pairs of nearly equal post-antennal bristles, center pair of bristles in first row near to outer pair and not much below them or nearer to center of frons, antennæ brown-black, arista paler, very shortly pubescent, palpi dusky yellow, normal; thorax black-brown, mesopleural bristles pale, small; abdomen brown, segments subequal, no noticeable bristles but numerous short hairs; legs brown, anterior pair paler, hind tibial setulæ indistinct; costa to near the middle, first section about one and one-half times as long as other two together, third about one-third as long as second, fringe long and delicate, fourth vein slightly bent at base and ending with slight upward curve at before apex; halteres brown.

Length, 1 mm.

Standing as *A. fungicola* Coquillett in collection.

Two females, Franconia, New Hampshire; one male same locality; 2 males Mount Washington, New Hampshire (Mrs. A. T. Slosson).

Type.—Cat. No. 14872, U.S.N.M.

APHIOCHÆTA DUBITATA, new species.

Female.—Black, frons nearly half again as broad as long, gray dusted, lower pair of post-antennal bristles about three-fourths as large as upper pair, center pair of bristles in first row lower than upper pair of post-antennals and much nearer center of frons than outer pair in first row, antennæ rather large, black, arista swollen at base, distinctly pubescent, palpi dark brown, rather numerous bristled, and of rather large size; thorax dull black, mesopleural bristles distinct, abdomen brownish black, segments subequal, not noticeably bristled anywhere, ovipositor brown; legs brownish yellow, apices of anterior coxæ and trochanters yellow, fore legs paler than posterior, posterior tibial setulæ very indistinct; costa to near middle, first division more than twice as long as second, third about one-half as long as second, fringe very long and delicate, fourth vein distinctly bent at base and ending near to wing tip; halteres black.

Length, $2\frac{1}{2}$ mm.

One female, Kokanee Mountains, British Columbia, 8,000 feet, August 11, 1903 (R. P. Currie).

This specimen has the fork of third vein absent in one wing.

Type.—Cat. No. 14873, U.S.N.M.

APHIOCHÆTA DIVERGENS, new species.

Plate 37, fig. 5.

Male and female.—Black; frons about one-fourth longer than broad, distinctly shining, lower post-antennal bristles nearly as large as upper pair, center pair of bristles in first row below the outer pair and nearer center of frons, nearly in line transversely with post-antennals, but nearer to the outer pair in first row than to the post-antennals, antennæ brownish-black, normal, arista distinctly longer than frons, shortly pubescent, palpi yellow, normal; thorax shining, mesopleural bristles distinct; abdomen bare, segments subequal; legs brown, anterior pair paler, fore tarsi slightly thickened, hind tibiæ with very minute setulæ; costa to one-third the wing length, first division twice as long as other two together, third but little shorter than second, fringe short but strong, increasing gradually in size on basal half and of a uniform size on apical half, fourth vein but slightly bent at base and ending much in front of wing tip, fourth and fifth gradually divergent from base to tip; halteres black or brown.

Length, barely 1 mm.

One male, one female, Plummers Island, Maryland, October 25, 1906 (A. K. Fisher); one male, Washington, District of Columbia, September 30, 1912.

Type.—Cat. No. 14874, U.S.N.M.

There are four specimens from Williams, Arizona, that appear to be identical with the two from Plummers Island, and though they may not belong to this species I can not find any reliable character for separating them.

APHIOCHÆTA ATOMELLA, new species.

Plate 37, fig. 6.

Very similar to *divergens*, but the frons is shorter, being only about as long as broad, and is gray dusted in front, the arista is shorter and more distinctly pubescent; the costa extends nearer to wing middle, is much longer fringed, and has the first division less than twice as long as other two together; the fourth and fifth veins are nearly parallel for about the basal half of their course, and the fourth is slightly recurved at margin. Otherwise as *divergens*.

Three males, Popoff Islands, Alaska, Harriman Expedition (T. Kincaid); one male, Oxbow, Saskatchewan, Canada (F. Knab).

Type.—Cat. No. 14875, U.S.N.M.

This is the species included in Papers from the Harriman Alaska Expedition,¹ as *Phora fungicola* Coquillett, by D. W. Coquillett. It is very different from that species.

APHIOCHÆTA SUBATOMELLA, new species.

Plate 41, fig. 5.

Male.—Similar in most respects to *atomella*, but the frons is broader, the abdomen is deep black, opaque, with narrow pale hind marginal bands to segments; the hypopygium is large, subshining, brownish black, the ventral surface of last segment has some distinct bristles at apex. The costa extends to two-fifths the length of wing; the first division is two and one-half times as long as the other two together; the third is two-thirds as long as second, and the size of the insect is larger, being 1½ mm.

One male, Ithaca, New York (O. A. Johannsen).

Type.—Cat. No. 14876, U.S.N.M.

Three specimens from Kaslo, British Columbia (R. P. Currie), seem to belong to this species, but are not in good condition for examination.

APHIOCHÆTA CILIATA Zetterstedt.

Black; frons distinctly shining, longer than broad, lower pair of post-antennal bristles reduced, about one-fourth less than size of upper pair, antennæ brown, arista rather short and thin, but little longer than frons, nearly bare, palpi yellow, normal; thorax slightly shining, mesopleuræ with several short bristles and one very long and strong backwardly-directed one, abdomen rather broad and

¹ Proc. Wash. Acad. Sci. (Diptera), 1900, p. 437.

short, fourth segment in female very short, only about half as long as third and about one-third as long as fifth; legs dark brown, fore coxæ paler, hind femora and tibiæ strong, tibial setulæ strong and widely placed (9-10); wings brownish, costa just short of wing middle, first division twice as long as second, third one-third as long as second, fourth vein slightly curved at origin and ending with a slight upward sweep at distinctly in front of wing tip, fringe of costa very short and close; halteres yellow.

Length, $1\frac{1}{2}$ mm.

This is an extremely common species all over Europe. I have taken it in large numbers under bark of dead trees in December and January, especially where the beetle *Rhagium bifasciatum* was burrowing. It also is very common about carrion and garbage. The only specimen I have seen from America is one female from Ithaca, New York (O. A. Johannsen). It seems to be identical in every respect with European examples of *ciliata*.

APHIOCHETA RETARDATA, new species.

Male.—Shining black; frons glossy black, as long as broad, with numerous fine hairs as well as the usual bristles present, only one distinct pair of post-antennal bristles present, center pair of bristles in first row incurved, distinctly, but not greatly, lower on frons than outer pair and nearly equidistant between them and the post-antennal pair, second row convex, third antennal joint large, round, arista distinctly longer than breadth of frons, very slightly pubescent; palpi narrow, clear yellow, with numerous short, stout, black bristles; thorax shining, scutellum with two strong bristles, mesopleural bristles of equal length, pleuræ brown, paler toward coxæ; abdomen subshining, bare except at apex of sixth segment, where there are some long hair-like bristles, hypopygium brown, a few long hairs on ventral surface, anal protuberance brown, short and stout, with two terminal hairs; legs brown-black, fore pair, trochanters, and bases of femora yellowish, hind legs strong, hind tibial setulæ distinct on apical half, wings brownish tinged, costa distinctly short of middle, first division about one and one-half times as long as other two together, third about two-thirds as long as second, fringe short, fourth vein regularly arcuate and ending distinctly in front of wing tip, halteres yellow.

Length, 1 mm.

One male, Las Vegas, New Mexico (H. S. Barber).

Has a general resemblance to *minor* Zetterstedt, from which the bristly mesopleura separates it, and to *ciliata* Zetterstedt, from which the absence of the long mesopleural bristle distinguishes it.

Type.—Cat. No. 14877, U.S.N.M.

APHIOCHÆTA APPROXIMATA, new species.

Female.—Black; frons dark, lower pair of post-antennal bristles nearly as large as upper pair, center pair of bristles in first row a little lower than post-antennal upper pair, and much nearer to center of frons than outer pair in first row, which are a little higher than the upper post-antennals; antennæ large, round, arista thick at base, pubescent, palpi brownish yellow, normal; thorax dull, mesopleural bristles of fair size, those on the posterior margin longer; abdomen dull, segments subequal; legs brown, anterior pair paler, hind femora distinctly ciliated on apical half of ventral surface; hind tibial setulæ indistinct except on middle; wings grayish, the small hairs on the disk of wing more numerous than usual and especially along the fore margin and tip, where they form a darker edging to the wing, much as in *conglomerata*; costa to near the middle, first division shorter than the other two together, but longer than second, third one-third as long as second, fringe long, fourth vein bent at base and ending at distinctly in front of wing tip; halteres yellow.

Length, $2\frac{1}{2}$ mm.

Type.—Cat. No. 14878, U.S.N.M.

One female, Chicago, 5-12-99. (No collector's name.)

As in *chætoneura*, there is a small bristle present at base of third vein. There is a second specimen in the collection from Plummers Island, Maryland, which agrees with the type in every way except that the palpi are paler and the dark edging to wing is not so distinct. I have seen a specimen from New Haven, Connecticut (Johnson), that has the wings as in the Maryland specimen.

APHIOCHÆTA VULGATA, new species.

Female.—Dull black, frons distinctly shining, gray dusted anteriorly, lower pair of post-antennal bristles nearly as large as upper pair, center pair in first row a little lower than outer pair but nearer to them than to the post-antennals, outer pair nearly in transverse line with post-antennals, antennæ of normal size, brown-black, arista swollen at base but terminal part very thin and bare, palpi dull tawny yellow, rather large, and strongly bristled; thorax dull, mesopleura with rather long bristles, abdomen dull black, segments subequal, with scattered short hairs but nowhere with noticeable bristles; ovipositor brown; legs brown, only the anterior pair paler, hind femora and tibiæ strong, hind tibial setulæ close and regular, but not very long; costa to middle of wing, first division equal to other two together, third about one-half as long as second, fringe long, fourth vein slightly bent at base and ending with a slight upward curve at distinctly in front of wing tip; halteres yellow.

Length, $1\frac{3}{4}$ mm.

Type—Cat. No. 14879, U.S.N.M.

One female Mount Katahdin, Maine, 5,215 feet. August 19, 1902. One female, West St. Louis, Missouri, May 23, 1904 (W. V. Warner). This second specimen has the hind tibial setulæ rather more widely placed and the legs rather paler, but it is immature and not in very good condition for examination. I have also seen one male and one female from Boston, Massachusetts, and one female from Hamilton, New Hampshire (Johnson).

APHIOCHÆTA DIFFICILIS, new species.

Very close to *vulgata*, but brownish black; the frons not shining, the arista paler and more distinctly pubescent, the palpi yellow; the abdomen brownish with paler hind marginal bands to segments; the legs yellow, the posterior pair darker, hind tibiæ not so strong and the setulæ less distinct at apex, and more widely placed than in the type of *vulgata*; it is also not so robust as that species, and the costa is longer in the female, in which sex the first division is hardly as long as the other two together, though in the male it is distinctly longer. In size similar to *vulgata*.

Two males and one female, Beverly, Massachusetts, June–August, 1870. (No collector's name.)

One female evidently the same species with label "N. C." One male from Ithaca, New York (O. A. Johannsen).

Type—Cat. No. 14880, U.S.N.M.

APHIOCHÆTA ANOMALA, new species.

Male and female.—Brownish black; frons black, both pairs of post-antennal bristles about equal in size, upper directly in line above lower pair, the center pair of bristles in first row nearly in transverse line with the outer pair and much nearer to them than to the post antennal bristles; antennæ brown, arista paler and slightly pubescent, palpi yellow, rather thickly bristled; thorax brown, in addition to the scutellar bristles there are two fine hairs anterior to them; mesopleura with a large portion of the upper posterior angle covered with short bristles, female abdomen with segments subequal and a few scattered hairs, male abdomen with the last three segments haired laterally, hypopygium large, anal protuberance small, legs and coxæ yellow, hind tibiæ with distinct setulæ which are longest on the middle; costa to middle of wing, first division about as long as other two together, third less than one-third as long as second, fringe very long and strong, fourth vein leaving at fork with a distinct bend and ending with a slight upward bend at distinctly in front of wing tip; halteres yellow.

Length, $3\frac{1}{2}$ mm.

Type.—Cat. No. 14881, U.S.N.M.

One female, Mount Washington, New Hampshire (collection Coquillett), among the duplicates of *A. rufipes* Meigen in collection. One male, White Mountains (Morrison).

May be confounded with *sublutea*, new species, but the larger post-antennal bristles and very long fringe, as well as the darker color should be enough to separate them easily.

APHIOCHÆTA SUBOBSCURATA, new species.

Female.—Similar to the previous species but differing in having the frons rather narrower and longer, nearly as long as wide, pale in center anteriorly, the post-antennal bristles closer together, the center pair of bristles in front row lower on frons than outer pair and further toward the center; the pleuræ are lighter in color, especially anteriorly, and the margin of thorax is paler; the first costal division is distinctly longer than the other two together, the third is rather more than one-half as long as second, the fringe is shorter, the bristles being only as long as fork of third vein and not twice as long as in *anomala*, the fourth vein leaves at distinctly beyond the fork of third, otherwise as *anomala*.

One female, Mount Washington (collection Coquillett).

I do not think that this can possibly be a variation of *anomala*, as it differs so much in important characters.

Type.—Cat. No. 14882, U.S.N.M.

APHIOCHÆTA FUNGICOLA Coquillett.

Brown or black-brown; frons longer than broad, brown, paler anteriorly, with numerous pale hairs, in the only one of the type-specimens that preserves the frontal bristles in any degree intact they seem to be arranged as in *furtiva*, antennæ brown, paler at base, arista paler than third joint of antennæ, slightly pubescent, palpi yellow, normal; thorax shining, black to brown and in immature specimens yellowish; abdomen brown, second segment slightly elongate, others subequal, no noticeable bristles present, legs yellow, hind tibiæ with dorsal ridge, but setulæ very weak and indistinct; costa to just about middle in female, rather shorter in male, first division about one-third longer than other two in male, but just a trifle longer in female, fringe short and delicate, fourth vein slightly curved at base and ending distinctly in front of wing tip; halteres black or black brown.

Length, 1-1½ mm.

This species comes close in appearance to *A. aletix* Comstock, but may be separated from it by the characters given in description. I believe that the color of the halteres in this species is constant, at least it is in all the specimens in the collection, and that the variety mentioned by Brues really was *aletix* Comstock, or some closely allied species. There are six specimens in the collection (the types)

representing both sexes, reared from *Trametis pecki* in which a Coleopteron belonging to the genus *Cis* was also found.

Locality, Las Cruces, New Mexico (Cockerell). I can not find any other specimens in the material here, and such records of it having occurred elsewhere than at Las Cruces as I can investigate do not apply to *fungicola*.

APHIOCHÆTA FURTIVA Aldrich.

Female.—Black, shining; frons about one-third longer than broad, shining, and with numerous short hairs, lower post-antennal bristles about three-fourths as large as upper pair and occupying about one-seventh the width of frons, upper occupying two-fifths, center bristles in first row not much further from eye margins than outer pair which are much higher placed, second pair in center row about one-fourth of the distance between ocellar triangle and upper post-antennæ; thorax shining brown-black, the humeri paler; abdomen rather broad and short, segments subequal, no conspicuous bristles and but few hairs present; legs yellow, posterior femora and tibiæ darker, mid tibiæ with two serial rows of setulæ, one on the antero- and one on the postero-dorsal surfaces, hind tibiæ strong, the dorsal ridge prominent, setulæ (8-9) strong and widely placed; wings nearly clear, costa to slightly beyond middle, first division equal to other two together, third about one-fourth as long as second, fringe very short and delicate, fourth vein but little curved at base and running slightly upward to much in front of wing tip; halteres black, pedicel paler.

Length, 2 mm.

Type-specimen.—In poor condition. St. Vincent, West Indies.

APHIOCHÆTA BICOLORATA, new species.

Female.—Glossy black; frons highly polished, about one and one-half times as long as broad, one pair of long post-antennal bristles, center pair of bristles in first row incurved, placed much lower on frons than outer pair and distinctly nearer to center, a few scattered hairs on frons besides the usual bristles, antennæ oval, rather pointed, opaque black, arista pubescent, at least one and one-half times as long as frons, labrum very much produced, viewed from above extending beyond anterior extremity of antennæ, glossy black, rounded in front, proboscis fleshy, not extending beyond apex of labrum, palpi brown-black, as long as labrum and numerous bristled; mesonotum glossy black, disk with numerous short hairs and on posterior margin about six long bristles, the strongest of which is situated close to wing base, pleuræ highly polished, brown-black, changing to bright yellow on lower half, scutellum with two strong bristles and two weak hairs anterior to them; abdomen subopaque, second, third, and seventh segments elongated, the first two sub-

equal, no distinct bristles present; legs and coxæ pale yellow, fore tarsi, a spot behind mid coxæ, and apices of hind femora blackened, fore tarsi uniformly thickened, but not broader than and nearly twice as long as tibiæ, mid tibial setulæ short and weak, hind tibiæ with a regular series of short but distinct setulæ; wings browned, especially along veins, costa to about four-sevenths of the wing length, all veins brown, first costal division shorter than second and third together, third about two-thirds as long as second, fork nearly at right angles with third vein, fourth vein leaving at midway from fork to tip of third, regularly arcuate and ending before wing tip, fringe very short, barely longer than diameter of costal vein; halteres with yellow stalk and black knob.

Length, $1\frac{1}{2}$ mm.

Type.—Cat. No. 15242, U.S.N.M.

Locality, Plummers Island, Maryland, August 3, 1912 (J. R. Malloch). One female.

This species comes close to *furtiva* Aldrich, but may be separated from that species by the position of the frontal bristles, the length of the costal divisions and several other characters given in the above description.

APHIOCHÆTA CONSPICUALIS, new species.

Female.—Black, distinctly shining; frons dull, about one-half broader than long, lower post-antennal bristles about one-half as large as upper pair, center pair of bristles in first row but little lower than the outer pair in first row, which are in transverse line with the upper post-antennals, and nearer to them than to the post-antennal bristles, antennæ brown-black, rather small, arista twice as long as frons, pubescent, palpi yellow, large and strongly bristled; thorax shining black, pleuræ brown, paler on lower portions next to coxæ, glossy; abdomen brown-black, dull, segments 2 and 5 slightly elongate, only a few weak hairs present, terminal segment and ovipositor rather hairy, apical half of venter yellowish; coxæ yellow, legs and especially apices of hind femora darker, hind tibiæ ciliated with closely placed, weak hairs; wings fuscous, costa to fully the middle, distinctly thickened on apical two-thirds, thickest at apex of first vein, first division distinctly longer than second and as long as second and third together, third half as long as second, fringe long but delicate, fourth vein leaving at much beyond fork of third with a distinct curve and ending distinctly in front of wing tip, all thin veins brown and distinct; halteres brown.

Length, 3 mm.

Two females, types, from Eureka, California (H. S. Barber), and one from San Mateo County, California, Baker. This last specimen is rather immature and has the wings, legs, and halteres paler in color than the type.

Type.—Cat. No. 14883, U.S.N.M.

Close to *tumida* Wood, but a larger insect and in several respects differing from that species.

APHIOCHÆTA INORNATA, new species.

Male.—Black, hardly shining; frons about one-half broader than long, lower post-antennal bristles half as large as upper pair, which are rather closely placed, center pair in first row nearer to outer pair than to post-antennals but not much below them, antennæ black, of moderate size, arista twice as long as frons, pubescent, palpi brownish black, rather large and strongly bristled; thorax hardly shining, pleuræ not glossy except the lower half of mesopleura which is polished; abdomen dull black, segments subequal, with numerous scattered hairs present on all segments, those on the preapical row dorsally, and on the latero-ventral surfaces of sixth segment very much stronger than elsewhere on abdomen, anal protuberance small and retracted, black-brown; legs brown, only the coxæ at tips and fore legs paler, hind tibiæ with distinct dorsal ridge, no setulæ, only very numerous weak hairs present; wings grayish, costa to middle, first division as long as other two together, third half as long as second, mediastinal vein reaching to beyond middle of first vein, fringe weak on basal third but long and close on remainder, fourth vein leaving at distinctly beyond fork with a slight bend and ending distinctly in front of wing tip; halteres black.

Length, $2\frac{1}{2}$ mm.

Type.—Cat. No. 14884, U.S.N.M.

Two males, Ithaca, New York (O. A. Johannsen).

At first I was led to suppose that this was the male of *conspicualis*, but the differences in structure were too evident, apart from the widely separated localities where the insect occurred, to permit of one placing them together. However, it is not at all unlikely that the male of *conspicualis* has the costa normal, and that the female of *inornata* has it swollen as in *conspicualis*. There are several European species closely allied to those that have this sexual distinction.

APHIOCHÆTA BOREALIS, new species.

Male.—Black, shining; frons shining, longer than broad, rather thickly covered with short hairs in addition to the usual bristles, lower pair of post-antennals about one-half as large as upper, situated much closer but not much lower than upper, center pair of first row nearly in transverse line with upper post-antennals and not much further from eye margin than the outer pair, which are situated much higher on frons, center pair of bristles in second row about one-fourth of the distance between anterior ocellus and post-antennal upper bristles; antennæ normal, brown-black, arista thread-like

except at base, about one-third longer than frons, slightly pubescent, palpi yellow, normal; thorax shining, lower half of pleuræ glossy brown, abdomen dull black, segments subequal, nearly bare; legs yellow, hind femora darker, hind tibial setulæ (9-10) very weak and widely placed; wings clear, costa to just short of middle, first division about twice as long as second, third about two-thirds as long as second, fringe long but delicate, shorter toward base of costa, fourth vein slightly curved at base and ending recurved at much in front of wing tip; halteres black.

Length, 1 mm.

Type.—Cat. No. 14885, U.S.N.M.

One male Kaslo, British Columbia, July 8, 1903 (R. P. Currie).

APHIOCHÆTA RUSTICATA, new species.

Female.—Black, shining; frons distinctly broader than long, only a few scattered fine hairs besides the bristles present, lower post-antennal bristles three-fourths as large as upper pair, situated as in table, center pair in first row nearer to outer pair than to post-antennals and very little below the former which are if anything a trifle below the post-antennal pair transversely, antennæ of rather more than the normal size, arista one and one-half times as long as frons, slightly pubescent, palpi black, of rather large size and strongly bristled; thorax shining, lower half of pleuræ glossy; abdomen dull black, segments subequal, numerous scattered short hairs on all segments, legs black-brown, no distinct hind tibial setulæ, wings brownish, thin veins distinct on disk but indistinct at near margin, costa short of middle, first division rather more than one and one-half times as long as other two together, third two-thirds as long as second, fringe long and delicate on distal two-thirds, short on basal third, fourth vein with a slight bend at base and nearly straight on remainder, ending before wing tip; halteres black.

Length, 2 mm.

Type.—Cat. No. 14886, U.S.N.M.

Female, Corvallis, Oregon, May 5, 1896 (332). (No collector's name.)

APHIOCHÆTA PERPLEXA, new species.

Female.—Very close to *rusticata* but smaller and deeper black, the halteres are black and the legs entirely so in the type; the hind tibiæ have the hairs on the postero-dorsal surface more distinct and the ridge more pronounced than *rusticata*; the abdomen is also nearly bare and the long hairs on ovipositor and ventral surface at tip are not distinct in *perplexa*. I had originally put one specimen along with the type of *rusticata* with some doubt, but a second specimen I have since discovered has caused me to change my table as it is quite evidently distinct from that species. It is unfortunate that

there are no males of either species in the collection, as that sex will in all probability show more reliable and distinct differences than the female.

Locality.—London Hill Mine, Bear Lake, Kaslo, British Columbia; altitude, 7,000 feet; July 21, 1903 (R. P. Currie).

Type.—Cat. No. 14887, U.S.N.M.

APHIOCHÆTA INFUMATA, new species.

Plate 37, fig. 2.

Male.—Black, hardly shining; frons dull, about one-third broader than long, only one pair of post-antennal bristles present, center pair of bristles in first row lower on frons than post-antennal pair and much nearer the center of frons than the outer pair in first row, which are higher placed than the post-antennals, frontal suture distinct, but narrow; antennæ large, velvety black-brown, arista black, rather thick and short, indistinctly pubescent; palpi yellow, rather narrow and shortly but strongly bristled; thorax black, humeri and prothorax yellow and polished, mesopleura bare; two strong scutellar bristles; abdomen dull black, segments subequal, sixth with a few preapical long bristles, anal protuberance large and yellow, with a few scattered hairs and two somewhat long, curled terminal hairs; legs and coxæ yellow, hind femora at apices, and hind tibiæ darker, hind tibial setulæ (8–9) on basal two-thirds large and distinct, hair-like on apical third; wings fuscous, especially on fore margin, costa to well beyond middle, first division nearly as long as second, third about one-fourth as long as second, fringe moderately long, as long as fork of third vein, fourth vein leaving at beyond fork of third with a distinct bend and running nearly straight to a little in front of wing tip, fifth ending farther from wing tip than the fourth; halteres yellow.

Length, $3\frac{1}{2}$ mm.

Type.—Cat. No. 14888, U.S.N.M.

One male, San Mateo County, California (C. F. Baker).

A very conspicuous species, easily distinguished by the very dark wings and long costa. If the female conforms to the general rule in this genus, the first costal division should be distinctly shorter than the second.

APHIOCHÆTA CHÆTONEURA, new species.

Male and female.—Brown, distinctly shining; frons long, one half longer than broad, black-brown, polished, lower post-antennal bristles but little smaller than the upper pair, which are widely placed, center pair of bristles in first row very close to eye margin and much lower on frons than outer pair in first row, so that they are nearly directly below them; frontal suture fine but distinct; antennæ brown, arista slightly longer than frons, distinctly pubescent; palpi

pale yellow, of normal size and bristling; thorax deep reddish brown, rather polished, narrow; mesopleura bare, scutellum with two bristles, pleuræ paler than thorax, shining; abdomen brown, rather dull, segments subequal, several weak bristles on lateral margins of second segment, venter or female pale yellow; legs yellow, apices of hind femora broadly dark brown, hind femora broad, hind tibial setulæ distinct, longest on middle; wings distinctly infuscated especially along the veins, costa to beyond middle, first division in male slightly longer than second, third about three-fourths as long as second, in female first and second nearly equal, third about one-half second, a distinct bristle at base of third vein, fringe rather short and sparse, base of third vein near to costa and the basal costal cells narrow, fourth vein slightly curved at origin and ending before wing tip; halteres yellow.

Length, 1-1½ mm.

Type.—Cat. No. 14889, U.S.N.M.

A small, very slim, and distinctly shining species that may find its way in the paler forms into the section with yellow thorax, but it is more closely allied to *minor* and the smaller species in this section than to those in the *scalaris* section. Four specimens in collection were standing as *A. giraudii* Egger, to which they bear no resemblance. The diary notes are "No. 978—*A. Giraudii*, orig. spec. exam. det. Brues." Note by Pergande, "1st Sept. 1881; Today issued three of these flies from a pupa which was found dead in stem of rice, rec. from L. O. Howard, Aug. 22nd from Atlanta, Ga. (*Chaetopsis aenea*, Wied.)." Fourth specimen. Note 374-x04. "Orig. spec. exam. det. Brues." No notes as to locality or habitat. If these are the specimens on which the American occurrence of this species rests then it must be removed from the list. Three specimens labeled Ohio, without other data, standing among the unidentified material.

APHIOCHÆTA CAVERNICOLA Brues.

Black or piceous; frons fully twice as broad as long, subshining, post-antennal pair of bristles very long and stout and more nearly porrect than is usual in this genus, following two rows slightly curved downward, ocelli placed on a tubercle, frontal suture present, antennal cavity large and deep, antennæ brownish yellow, of moderate size, arista long, pubescent, palpi large, and rather slender, with the usual bristles, proboscis retracted; thorax piceous, subshining, no conspicuous bristles except the pair of dorso-central ones and a single one in front of each wing base; abdomen long and narrow, black, bare except for a few scattered short hairs in male, male hypopygium small, the small lamella triangular and scarcely projecting; legs slender, testaceous yellow, tibiæ bare except for a slight trace of ciliation on hind pair; wings very large, tinged with brownish, costa a little beyond middle, fringe moderately long and thickly placed,

first division equal to other two together, fork of third vein not very acute, fourth vein strongly curved basally and straight apically, ending closer to wing tip than fifth; halteres pale yellow.

Length, 2-2½ mm.

Described from specimens of both sexes. Localities: Wyandotte Cave, Indiana (Aldrich), and Mayfields Cave, near Bloomington, Indiana (Banta). Types in Milwaukee Public Museum. Brues states that "Aldrich recorded as *A. nigriceps* Loew what were presumably specimens from the lot described from Wyandotte Cave, with the following note by Blatchley: "Taken from the mouldy remains of bread, chickens, etc., near the 'Augur Hole' three-fourths of a mile from the mouth."

I have found two specimens in the series of *A. rufipes* Meigen, in collection that are referable to this species. They answer to the description in every way, but I note that the mid tibia has more distinct setulæ than the hind.

Locality.—Mammoth Cave, Kentucky. No other data.

APHIOCHÆTA PEREGRINA, new species.

Male.—Black-brown; frons broader than long, lower post-antennal bristles not half as large as upper and very low down, the bristles in first row forming a convex row with the upper post-antennals on very near the anterior margin of frons, center pair in second row noticeably lower on frons than the outer pair, antennæ black, of normal size, arista not twice as long as frons, pubescent, palpi yellow, normal, dorsum of thorax black-brown, humeri and pleuræ reddish yellow, a darker brown streak over pleuræ beneath wing base; abdomen black, segments subequal, no noticeable bristles present, numerous hairs on apical segment, hypopygium with two projecting ventral processes, anal protuberance small, inconspicuous, yellow; legs yellow, hind tibial setulæ numerous but very small and indistinct, a few long hairs on basal half of ventral surface of hind femora; wings grayish, costa to distinctly beyond the middle, first division as long as the other two, third about one-third as long as second, fringe long but delicate, fourth vein distinctly bent at base and ending rather nearer to wing tip than fifth; halteres yellow.

Length, 1½ mm.

Type.—Cat. No. 14890, U.S.N.M.

One specimen labeled "D. C. Collection Coquillett." No other data. It was standing among the duplicate series of *A. rufipes* Meigen.

A female from Cabin John Bridge, Maryland (Knab and Malloch), probably belongs to this species though much darker in color.

APHIOCHÆTA DYARI, new species.

Male.—Black, hardly shining; frons about one-fourth broader than long, frontal bristles long, except the post-antennal pair, which are strong, and only about one-third as long as the others, frons convex anteriorly, the bristles of first row very near the anterior margin, the outer pair being almost as close to margin as the center pair, which are much closer to the post-antennals than to the outer pair, antennæ rather large, nearly half as large as the eye, and round, arista short and thick, about as long as breadth of frons, indistinctly pubescent; palpi pale yellow, normal; thorax hardly shining, pleuræ glossy on the lower half; abdomen dull black, segments subequal, only the sixth segment with distinct pre-apical bristles, hypopygium rather large, brown, anal protuberance of average size, yellow, with scattered hairs and two terminal long bristles; legs dusky yellow, hind femora strong, brown, with rather long soft hairs on basal half of ventral surface, hind tibial dorsal ridge distinct, setulæ on apical half (4-5) rather widely placed and distinct; costa to near middle, first division more than twice as long as second, third barely one-half as long as second, fringe longer than fork of third vein but delicate, fourth vein distinctly bent at base and ending with a slight upward bend at distinctly in front of wing tip; halteres yellow.

Length, $2\frac{1}{2}$ mm.

Type.—Cat. No. 14891, U.S.N.M.

One male, Kaslo, British Columbia (H. G. Dyar).

A very distinct species, resembling in most respects the group with four bristles on the scutellum.

APHIOCHÆTA FLAVINERVIS, new species.

Female.—Brownish black, slightly shining; frons brown, gray dusted, bristles arranged much as in *dyari* but the post-antennal pair are much larger and wider apart, occupying about one-fourth the width of frons as against one-sixth in *dyari*, the antennæ are brownish and of rather small size, the arista is little longer than breadth of frons but more distinctly pubescent than in *dyari*, the palpi are yellow and normal; thorax brownish, slightly shining, humeri yellow; abdomen brown, apices of segments narrowly paler, segments subequal, no noticeable bristles present; legs yellow, tips of hind femora and tips of posterior surfaces of hind tibiæ dark brown, mid tibiæ with short setulæ, hind tibiæ and femora strong, the former with distinct dorsal ridge and distinct setulæ which are longest on middle; costa to about two-fifths of wing length, thick veins flavous, first costal division three times as long as second, third division half as long as second, fringe about as long as fork of third vein and very delicate, fourth vein nearly straight at base and ending much in front of wing tip, thin veins very fine but distinct; halteres yellow.

Length, 2 mm.

Type.—Cat. No. 14892, U.S.N.M.

One female, Cabin John Bridge, Maryland, September 19, 1900; no other data. Labeled "*Phora rufipes* Meig."

I took a male while collecting at this same locality on April 28, 1912, along with Mr. F. Knab, which belongs, I believe, to this species. It is decidedly darker in color and the lower post-antennal bristles are present, though small.

APHIOCHÆTA MINOR Zetterstedt (=MINUTA Aldrich).

Shining black species; frons longer than broad, highly polished, post-antennal bristles of equal size, the upper pair much wider apart than the lower, center pair of bristles in first row much below the outer pair, and hardly further from eye-margin, arista short, barely as long as frons, male palpi large, black or brown, female normal, yellow; legs black, only fore coxæ in male, and fore coxæ and fore legs in female yellowish, hind tibial setulæ rather distinct and widely separated in male, more crowded and indistinct in female; wings dusky, male costa short of middle, female to the middle, first division half again as long as second, fringe very short, fourth vein nearly straight at base; halteres yellow.

Length, 1-1½ mm.

In collection: Aldrich's type of *minuta*, Brookings, South Dakota. One male, Biscayne Bay, Florida, and one female, Mount Washington, New Hampshire (Mrs. A. T. Slosson).

APHIOCHÆTA RUFIPES Meigen.

Black or brown; frons dull, nearly twice as broad as long, post-antennal bristles very strong, the lower pair as large as the upper and situated very close to them, palpi yellow, normal; thorax black or brown, hardly shining; abdomen black, in male very narrow and slender, with very long scale-like hairs on lateral and posterior margins of segments, hypopygium short, anal protuberance inconspicuous; female abdomen of normal shape and with only scattered hairs; legs yellow to brown, hind femora darker, hind tibiæ with numerous closely placed weak hairs on postero-dorsal surface; wings yellowish, costa to middle, first division twice as long as second in male, barely that in female, fork of third vein acute in female, but less so in male, fourth vein bent at base, but not very distinctly so, fringe very long and strong; halteres yellow.

Length, 2½-3 mm.

Probably the commonest species of the genus; met with all over Europe as well as America. It may be met with during every month in the year, and I have seen it active (in a house) in western Canada in November. It is very commonly found in beehives, and is a scavenger

rather than an inquiline or parasite. There is only one species with the characteristic scale-like hairs besides this, namely, *hirtiventris* Wood, but in that species the hind tibiæ have the apical third shaped much as in *albidohalteris* Felt.

Represented in the collection by specimens from the District of Columbia, Massachusetts, Maryland, California; Kaslo, British Columbia; Toronto, Canada; and England.

APHIOCHÆTA PULICARIA Fallen.

Variable in color, but generally brown or brownish black; frons black, about one-half broader than long, post-antennal bristles of nearly equal size, palpi yellow, normal; abdomen not slender as in *rufipes*, but of the normal shape in male, segments subequal, anal protuberance in male small and inconspicuous, ventral plate of the hypopygium large and distinctly visible; legs yellow, more or less tinged with brown, no long hairs on ventral surface of hind femora; wings tinged with yellowish-brown, especially in female, costa quite to middle, fringe not so long as in *rufipes*, first division longer than second but never longer than second and third together, angle of fork not so acute as in *rufipes*, variable sexually, fourth vein strongly curved at base, more so in female; halteres yellow.

Length, $1\frac{1}{2}$ –2 mm.

There is a specimen in the collection bearing this name which agrees with description given above.

Locality.—Plummers Island, Maryland, November 3, 1906 (A. K. Fisher). It has been recorded by Brues from Massachusetts, Louisiana, South Dakota, Idaho, and California. This species is very similar to *evarthæ*, but in *evarthæ* the female especially has the first division distinctly longer than the other two together. The arrangement of the frontal bristles is the same in both species, that is, the post-antennals are close together, and the center pair in first row are but little lower than the outer pair, being much nearer center of frons than the other pair, but nearer to them than to the post-antennal upper pair.

APHIOCHÆTA SETACEA Aldrich.

Plate 37, fig. 8.

Male and female.—Black-brown, hardly shining, frons about as long as broad, dull, and with numerous short hairs in addition to the ordinary bristles, lower pair of post-antennals nearly as large as upper pair and closer placed, center pair of bristles in first row directed toward center of frons, distinctly lower than outer pair and noticeably further from eye-margin, antennæ rather small, black, arista black, nearly bare, and hardly longer than frons, palpi yellow, normal; thorax black brown, hardly shining, pleuræ paler toward coxæ;

abdomen black (brownish in female), tapering in male, and with the second segment elongated and broadest posteriorly, sixth segment elongate and with a few hair-like preapical bristles, hypopygium with ventral processes distinct, anal protuberance small, yellow, with the terminal hairs weak, female abdomen with segments subequal, hind femora strong, darkened, no distinct setulæ except some of those on the middle of the hind tibiæ in male which are rather stronger than elsewhere on tibiæ, wings yellowish, costa distinctly short of middle, first division distinctly longer than other two together, fringe short, not much longer at its longest part than twice the diameter of costa, fourth vein nearly straight at base and running slightly upward on apical half, ending distinctly in front of wing tip, fifth vein regularly divergent from fourth; halteres yellowish white.

Length, 1-1¼ mm.

There has been considerable confusion regarding this species. Aldrich described *setacea* from one male and four females, taken at Brookings, South Dakota.¹ Afterwards Brues writes² that Aldrich had females of *A. agarici*, Lintner, and not of *setacea* which was a distinct species represented by the male (type). This type-specimen is now before me. Brues states that several of his specimens are considerably larger than the type (2-2½ mm.), which leads me to suppose that he had also two species before him. This supposition is strengthened by reference to his description of the species which cannot have been drawn from the type, as will be seen if his description is compared with the foregoing and his drawing of the wing with that given herewith. I am confident that the larger specimens he mentions belong to some other species, because they evidently had a much broader frons, a longer fringed costa, and were twice as large as the type which being a female, and not as he supposed a male, would represent the largest sex as is always the case in this group. There is in most species a very small amount of variation in the size except as between the sexes, and though it would be bad policy to describe a species as new because it only differed from a known species in the matter of size, when there are, as in this case, so pronounced differences it is quite conceivable that there has been a mistake made. There is besides the female already mentioned one male from Washington, District of Columbia (collection Coquillett); no other data.

APHIOCHÆTA ALBIDOHALTERIS Felt.

Male and female.—Black subshining; frons distinctly broader than long, lower pair of post-antennal bristles very minute, the upper pair of moderate size, bristles of first row forming an almost straight transverse line with the post-antennal pair, antennæ in male rather larger than normal, in female normal, palpi yellow, normal; thorax

¹ Can. Ent., vol. 24, p. 144.

² Trans. Amer. Ent. Soc., vol. 29, p. 370.

slightly shining, abdomen dull black with scattered hairs in both sexes and the segments subequal, no noticeably longer or shorter segments in either sex, except, as is usual, the sixth in male which is slightly elongate, the hypopygium of male with several strong bristles on lateral angles and a few on the sides, anal protuberance stout and rather short; legs dusky yellow, especially the dorsal and ventral surfaces of hind femora, hind tibiæ with a dorsal ridge which divides at about apical third to inclose a flattened surface which extends to apex in male, the female has an indication of a flattening at same part, but it is not so distinct as to be very noticeable, and unless the sexes are associated it is difficult to distinguish the female from *agarici* and its allies; wings clear, costa to short of middle in male, to near middle or to middle in female, first division fully twice as long as second, third half as long as second in both sexes, fringe long, fourth vein slightly bent at base and slightly recurved at margin of wing; halteres yellow.

Length, $1\frac{1}{4}$ –2 mm.

A very large number of specimens belonging to this species have been reared from fungi in connection with the Mushroom Investigation, under the Bureau of Entomology. The localities are the District of Columbia, from *Agaricus campestris* (Popenoe), and from *Coprinus comatus* (Wall) a pair on windows in museum May 17, 1912 (Knab and Malloch) and Sandusky, Ohio, from *Agaricus campestris* (Vaihmeier). Specimens in collection marked "from mushrooms," District of Columbia, 1902, and New Jersey, 1895. The fact that these specimens were reared from *Agaricus* led me to suppose that this was identical with the next species, but Mr. Brues informs me that his species differs in the characters mentioned in table as to the abdominal bristling, and that "the hind tibiæ are also more swollen, and the peculiar cut-off part extends farther toward the outer edge" (antero-dorsal surface?). He however makes no mention of the costal lengths in the two species when he compared his with the specimens sent by Wood, though I have included it in my table. This is the same as the species described by Wood as *derasa*,¹ It was described originally by Felt from the female and an examination of some of Prof. C. W. Johnson's cotypes proves it to belong to this male. There was at least one male among the cotypes which I examined.

APHIOCHÆTA SMITHII Brues.

Male.—Black, frons slightly pollinose, suture and ocellar tubercule present, only two distinct post-antennal bristles, outer pair of bristles in first row very low down, near the anterior lateral angle of frons, outer bristles in second row very near to eye-margin; third

¹ Ent. Mo., May, 1909.

antennal joint oval, slightly more elongate than usual, with a long almost entirely bare arista, palpi clear yellow, normal size, with numerous but small bristles; thorax subshining, very much more distinctly punctuate than usual, thinly hairy; abdomen opaque, the segments gradually decreasing in length, the second not elongated and without lateral tufts of bristles, entire abdomen with sparse, short, bristly hairs; legs slender, brownish testaceous, the four posterior coxæ and hind femora more or less infuscated, tibiæ destitute of distinct setulæ, the hind ones with a raised dorsal ridge that divides at about apical third to inclose a peculiar oval, flattened, or concave area, which extends to the tip of the tibiæ; wings hyaline, costal vein reaching distinctly beyond middle of wing, first division fully twice as long as other two together, third division slightly shorter than second, fringe quite long and closely placed, fourth vein slightly and evenly curved; knob of halteres whitish.

Length, 1.2 mm.

Described by Brues¹ from two specimens reared June 21, (1909?) by Prof. J. B. Smith from an agaric mushroom, Stelton, New Jersey.

I have altered the reading, but not the substance of the description to make it conform to that of other species in this paper. (See note under last species.)

APHIOCHÆTA FUSCOPELUNCULATA, new species.

Female.—Black, shining; frons distinctly longer than broad, shining, thickly covered with short hairs in addition to the usual bristles, lower pair of post-antennal bristles half as large as the large upper pair, first row with center pair of bristles nearly in transverse line with the upper post-antennals and about midway between them and the eye margin, outer pair very close to eye margin and much higher on frons than center pair, second row straight, the center pair about one-fifth the distance from ocellar triangle to upper post-antennals, palpi small, brownish, arista about as long as frons, nearly bare, palpi dusky yellow, moderate in size and rather strongly bristled; thorax shining, pleuræ dull black except on the lower two-thirds of mesopleuræ, which is very highly polished, scutellum with two bristles; abdomen hardly shining, segments subequal and except the last almost bare, sixth with very numerous short but no long hairs, legs black, the anterior pair yellowish, only a few long hairs on basal third of ventral surface on hind femora, and one or two of the setulæ near to tip on hind tibiæ distinct, elsewhere short and weakly haired; wings grayish, costa distinctly short of the middle, first division slightly more than twice as long as second, third half as long as second, fringe longer than fork of third vein but delicate, fourth vein evenly arcuate on its whole length and like the fifth

¹ Bull. Wis. Nat. Hist. Soc., vol. 7, 1909, p. 107.

indistinct toward the tip; knob of halteres pale yellow, peduncle brown.

Length, $1\frac{1}{4}$ mm.

One female June 25, 1903, Kaslo, British Columbia (R. P. Currie).

Type.—Cat. No. 14893, U.S.N.M.

APHIOCHÆTA AGARICI Lintner.

Male and female.—Black subshining; frons distinctly broader than long, upper post-antennal bristles stout but not very long, very close together, lower pair minute or absent, first row of bristles in a slightly convex row with the post-antennal pair, second row convex, center pair nearly one-third the distance from ocellar triangle to post-antennals, antennæ black, of good size in male, smaller in female, arista rather thick and short, slightly longer than breadth of frons, black and nearly bare, palpi brownish, normal; thorax subshining, scutellum with two bristles; abdomen dull, segments laterally with short hairs, sixth with numerous distinct, but not very long hairs, hypopygium small, ventral processes projecting, anal protuberance short and stout, brownish, weakly hairy, terminal hairs weak, legs black or piceous, anterior pair paler, setulæ on hind tibiæ only represented by rather stronger hairs on the extreme tip; wings slightly grayish, costa distinctly short of the middle, first division twice as long as other two together, third barely equal to second (in one specimen much shorter), fourth vein but little bent at base and apex, slightly recurved at apex and ending distinctly in front of wing tip; halteres yellow, peduncle darker.

Length, $1\frac{1}{2}$ –2 mm.

A large number of specimens bred from *Agaricus campestris* and *Coprinus comatus*.

Localities.—District of Columbia, New Jersey, and New York. Probably the commonest of the fungus feeding species. Recorded as *Phora minuta* Aldrich, on authority of Dr. L. O. Howard, by Lintner.¹ The identification was made by Coquillett and the specimens are still in collection.

APHIOCHÆTA PYGMAEA Zetterstedt.

Black; frons very slightly shining, slightly broader than long, upper post-antennal bristles large, lower pair very small, center pair of bristles in first row much lower than outer pair, antennæ brownish, arista pubescent, barely longer than frons, palpi yellow, normal; thorax brown; abdomen black, with pale hind margins to segments, nearly bare, segments subequal, anal protuberance small and stout, yellow; legs yellow, hind tibiæ without distinct setulæ, only with rather weak hairs; costa to one-third the length of wing in male,

¹ Tenth Rep. N. Y. State Ent., 1895, p. 403.

slightly longer in female, first division more than twice as long as other two together, second and third divisions subequal, third vein distinctly thickened at tip, fourth vein hardly bent at base and slightly recurved at tip, ending distinctly in front of wing tip; halteres yellow.

Length, 1-1½ mm.

I have only seen a single specimen that I believe is identical with this European species.

Locality.—Colorado (collection of Coquillett). Brues records it in his paper on the family from Idaho, California, and Texas.

Genus MELALONCHA Brues.

This genus is represented by a single species, *pulchella* Brues, from Songa, Bolivia, South America. Resembles in appearance the species in *Apocephalus* Coquillett, but easily distinguished by the characters given in generic table. I have not seen the species, which is unrepresented in the collection here. It has also been recorded from Paraguay by Brues.

Genus GYMNOPHORA Macquart.

Represented by a single species in North America, which is identified with *arcuata* Meigen, the one commonly met with in Europe. Another species is met with in Paraguay, which is close to *arcuata* Meigen, in appearance. Brues described this South American species¹ under the specific name *colona*. This latter species differs from *arcuata* in having the frontal bristles more distinct and in having black halteres.

Localities of specimens in National Museum collection belonging to *arcuata* Meigen: White Mountains, New Hampshire (Morrison); Victoria, Texas (E. A. Schwarz); Woodside, Maryland (J. E. Benedict, jr.); Mount Washington, New Hampshire (Mrs. A. T. Slosson); Lawrence, Kansas.

The South American species is unrepresented in collection.

Genus PLASTOPHORA Brues.

TABLE OF SPECIES.

1. Larger species; frons as wide as high, proboscis enlarged, as long as height of head, chitinous; length, 1.75 mm *beirne*, p. 501.
Small species, 1 mm. or less.....2.
2. Species about ½ mm. in length, costa to about middle of wing, thorax grayish, hind tibia bare, the middle pair of bristles in second row very close together and higher placed than the outer pair which are very close to eye margin.
formicarum, p. 501.
Species 1 mm. in length, costa distinctly short of wing, thorax yellow or brown...3.

¹ Ann. Nat. Mus. Hungary, vol. 9, 1911.

3. Ovipositor very broad, horseshoe shaped, bilobed.....*spatulata*, p. 502.
 Ovipositor not horseshoe shaped.....4.
4. Ovipositor more than twice as long as broad at base, the second row of frontal bristles almost straight and nearly equidistant from each other.
crawfordi, p. 501.
 Ovipositor of female but one-half longer than broad at base, center pair of bristles in second row placed much higher than outer pair and very close together.
curriei, p. 501.

TABLE OF MALES.

Sixth abdominal segment elongated, without any large bristles, hypopygium weakly haired, anal protuberance not longer than sixth segment.
curriei, p. 501.

Sixth abdominal segment not lengthened, a circle of distinct bristles at beyond middle, several hairs attached to portions of partly visible organs of hypopygium, anal protuberance longer than sixth segment, with two long curved terminal bristles.....*antiquensis*, p. 502.

The species in this group have two to four post-antennal bristles, and four rows of frontal bristles, the lower row consisting of two lateral, the second of four in a more or less straight row, the third in front of ocelli of four, and the vertical row of four.

PLASTOPHORA BEIRNE Brues.

Described from New Guinea. The peculiar proboscis and large size should distinguish this species should it ever turn up in this country, which is most unlikely.

PLASTOPHORA FORMICARUM Verrill.

Plate 39, fig. 6.

A very small species closely allied to *curriei*, but the outer bristles in the second row are closer to the pair in first row in *curriei*, the hind tibiæ are described as bare, and no mention is made in the description of the disparity in size of the scutellar bristles that exists in *curriei*. Not recorded from America.

PLASTOPHORA CRAWFORDI Coquillett.

Plate 39, figs. 5, 8.

Described from Texas. It attacks the ant *Solenopsis geminata*. Distinct from the above and next species in the position of the frontal bristles. The ovipositor of female is distinct from that of *curriei* and *spatulata*. Several specimens in collection, Dallas, Texas (Crawford).

PLASTOPHORA CURRIEI, new species.

Plate 39, figs. 4, 9, 10, 12.

This species is in general appearance very similar to *crawfordi*, but differs as stated in the table. The fringe of costa is rather longer in *curriei* than in *crawfordi*, the costa is in both species short of the

middle of the wing and the first division is nearly twice as long as second, the hind tibiæ have a few delicate setulæ on the apical half of their postero-dorsal surfaces, and the anterior pair of scutellar bristles are much reduced in size. The male is similar to the female in everything, but the hypopygium is not exerted, the anal protuberance is long, bright yellow, and rather weakly bristled. The sixth abdominal segment is more elongate than in the next species and nearly bare, having no distinct bristles. Male similar to female, hypopygium as in table.

Four specimens Kaslo, British Columbia (R. P. Currie). "Hovering over ant galleries in stump." Standing as *Syneura cocciphila* Coquillett (det. Coquillett).

Type.—Cat. No. 14894, U.S.N.M.

PLASTOPHORA SPATULATA, new species.

Plate 39, fig. 7.

A specimen taken by Mr. J. C. Crawford at Dallas, Texas, along with *crawfordi* Coquillett is in the shape of the ovipositor so different from that species as to leave no doubt that it is distinct from it. The ovipositor is very broad, horseshoe shaped, bilobed, and with a fine central process. The condition of the specimen is not very good, but so far as I can ascertain it resembles very closely *crawfordi* Coquillett, and only for the very striking ovipositor I should have refrained from describing it as new. The form of this organ should insure the recognition of the species at once.

One female, Dallas, Texas (J. C. Crawford).

Type.—Cat. No. 14895, U.S.N.M.

PLASTOPHORA ANTIGUENSIS, new species.

Plate 39, fig. 11.

Male.—Yellow; frontal bristles as in *crawfordi*, third antennal joint large, thickly pubescent, arista rather thick, as long as frons, pubescent, palpi yellow, moderately bristled, thorax thickly covered with short hairs, scutellum with four bristles, the anterior pair weak, abdomen yellow at base and at apex, intermediate joints browned, second segment elongate, sixth not much longer than fifth, with a circle of long, rather widely placed bristles on about the middle, hypopygium not exerted, several long hairs on the apices of the partly visible organs, anal protuberance long, $1\frac{1}{2}$ times the length of sixth segment, yellow with two very long curved bristles at apex; legs stout, hind tibia with setulæ on postero-dorsal surface, those on apical half very distinct, wings as in *crawfordi*; halteres yellow.

Length, 1 mm.

Six males, Antigua, West Indies. MS. label "attacking *Solenopsis geminata*."

The specimens are all males and what they would attack the ant for I do not clearly understand. I hardly think this can be the male of *crawfordi* and am describing it under this name in the belief that it is distinct from that species, the male of which is unknown. Standing with label in Coquillett's handwriting as *Phora cornuta* Bigot, an unrecognizable species.

Type.—Cat. No. 14896, U.S.N.M.

Genus SYNEURA Brues.

The only American species so far described of this genus is *cocciphila* Coquillett. It was reared from larvæ infesting dead adults of *Icerya purchasi*, collected by C. H. T. Townsend in Mexico. There is quite a large series of this species in the collection. As it is the only American representative of the genus there should be no difficulty in recognizing it.

Genus METOPINA Macquart.

TABLE OF SPECIES.

- Larger species, about 2 mm., wings clear, first division of costa twice as long as second.....*pachycondylæ*, p. 503.
 Smaller species, at most 1 mm., wings grayish, first division of costa about three-fourths as long as second.....*fenyesi*, p. 503.

METOPINA PACHYCONDYLÆ Brues.

Distinct from the other two species in neuration. The fifth vein is not distinctly curved at its base, as in *galeata* Halliday and *fenyesi*. Its larger size and the clear wings and also the absence of the peculiar bend in the sixth vein are good characters for separating it from its congeners.

METOPINA FENYESI, new species.

Plate 39, fig. 13.

Very similar to *galeata* Halliday, but the wings are grayish, the fourth vein is nearer to the margin than to the fifth in the wing, the fifth vein leaves the third at nearer its apex and with a more rectangular bend than in *galeata*, and the hind metatarsus is not so much thickened. In color this species agrees closely with the European species. The head is black-brown, thorax brown, abdomen dark brown, yellowish at base, pleuræ, coxæ, and legs yellow, antennæ brown, palpi yellow, arista strongly pubescent, the proclinate bristles are large, being rather stronger than those in vertical row, and there are two scutellar bristles.

Length $\frac{1}{2}$ mm.

One male Córdoba, Vera Cruz, Mexico (Dr. A. Fenyès), May 19, 1908.

Type.—Cat. No. 14897, U.S.N.M.

I believe I am right in separating this from *galeata* Halliday, as it does not agree altogether with Becker's description of that species nor with those specimens of *galeata* I met with in Britain, but the specimen is not in good condition, and it is impossible to do more than point out the characters in which it does not agree with *galeata*.

Genus PULICIPHORA Dahl.

TABLE OF MALES.

- | | |
|---|-------------------------------|
| 1. Scutellum with two bristles..... | 2. |
| Scutellum with four bristles..... | 3. |
| 2. Costa to about three-fifths the wing length, palpi about as long as head height, with short weak bristles..... | <i>nudipalpis</i> , p. 504. |
| Costa to just beyond middle, palpi about as long as head height, with long delicate bristles..... | <i>palposa</i> , p. 505. |
| 3. Palpi large, much as in <i>palposa</i> ; wings strongly infuscated..... | <i>sylvatica</i> , p. 506. |
| Palpi normal in size, wings not distinctly infuscated..... | 4. |
| 4. Palpi brown..... | <i>venata</i> , p. 506. |
| Palpi clear yellow..... | <i>borinquensis</i> , p. 506. |

TABLE OF FEMALES.

- | | |
|--|-------------------------------|
| 1. Two pairs of proclinate, or semi-erect post-antennal bristles..... | 2. |
| Only one pair of post-antennal bristles, thorax concave anteriorly and posteriorly, its sides rounded..... | <i>nitida</i> , p. 508. |
| 2. Hind metatarsi furnished with transverse rows of short bristles on ventral surface..... | 3. |
| Hind metatarsi not furnished with transverse rows of short bristles..... | <i>occidentalis</i> , p. 507. |
| 3. Thorax broadest on anterior third, its lateral margins sinuate; head shorter than thorax..... | <i>glacialis</i> , p. 507. |
| Thorax broadest on posterior half, its sides more or less rounded; head longer than thorax..... | <i>borinquensis</i> , p. 506. |

PULICIPHORA NUDIPALPIS, new species.

Plate 41, fig. 4.

Male.—Brownish black, subshining; frons about twice as broad as long in center, with numerous short hairs besides the usual bristles, four nearly equal post-antennal bristles, the lateral bristles, usually on anterior lateral angle, at about one-fourth the width of frons from eye-margin, strongly incurved, antennæ brownish, normal size, arista distinctly longer than breadth of frons, pubescent, the facial marginal bristles not so strong as in *palposa*, palpi very long, nearly as long as height of head, not spatulate but broad, and nearly parallel sided, the bristles very short and weak; dorsum of thorax brownish, dull, pubescent, only two marginal scutellar bristles, the scutellum rather small, triangular, pleuræ brown, slightly shining; abdomen brownish black, segments subequal, with scattered hairs, those on lateral margins and posteriorly on last

two segments longest, hypopygium yellowish brown, gray dusted, of moderate size, the anal protuberance distinct, yellowish, without any noticeable bristling, but with numerous short hairs; legs yellowish, the spurs on mid and hind tibiæ very minute; wings clear, costa to distinctly beyond middle, in one specimen to three-fifths the wing length, first costal division distinctly shorter than second, fringe microscopic, fourth vein hardly bent at either apex or base; halteres brown.

Length, 1-1½ mm.

Type.—Cat. No. 14898, U.S.N.M.

Two males, Las Vegas, New Mexico, October 13-14, 1901 (H. S. Barber).

One male, of which the wing is figured, has the anal angle of wing very slightly produced; the other (the type) specimen has it more pronounced, but not so much so as in *palposa*.

PULICIPHORA PALPOSA, new species.

Plate 41, fig. 3.

Male.—Brown-black, subshining; frons shining, more than twice as broad as long; only two distinct post-antennal bristles, which are erect and divergent, this pair is probably the center pair of first row and the post-antennals are therefore really absent; a pair of inwardly directed bristles on lateral angles, the second and ocellar bristles normal, antennæ brown-black, rather large, arista longer than breadth of frons, distinctly pubescent, a row of bristles on the face margin close to the eyes, of which the upper two are strongest and situated unusually high up close to the base of antennæ, palpi brown, about as long as height of head, spatulate, and with several (3-4) rather long, widely placed bristles at tip third; dorsum of thorax brownish black, slightly shining, pubescent, only two scutellar bristles, and those placed rather far forward, pleuræ dull brown; abdomen black, second segment slightly elongated, lateral margins of segments and posterior margins of last two with short hairs, hypopygium gray dusted, of moderate size, anal protuberance small but distinct, yellow, without strong hairs; legs piceous, mid and hind tibiæ with minute end spurs; wings infuscated, especially along veins, costa to beyond middle, first division distinctly shorter than second, third vein slightly dilated at tip, fourth vein curved at extreme base and slightly at extreme tip; halteres black-brown.

Length, 1½ mm.

Type.—Cat. No. 14899, U.S.N.M.

One male, Eureka, California, March 6, 1903 (H. S. Barber).

PULICIPHORA SYLVATICA Brues.

Male.—Black; both pairs of post-antennal bristles present, unusually long, but slender, anterior lateral reclinate bristles present, second row strongly convex; palpi much enlarged and flattened, leaf-like, nearly as long as height of head and as broad as the eye, strongly bristly along the inferior edge near and at the apex, antennæ of moderate size, oval, arista pubescent; thorax subshining, four marginal scutellar bristles; abdomen smooth, faintly shining along the sutures, with a few sparse bristly hairs scattered over its surface, second segment slightly elongated, hypopygium not prominent, the superior lamella (anal protuberance?) more strongly hairy than usual; legs long and slender, quite thickly clothed with short, velvety pubescence, but without any setulæ; tibial spurs obsolete on all legs, wings large, strongly infuscated especially in front and along the veins; costal vein at a little beyond middle, cilia almost obsolete, first division of costa slightly but very appreciably shorter than second, fourth vein almost straight, halteres pure black.

Length, 1 mm.

Described from one male, Mount Constitution, Orcas Island, Juan County, Washington (July, 1908).¹ Brues mentions that the female should be a very striking form, as the male is unusually large. I can not see how this should be so, unless there is a mistake in the size given, as *venata*, the only species described prior to this in the male sex from America, is given as 1.3 mm.

PULICIPHORA VENATA Aldrich.

Male.—Brownish black; frontal bristles as in *sylvatica*, palpi brown, normal in size and bristling, the frons black, antennæ piceous, arista strongly pubescent, thorax brownish black, four scutellar bristles, abdomen black, hypopygium brown, with two black projecting claspers below, anal protuberance brownish, strongly haired; legs yellow, femora darker, tibial spurs very minute, wings with costa to about the middle, first division shorter than second, fringe microscopic, fourth vein nearly straight and ending very near to the wing tip; halteres brownish black.

Length, 1.3 mm.

Described² as *Phora* from St. Vincent, West Indies. Type-specimen in collection.

PULICIPHORA BORINQUENSIS Wheeler.

Male.—Yellow; frons yellowish-brown, much broader than long, under pair of post-antennal bristles small, upper pair strong, the pair on anterior margin strongly incurved, second row nearly straight, antennæ of moderate size, yellow, arista not so distinctly pubescent

¹ Bull. Wis. Nat. Hist. Soc., vol. 7, 1909, p. 107.

² Trans. Lond. Ent. Soc., pt. 3, 1896, p. 436.

as in female, palpi clear yellow, large and moderately bristled; thorax yellow, pleuræ yellow, scutellum with four bristles; abdomen brown, segments subequal, hypopygium large, ventral processes protruding, anal protuberance long and distinctly hairy; legs yellow, tibial spurs minute; wings clear, veins brown, costa to beyond the middle, first division one-fourth shorter than second, fourth vein straight at base and running nearly straight to close to the wing tip; halteres brown. (First description of this sex.) Female entirely without wings and halteres; thorax shorter than head and about twice as broad as long, scutellum obsolete, three lateral marginal thoracic bristles, and four on the posterior margin the center pair being very minute; first abdominal segment short, second about one-third as long as length of abdomen, third, fourth, and fifth subequal, the latter with a crescent-like slit on the dorsum, its lateral edges near to anterior edge of segment and its center about one-third from apex of segment, legs stronger than in male, the hind metatarsi strong and with 5-6 transverse rows of short bristles on the ventral surface.

Length, 0.7-1.2 mm.

Represented in collection by a large number of specimens from Nassau, Bahama Islands (Bartsch and Barber). There are several specimens "from a decaying beetle," Cacao, Trece Aguas, Alta Vera Paz, Guatemala, April 27, 1906. (Barber and Schwarz), and one specimen same locality, April 18, 1906, taken outdoors, same collectors, that are identical with those from Nassau which were "feeding on a collection of shells." The original female specimens from which the species was described were found on a decaying beetle and the type-locality is Utudas, Porto Rico.¹

PULICIPHORA OCCIDENTALIS Melander and Brues.

This species was described from specimens taken about the burrows of *Halictus* (*Hymenoptera*) at Woods Hole, Massachusetts.² I have not seen this species, which is known from the female only, and is unrepresented in the collection.

PULICIPHORA GLACIALIS, new species.

Plate 40, figs. 1, 2, 3.

Female.—Allied to *occidentalis* Melander and Brues, but larger and having a different arrangement of the bristles on the thorax. In the figure given by Melander and Brues of *occidentalis*³ this species is represented as having one very long and strong bristle on the lateral margin of mesonotum near the anterior margin, and four posterior marginal bristles, the hind metatarsi are represented as having no transverse rows of short strong bristles as in the other two species. From *borinquensis* Wheeler *glacialis* may be distinguished by its much

¹ Bull. Amer. Mus. Nat. Hist., vol. 22, 1906, p. 269.

² Biol. Bull., vol. 5, 1903, p. 14.

³ *Idem*, p. 18.

longer thorax and comparatively shorter head. The general color of *glacialis* is brownish yellow with the abdomen darker, the legs are pale yellow and long, the hind femora being thicker than either of the other pairs; the antennæ are large, with very distinctly pubescent, almost plumose arista; the first abdominal segment is very short, the second about one-third the length of entire abdomen, the fourth slightly longer than the third, and all segments covered with short hairs which are only slightly longer on lateral and posterior margins, and noticeably so on lateral posterior angles of fourth and fifth segments; spurs on mid and hind tibiæ distinct though not large, hind metatarsi with six transverse rows of short strong bristles, which give the whole joint the appearance of being toothed when viewed from the side.

Length, fully 1 mm.

Two females, labeled "Active on the ice, Jan. 1874," Tyngsboro, Massachusetts. (F. Blanchard.)

PULICIPHORA NITIDA, new species.

Plate 40, fig. 4.

Female.—Head subquadrate, only slightly produced in front, shining yellow, with very minute bristles, and the short hairs extremely weak on disk, the two bristles on anterior edge of frons small, the usual pair in front of anterior ocellus indistinguishable, no trace of the posterior lateral pair, though this may be due to the slight falling in of head laterally, antennæ yellow, of good size, arista long and almost plumose, palpi large and strongly bristled; thorax shining yellow, concave anteriorly and posteriorly, broader than head, rounded laterally, narrower posteriorly, with two long lateral marginal bristles at beyond middle, and four nearly equidistant on posterior margin, pubescence on anterior lateral margins of thorax very thick, long, and pale in color; abdomen shining brown, oval in shape, first segment very short, second segment nearly one-third the length of entire abdomen, third, fourth, and fifth segments of equal length, the latter without the broad semicircular dorsal slit so noticeable in *occidentalis* and *borinquensis*, remaining segments membranous, all segments with very minute soft hairs; legs yellow, the hind pair strong, hind metatarsi with five transverse rows of short bristles, tibial end spurs microscopic.

Length, 0.75 mm.

One female, Cacao, Trece Aguas, Alta Vera Paz, Guatemala, April 19, 1906 (Schwarz and Barber).

Genus ECITOMYIA Brues.

Only a single species is described in this genus, namely, *wheeleri* Brues, from Texas. It is unrepresented in the collection. Occurs in nests of *Eciton cæcum* Latreille.

Genus COMMOPTERA Brues.

The only species as yet described in this genus is *solenopsisidis* Brues, from Texas. It occurs in nests of *Solenopsis geminata*.

Unrepresented in collection.

Genus ACONTISTOPTERA Brues.

In 1902, Brues¹ described an insect discovered in a nest of *Eciton opacithorax* Emery, at Austin, Texas, and placed it in a new genus, the principal characters of which are: Head broad, more than one and one-half times as wide as widest part of thorax, upper surface of head with two central macrochætæ, eight marginal ones on lateral and posterior edges, one over each eye, a bunch at front angles, and a regular series of closely placed ones along the front between the antennæ; thorax small, narrowed posteriorly, pleuræ visible from above, wings about as long as width of thorax, arcuate, of nearly equal width, with a few short bristles at base on external margin, at about middle these suddenly enlarge until at the tip they are more than twice as long as the wing, there are about 10 of these macrochætæ which are all strongly, thickly, and almost scaly pubescent. The only species described so far is *A. melanderi* Brues.

ACONTISTOPTERA MEXICANA, new species.

Plate 40, fig. 6; plate 41, fig. 1.

Female.—Differs from the description and figure of *melanderi* Brues in the much stronger bristling throughout. The bristles on posterior row are not so near the edge as shown by Brues, there are two on the sloping portion of the frons over the antennæ, there are three large bristles on either side of epistome that do not form part of the row mentioned in Brues's description of his species, there are several very strong curved macrochætæ on either lateral mouth edge, and the arista is plumose, the anterior pair of dorsal thoracic bristles are behind the second pair of lateral bristles, and much wider placed, the wings have no regularly placed small bristles on basal half, and the series begins to enlarge very suddenly at about one-third from base, the macrochætæ being of almost equal strength in the whole series of 10-12; in color and other respects as *melanderi*.

One female, Cordoba, Mexico, April 21, 1908, Dr. A. Fényes.

Type.—Cat. No. 14903, U.S.N.M.

¹ American Naturalist, vol. 34, p. 373.

Genus XANIONOTUM Brues.

The single representative of this genus is *hystrix* Brues, from nests of *Eciton opacithorax* Emery, Austin, Texas.

Unrepresented in collection.

Genus CHONOCEPHALUS Wandolleck.

The previously described species of this genus are from the Far East. *C. dorsalis* Wandolleck,¹ being from Bismark Archipelago and *C. similis*² Brues, from Bombay, India. The male has wings which are strongly, but microscopically hairy, but the female has the wings, halteres, and ocelli absent. Brues in "Genera Insectorum" places this genus before *Syneura* Brues in his arrangement of genera, but it is certainly a more degenerate form than that genus and also several others which it precedes in his arrangement. I have no doubt that the species herewith described belongs to this genus, though it occurs so far from the localities already cited.

CHONOCEPHALUS BUCCATA, new species.

Plate 40, fig. 5.

Female.—Brownish yellow; head produced in front beyond antennæ, rounded anteriorly, about one-third broader at broadest part than long at longest part, yellowish anteriorly, darker toward vertex, the frontal bristles and ocelli absent, a few scattered, weak hairs present, two to three distinct bristles on anterior eye-margin behind antennæ, viewed laterally the frons projects almost as far beyond antennæ as diameter of third antennal joint, antennæ yellow, arista long and distinctly pubescent, eyes small, barely larger than third antennal joint, facets distinct, not much more than 20 in number, palpi small, distinctly bristled; dorsum of thorax extremely narrow, a mere band, distinctly concave anteriorly and posteriorly, about one-fourth as long at center as at side, abdomen oval, rather broader at beyond middle (egg-shaped), first segment the longest, fourth elongate but slightly shorter than first, numerous scattered hairs on all segments, only appreciably longer on posterior margins, and laterally on last two segments; legs yellow, covered with short hairs, spurs of mid and hind tibiæ very small and weak, hind metatarsi strong and as long as next three joints together.

Length, 0.50–0.75 mm.

Type.—Cat. No. 14902, U.S.N.M.

Five females, April 20, 1906, Cacao, Trece Aguas, Alta Vera Paz, Guatemala, (Schwarz and Barber).

One specimen shows two rather weak bristles on frons above the anterior eye margin, but I can not detect them in the other specimens.

¹ Zool. Jahrb., Abth. Syst., vol. 2, 1898, p. 428.

² Ann. Mus. Nat. Hungary., vol. 3, 1905, p. 554.

Genus *ÆNIGMATIAS* Meinert.

So far two species are described belonging to this genus, one of which is American, namely, *schwarzii* Coquillett. It may be distinguished from *blattoides* Meinert, by having only four free abdominal segments instead of five as in that species. Two specimens in collection.

Locality of type, Flagstaff, Arizona (H. S. Barber); second specimen, Bozeman, Montana (R. A. Cooley). This last specimen was taken in a greenhouse.

EXOTIC PHORIDÆ NEW TO SCIENCE IN COLLECTION.

DOHRNIPHORA NITIDA, new species.

Female.—Black; distinctly shining; frons very glossy, nearly as long as broad, center pair of bristles in first row distinctly lower on frons than outer pair, second row nearly straight or slightly concave, ocellar triangle raised slightly, antennæ clear yellow, arista at least twice as long as frons, distinctly pubescent, palpi yellow, rather long, and strongly bristled, proboscis thin, chitinized and projecting as far as end of palpi, yellow; thorax glossy black, paler along posterior margin, the dorsal hairs very numerous and long, one pair of dorso-central bristles, pleuræ slightly brownish, scutellum slightly shining, very short, about one-fourth as long as broad and slightly produced posteriorly at center, with eight bristles, the second from each lateral edge being much the strongest; abdomen opaque, black, first segment very short, concave on posterior margin, centrally not one-sixth as long as second, second very long and broad, rather more than twice as long as third, produced laterally at middle, other segments decreasing in length and breadth, apex of abdomen with distinct hairs which are very strong on the apical third of the ventral surface; legs piceous, anterior pair and all tarsi paler, fore tibiæ with a row of about seven setulæ, the first one being at about the basal third, the second just before the middle, and the other five at nearly regular intervals on the apical two-fifths, mid tibial pair of setulæ very near base, the subapical one nearly at apex and very weak, the hairs on postero-dorsal surface almost setulose, hind tibiæ with only a single weak bristle at tip on dorsal surface besides the end spurs, the hairs on postero-dorsal surface very strong; wings grayish, costa to beyond middle, first division nearly twice as long as other two together, third about one-fourth as long as second, fringe short and very close, fourth vein leaving at before fork with a slight bend and ending recurved at slightly in front of wing tip; halteres black.

Length, 4 mm.

Locality.—Lorenzo Marques, Africa (C. W. Howard). Two specimens.

A very distinct large species. Easily distinguished by the number of fore tibial and scutellar bristles from its congeners.

Type.—Cat. No. 14904, U.S.N.M.

HYOCERA RECTANGULATA, new species.

Plate 35, fig. 9.

Female.—Yellow; frons yellow, post-antennal bristles of moderate size, frontal bristles large; front row situated close to the edge of frons, which is convex; second row convex, ocelli distinct; ocellar region darkened; antennæ yellow; third joint of moderate size, nearly round, arista yellow, pubescent, first and second joints swollen, distinct; palpi yellow, moderately bristled. Thorax with four indistinct brownish stripes, the lateral pair abbreviated in front and broadest; one pair of dorso-central bristles,¹ scutellum with four bristles, the anterior pair hardly more than coarse hairs; abdomen with the hind margins of the segments brownish-black; on the third to sixth segments this is carried forward in denticulate projections, leaving only small, yellow, triangular patches laterally and centrally; basal segment with a fringe of rather strong, closely placed bristles on the hind lateral margin, second segment with a lateral group of rather weaker bristles about the middle, legs entirely yellow except for the dorsal surface of hind tibia, front tibia with one spine at about the middle of the antero-dorsal surface, mid tibia with two strong spines at about the basal third (one antero-dorsal and one postero-dorsal) and one on about the apical third (antero-dorsal), the portion of dorsal surface above the basal pair covered with several transverse rows of closely placed short black bristles; hind tibia without spines, but the whole dorsal surface clothed with transverse rows of short black bristles; wing with costa to beyond the middle, costal vein distinctly, but not greatly, thickened, especially at the junction of the first vein, first section one-half the length of second, second thick vein bare, not so thick as costal vein, first thin vein leaving thick vein at right angles, running straight into the disk of the wing, then with a very abrupt turn continuing with a gentle curve to the wing tip, second thin vein nearly straight and running almost parallel with the first to near the wing tip, fourth thin vein distinct, tip of wing infuscated; halteres yellow, darkened at the tip.

Length, 5 mm.

Locality.—Tjibodas, Mount Gede, Java (altitude, 5,000 feet), Bryant and Palmer, collectors. One specimen.

Type.—Cat. No. 14905, U.S.N.M.

¹ There is in this specimen an extra bristle on the right side which I take to be abnormal.

APHIOCHÆTA ORIENTATA, new species.

Plate 37, fig. 1.

Male and female.—Brownish-black, subshining; frons slightly shining, from lower post-antennal bristles to vertex about as long as breadth of frons, four large and nearly equally strong post-antennal bristles, the upper pair on slightly raised tubercles, as widely placed as one-third the width of frons, lower pair occupying about one-fifth of frons width, center pair of bristles in first row lower than post-antennal upper pair and about three times as far from eye margin as outer pair in first row, which are very slightly higher placed on frons than post-antennal upper pair, second row slightly convex, frontal suture indistinct except between post-antennals, where it forms a distinct oval cavity, ocellar tubercule distinct, antennæ large and somewhat oval, arista nearly twice as long as frons, more distinctly pubescent on terminal two-thirds, palpi yellow, larger than antennæ, with 5-6 long and very strong bristles and several smaller ones; thorax brownish black, distinctly yellowish brown on anterior lateral margins, humeri yellowish, pleuræ brownish black, the mesopleuræ with numerous distinct hairs, three of which on the posterior margin are distinctly longer than the others, scutellum with four strong bristles; abdomen brownish at base, toward apex and especially the fourth segment yellowish, some scattered long hairs on lateral and posterior margins of segments; legs yellow, posterior four coxæ, bases of fore femora, mid femora except apices, and dorsal and ventral surfaces of hind femora brownish, all tibiæ with distinct setulæ on postero-dorsal surfaces and mid tibiæ with a row on basal half of antero-dorsal surface, those on hind tibiæ (9-10) beginning at about basal third, rather widely placed and nearly as long as the diameter of tibiæ; wings slightly infuscated, costa to distinctly beyond middle, first division barely two-thirds as long as second, third about one-fifth as long as second, fringe very delicate and closely placed, as long as from base of third vein to costa, fourth vein leaving third at distinctly in front of fork with a gradual curve and ending with a distinct upward sweep at much in front of wing tip, fifth vein not much bent and ending nearer to wing tip than fourth; halteres yellow.

Length, $2\frac{1}{2}$ - $3\frac{1}{2}$ mm.

Two specimens, Tjibodas, Mount Gede, Java (Bryant and Palmer). Easily known by the peculiar black surface of the hind tibiæ, which is bare of hairs between the dorsal ridge and the setulæ, as well as the very short first costal division.

The male has the first costal division nearly as long as the second, the anterior pair of scutellar bristles much reduced, and the anal

protuberance short, stout, and of a clear yellow color. Otherwise as the female.

Type.—Cat. No. 14906, U.S.N.M.

APHIOCHÆTA TASMANIENSIS, new species.

Male and female.—Black-brown, shining; frons black, nearly as long as broad, with numerous short hairs besides the usual bristles, lower post-antennal bristles nearly as large as upper pair, and a little closer placed, the upper pair occupying one-fifth of the width of frons, center pair in first row nearer center of frons than outer pair but hardly lower, the upper pair in transverse line with upper post-antennals; thorax with the usual short dorsal hairs, scutellum with two strong marginal bristles and four hairs on the posterior margin between them, mesopleuræ bare; abdomen dull black-brown, second segment elongated in both sexes, sixth in male slightly elongated and with a conspicuous pale posterior margin, sixth in female much elongated, male hypopygium and anal protuberance inconspicuous; legs yellow, posterior femora darkened at apex, mid tibiæ with two rows of setulæ, those on antero-dorsal surface minute, hind tibiæ with a single strong row; wings clear or yellowish, costa short of middle, first division two and one-half times as long as second, third rather more than half as long as second, fringe long, but delicate and rather widely placed, fourth vein curved at base and running straight to near wing tip; halteres yellow.

Length, $1\frac{1}{2}$ –2 mm.

A large number of specimens of both sexes from Tasmania (Arthur M. Lea).

Was standing with label *Phora omnivora* Hudson?. I am not surprised at the ? being on the label, as it is absolutely impossible for any one to tell just exactly what sort of Phorid Hudson had before him when he wrote his book.¹ Kertész includes Hudson's species in *Phora*, but I infer from the caricature given by Hudson that it is an *Aphiochæta*. However, it is quite unrecognizable. It is obvious from Hudson's remarks that he had more than one species before him, and there is no reason to suppose, considering the remoteness of Tasmania from New Zealand, that this was one of them.

Type.—Cat. No. 14907, U.S.N.M.

APHIOCHÆTA SETARIA, new species.

Female.—Yellow, subshining; frons dull yellow, darker toward vertex, covered with very short black hairs, and with the usual bristles, both pairs of post-antennal bristles present, the lower pair three-fourths as large as upper pair, and not much closer placed, the upper pair separated by one-fourth the breadth of frons, center pair of bristles in first row distinctly lower than outer pair, in transverse

¹ Man. New Zealand Ent., 1892, p. 62.

line with upper post-antennals, and distinctly nearer middle of frons than outer pair, center pair in second row distinctly in front of outer pair in same row and about one-fourth the distance from ocellar triangle to upper post-antennals, antennæ dusky yellow, arista pubescent, distinctly longer than frons, palpi large, pale yellow, moderately bristled; thorax yellow, very slightly shining, thickly covered with short hairs, those of the posterior margin immediately in front of scutellum longer, four equally long scutellar bristles, mesopleuræ with numerous short bristles; abdomen brownish black, segments subequal, fifth and sixth with long hair-like bristles laterally and posteriorly, ovipositor yellow, with long distinct hair-like bristles; legs yellow, apices of hind femora distinctly darkened, basal third of hind femora with long curled hairs on ventral surface, mid and hind tibial setulæ distinct, the terminal one on the latter almost spur-like; wings clear, costa to middle, first division one and one-half times as long as second, third about one-fourth as long as second, fringe barely longer than diameter of costal vein, close and delicate, fourth vein leaving at fork with a slight downward sweep and running with an even arcuation to distinctly in front of wing tip; halteres yellow.

Length, 2½ mm.

One female, Hawaii, Maui (Koebele).

Type.—Cat. No. 14908, U.S.N.M.

APHIOCHÆTA VARIATA, new species.

Male and female.—Yellow; frons at least as long as broad, yellow, with the ocellar region brownish, both pairs of post-antennal bristles strong and of nearly equal size in male, both pairs in female much reduced but of equal size, center pair of bristles in first row very slightly below the upper post-antennal pair transversely, and about equidistant from them and the outer bristle in first row, which latter is considerably higher on frons and near to eye-margin, antennæ yellow, browned at tip, more distinctly darkened in male, arista brown, bare, about one-third longer than frons, palpi pale yellow, normal; thorax dull yellow in female, brownish in male, mesopleuræ bare, scutellum with two strong bristles and two microscopic hairs anterior to them in male, four nearly equal, strong bristles in female, in color the scutellum is whitish yellow almost all over in female, in male the posterior margin broadly yellowish; abdomen of male black, all segments very distinctly, posteriorly whitish yellow bordered, the sixth more broadly so, second segment elongate but not greatly so, hypopygium yellow, anal protuberance inconspicuous, yellow, female abdomen brownish except first segment and posterior margins of remainder, which are yellow, ovipositor yellow, no noticeable hairs on abdomen in either sex; legs yellow, apices of hind femora distinctly darkened, hind tibiæ slightly darker than other tibiæ, mid tibial setulæ indistinct, those on hind tibiæ distinct on apical two-thirds, two distinct end spurs on

ventral surface in both sexes on hind tibiæ; wings clear, costa to about two-fifths the wing length in female, about one-third of wing length in male, first division more than twice as long as other two together, fork of third vein indistinct, the branches very close especially in female and nearly fused; fringe close and short, barely longer than diameter of costal vein, fourth vein very slightly up-curved at apex, ending distinctly in front of wing tip; halteres yellow.

Length, 1-1½ mm.

Two specimens, Manila, Philippine Islands (W. A. Stanton).

Labelled "*Phora nigriceps*, Lw." A manuscript label states that there is "a large series in alcohol," but I have been unable to locate them. Allied to *fasciata* Fallen, but distinct in having only one row of posterior tibial setulæ and four scutellar bristles in female. It differs from *rufa* Wood in color and in having a longer arista.

Type.—Cat. No. 14909, U.S.N.M.

PARASYNEURA, new genus.

Frons broad, with four proclinate bristles and three rows of four frontal bristles, ocelli distinct, ocellar triangle raised, frontal suture distinct, antennæ round, arista long, dorsal; thorax as in *Aphiochæta*, abdomen in female with the first and second segments much elongated, ovipositor not much exerted, fleshy; wings with costa very long, the third vein unforked; mediastinal vein present.

Type of the genus.—*Parasyneura rotundipennis*, new species.

PARASYNEURA ROTUNDIPENNIS, new species.

Plate 39, figs. 1-3.

Female.—Yellow; frons broader than long, the lower pair of post-antennal bristles much smaller than the upper; antennæ brown, of moderate size, arista distinctly pubescent, nearly twice as long as frons, palpi clear yellow, strongly bristled, thorax with two dorso-central bristles, scutellum with two bristles, mesopleura bare; first and second abdominal segments of about equal length, occupying two-thirds of length of abdomen, yellow, the second with what appears to be an orifice set in a depression at base, third segment black, opaque, a small rounded flap protruding from under the apex of second segment of same color, fourth segment yellow, fifth and sixth infuscated, the three of equal length, ovipositor as in *Aphiochæta*, lateral venter visible from above from end of first segment to end of third, membranous; wings of moderate length rounded at tip, costa to about three-fourths the wing length, third vein unforked, first division of costa about one-half the length of second, fringe fine and sparse, fourth vein nearly obsolete, very short and traceable to where it ends much in front of tip of wing, fifth vein widely separated from fourth, distinct at base, but obsolete at

wing margin, sixth and seventh distinct; legs yellow, spurs of posterior pairs of tibia well developed, hind tibia with a row of short serial setulæ on the postero-dorsal surface, hind metatarsus with about 10 transverse rows of short thickly placed bristles on ventral surface, halteres yellow.

(Fourth vein drawn distinct in plate to show its course.)

Length, 1.75 mm.

Locality.—Tjibodas, Mount Gede, Java (Bryant and Palmer), 5,000 feet. One specimen.

Type.—Cat. No. 14910, U.S.N.M.

Much as I regret the creation of genera for the reception of single species, there seems no other way out of it, as the insect does not fall within either *Plastophora* or *Syneura*, as defined by Brues, differing in several essential characters from both of those genera.

ADDENDA.

APHIOCHÆTA FENESTRATA, new species,

Female.—Black, subshining; frons about one-fourth longer than broad, upper post-antennal bristles close together, of moderate size, under pair small, center pair of bristles in first row much nearer to center of frons than outer pair and about equidistant from those and upper post-antennals; antennæ yellowish, third joint round, arista pale, as long as frons, pubescent, palpi yellow, of moderate size, with 4-5 bristles; mesonotum thickly covered with short hairs, about 6 bristles in a transverse row on posterior margin, mesopleuræ with numerous bristles of irregular lengths, scutellum with four bristles; abdomen black, opaque, nearly bare; legs yellowish, hind pair darker, fore tarsi thickened, thinner than tibiæ and longer by about length of apical joint, hind femora and tibiæ broad and strong, the hind tibial setulæ short and only noticeable on apical half; wings grayish, neuration as in *divergens*, a distinct bristle on base of third vein; halteres black.

Length, 1 mm.

Type.—Cat. No. 15261, U.S.N.M.

Locality.—United States National Museum, Washington, District of Columbia, on window, May 28, 1912 (J. R. Malloch).

Very close to *divergens*, but the above description should serve to separate them. Owing to the presence of four scutellar bristles *fenestrata* will run down to *arcuata* in the table of species given in Group D on page 452.

APHIOCHÆTA SCHWARZI, new species.

Female.—Black; frons one-third longer than broad, slightly shining, punctured, and with the surface covered with numerous short hairs, two pairs of convergent post-antennal bristles, the under pair about

two-thirds as large as the upper, upper pair occupying one-third the breadth of frons, the under about one-fourth, center pair of first row bristles much below the outer pair, in transverse line with upper post-antennals and about midway between them and the eye margin, second row about one-sixth the distance from the ocelli to upper post-antennal bristles, antennæ brownish yellow, rather small, arista about one-fourth longer than frons, very shortly pubescent, palpi yellow, of normal size and numerous bristled; mesonotum slightly shining, the surface with numerous short hairs, two bristles on posterior margin, pleuræ black-brown, distinctly shining, bare, scutellum with two bristles and two very weak hairs anterior to them; abdomen opaque black, segments with a few short scattered hairs; legs yellow, hind pairs, except apices of coxæ, trochanters, and bases of femora brown, setulæ as in *furtiva*, but those on hind tibiæ stronger; wings narrow, slightly browned, costa to distinctly beyond middle, first division as long as next two, third nearly half as long as second, fringe nearly as long as fork of third vein, close and fine, but longer than in *furtiva*, fourth vein rounded at base, not reaching to third, recurved at apex and ending at distinctly in front of wing tip; halteres black.

Length, $1\frac{1}{2}$ mm.

Type.—Cat. No. 15266, U.S.N.M.

Locality.—One female, Plummers Island, Maryland, August 3, 1912 (J. R. Malloch).

In the table given for Group D this species runs down to *furtiva* Aldrich, from which it may be separated by the position of the frontal bristles, the narrow wings, the longer third costal division and the longer fringe.

Named in honor of Mr. E. A. Schwarz, the president of the Washington Biologists Field Club, who has done so much to make Plummers Island one of the best known entomological localities in America.

Genus PHALACROTOPHORA Enderlein.

This genus was created by Enderlein for the reception of a single species, *bruesiana* Enderlein,¹ and the only character given for its separation from *Aphiochæta* is "frons with only marginal bristles." No mention is made of how many rows of bristles there are on the frons, and without a clear understanding of this it is impossible to say whether *epeiræ* Brues and *longifrons* Brues belong to the genus or not. Brues has indicated that they do belong here,² but if that should be the case then some other species of American *Aphiochæta*, including *atlantica* Brues and *picta* Lehm, should also be considered as congeneric. The frontal bristles in the first row are subject to very considerable variation in the matter of position, and this is the more pronounced when the frons is elongated. It is the rule that

¹ Stett. Ent. Zeit., 1912, p. 21.

² Psyche, vol. 19, 1912, No. 4, p. 135.

when the frons is much broader than long the first row of bristles is transverse or almost so, and when the frons is longer than broad the center pair of bristles in this row is much below the outer pair, in many cases directly or almost directly below the outer pair. This is noticeably so in the species above cited, but there are among the other species in *Aphiochæta* all the possible variations between these two extremes, so that it would be impossible to place some species in either *Phalacrotophora* or *Aphiochæta* if the situation of these bristles is to be taken as the line of demarcation between the genera. I am not in a position to say definitely whether Enderlein had a species which is entitled to rank as of a distinct genus from *Aphiochæta* because of his rather unsatisfactory description, but if *bruesiana* agrees with *epeiræ* in the bristling of the frons then I should be inclined to consider it as an *Aphiochæta*. The characters I have used for the separation of the groups in this paper are much more reliable and at least to my mind more satisfactory than the single one cited by Enderlein for *Phalacrotophora*.

PULICIPHORA VIRGINIENSIS, new species.

Male.—Brownish yellow, subshining; frons opaque brown, about one-fourth broader than long, four weak, subequal post-antennal bristles present, the lower pair low down between the antennæ and separated by almost as wide a space as the upper pair, center pair in first row almost in transverse line with the upper post-antennals and nearer to center of frons than outer pair in same row, which are much higher placed on frons; besides the normal bristles there are numerous short hairs on the surface, antennæ yellowish, third joint large, slightly pointed, arista almost apical, distinctly pubescent, pale, slightly longer than breadth of frons, palpi pale, rather spatulate, with 3-4 long, slender bristles on lower surface; mesonotum with two long bristles in front of scutellum, pleuræ yellowish, scutellum with two long posterior bristles and two very weak anterior hairs; abdomen opaque brown with a few weak lateral hairs, hypopygium protruding, yellowish, shining, organ on right side produced into an acute point, anal protuberance small, yellowish, with a few surface hairs; legs and coxæ almost entirely yellow, only the tarsi darkened, mid tibial spur minute, hind tibial spur large and distinct; wings grayish, costa to about three-fifths the wing length, distinctly thickened on middle, first division two-thirds as long as second, fringe very short, fourth vein straight, separated from third vein by a clear tenth of its length, parallel with fifth and ending at very near to wing tip; halteres dark brown.

Length, 0.75 mm.

Type.—Cat. No. 15262, U.S.N.M.

Locality.—Rosslyn, Virginia, September 22, 1912 (Knab and Malloch).

This species comes next to *palposa* in the table of males given for the genus and may be separated from it by the smaller size, different bristling of frons, paler color and straight fourth vein.

CATALOGUE OF AMERICAN PHORIDÆ, WITH LIST OF STATES THEY HAVE BEEN RECORDED FROM.

[^aTypes in United States National Museum; ^bRepresented in United States National Museum; ^cEuropean species introduced in present paper.]

- Truphæoneura* Malloch. Journ. Nat. Hist. Soc. Glasgow, vol. 1, 1908, p. 27 (*Phora* of authors, part; not Latreille).
- occidentalis* Brues. Journ. N. Y. Ent. Soc., vol. 16, 1908, p. 200, Washington, Idaho.
- ^a *fratercula* Brues. Trans. Amer. Ent. Soc., vol. 29, 1903, p. 341, Wyoming, District of Columbia, New Hampshire.
- ^b *pachyneura* Loew. Dipt. Sept. Amer., Cent., 7, 1866, species 97, Alaska, Washington, Idaho, Wisconsin, Quebec, Canada.
- ^a *vitrinervis* Malloch. This paper, p. 419, New Hampshire.
- ^b *microcephala* Loew. Dipt. Sept. Amer., Cent., 7, 1866, species 96, New Hampshire.
- ^a *subfusca* Malloch. This paper, p. 422, Massachusetts.
- ^a *suspecta* Malloch. This paper, p. 420, North Dakota.
- varipes* Malloch. This paper, p. 419, Kansas.
- Chætoneurophora*, new name. This paper, p. 422. (*Phora* of authors, part; not Latreille).
- variabilis* Brues. Journ. N. Y. Ent. Soc., vol. 16, 1908, p. 199, Washington, Colorado.
- curvinervis* Becker. Abh. zool.-bot. Ges. Wien, 1901, p. 33, Washington, New Hampshire.
- ^b *thoracica* Meigen. Klass., vol. 1, 1804, p. 313, species 2, New Hampshire.
- ^a *olympix* Aldrich (apud Brues). Trans. Amer. Ent. Soc., vol. 29, 1903, p. 344, Washington, New York.
- ^a *luggeri* Aldrich. Can. Ent., vol. 24, 1892, p. 125, Maryland, New Hampshire, Kansas, Massachusetts, Minnesota, Pennsylvania.
- ^a *spinipes* Coquillett. Can. Ent., vol. 27, 1895, p. 424, Connecticut, Idaho, Ohio, Washington.
- Paraspiniphora*, new name. This paper, p. 425. (*Phora* of authors, part; not Latreille).
- ^a *scutellata* Brues. Trans. Amer. Ent. Soc., vol. 29, 1903, p. 344, Grenada, West Indies.
- ^c *spinosissima* Strobl. "Phora Oest." Wien Ent. Zeit., vol. 11, 1892, Maryland.
- ^a *spinulosa* Malloch. This paper, p. 429, New York.
- ^b *bergenstammii* Mik. Verh. zool.-bot. Ges., vol. 14, 1864, p. 793, New York, Maryland.
- ^a *trispinosa* Malloch. This paper, p. 427, British Columbia.
- ^a *slossonæ* Malloch. This paper, p. 428, New Hampshire, New York.
- ^a *multiserata* Aldrich (apud Brues). Trans. Amer. Ent. Soc., vol. 29, 1903, p. 345, Kansas, New York.
- Dohrniphora* Dahl. Sitz. Ges. nat. Freunde, 1898, p. 188 (*Phora* of authors, part; not Latreille).
- ^b *concinna* Meigen. Syst. Besch., vol. 6, 1830, p. 221, species 28, South Dakota, California, Massachusetts, New York, New Jersey, Pennsylvania.
- crassicornis* Meigen. Syst. Besch., vol. 6, 1830, p. 220, species 26, U. S. A. (Brues, Gen. Ins.).
- ^a *knabi* Malloch. This paper, p. 431, Panama.

Dohrniphora Dahl—Continued.

- b incisuralis* Loew. Dipt. Sept. Amer., Cent., 7, 1866, species 98, Florida, Louisiana, Virginia.
- a venusta* Coquillett. Can. Ent., vol 17, 1895, p. 107, Massachusetts, Florida, Texas, District of Columbia, Grenada, Trinidad, West Indies, Panama.
- Hypocera* Lioy. Atti. Istit. Veneto., vol. 10, 1864, p. 78.
- a johnsoni* Brues. Trans. Amer. Ent. Soc., vol. 29, 1903, p. 352, New Jersey, Ontario, Canada, Nicaragua.
- a grenadensis* Brues. Trans. Amer. Ent. Soc., vol. 29, 1903, p. 356, Grenada, West Indies.
- b flavimana* Meigen. Syst. Besch., vol. 6, 1830, p. 213, species 5, New Hampshire, District of Columbia, Massachusetts, Maine, Rhode Island.
- ?b clavata* Loew. Dipt. Sept. Amer., Cent., 7, 1866, species 95, District of Columbia, Massachusetts, Kansas.
- a ehrmanni* Aldrich (apud Brues). Trans. Amer. Ent. Soc., vol. 29, 1903, p. 353, Pennsylvania, Maryland.
- a convergens* Malloch. This paper, p. 435, Panama.
- Conicera* Meigen. Syst. Besch., vol. 6, 1830, p. 226.
- a aldrichi* Brues. Trans. Amer. Ent. Soc., vol. 29, 1903, p. 279, Idaho.
- b atra* Meigen. Syst. Besch., vol. 6, 1830, p. 226, species 1, District of Columbia, Massachusetts, New Jersey, New York, Michigan, Canada.
- a neotropica* Brues. Trans. Amer. Ent. Soc., vol. 29, 1903, p. 380, as var. of *atra*, Grenada, West Indies.
- Phora* Latreille. Hist. Nat. Crust. et Ins., vol. 3, 1802, p. 464 (= *Trineura* Meigen, Ill. Mag. Ins., vol. 2, 1803, p. 276, 88).
- a occidentata* Malloch. This paper, p. 438, Alaska, New Hampshire, California.
- b aterrima* Fabricius. Ent. Syst., vol. 4, 1794, p. 334, species 93, Massachusetts, Pennsylvania, Kansas, South Dakota, Michigan, New York, Texas, Illinois.
- b velutina* Meigen. Syst. Besch., 1830, p. 224, species 38, California, Idaho, Kansas, Massachusetts, Michigan, Alaska.
- a montana* Brues. Trans. Amer. Ent. Soc., vol. 29, 1903, p. 377, New Mexico, Kansas.
- Pseudohypocera* Malloch. This paper, p. 439.
- a clypeata* Malloch. This paper, p. 440, Mexico.
- Apocephalus* Coquillett. Proc. Ent. Soc. Wash., vol. 4, 1901, p. 501.
- a wheeleri* Brues. Trans. Amer. Ent. Soc., vol. 29, 1903, p. 373, Wisconsin.
- a spinicosta* Malloch. This paper, p. 442, Texas.
- a coquilletti* Malloch. This paper, p. 443, Pennsylvania, Tennessee, Maryland.
- a pergandei* Coquillett. Proc. Ent. Soc. Wash., vol. 4, 1901, p. 501, Maryland, District of Columbia.
- a similis* Malloch. This paper, p. 444, New Mexico.
- a aridus* Malloch. This paper, p. 444, Mexico.
- Beckerina* Malloch. Ann. Mag. Scot. Nat. Hist., 1910, p. 90.
- a orphnephiloides* Malloch. This paper, p. 441, Maryland.
- Aphiochaeta* Brues. Trans. Amer. Ent. Soc., vol. 29, 1903, p. 337.
- a conglomerata* Malloch. This paper, p. 445, British Columbia.
- a magnipalpis* Aldrich. Trans. Ent. Soc. Lond., 1896, p. 438, St. Vincent, Grenada, West Indies.
- c projecta* Becker. Monog. Phoridae, Abh. zool-bot. Ges. Wien., vol. 56, 1901, New Hampshire, West Indies.
- a californiensis* Malloch. This paper, p. 447, California.
- a nedæ* Malloch. This paper, p. 448, Mexico.
- b longifrons* Brues. Bull. Wis. Nat. Hist. Soc., vol. 4, 1906, p. 100, Wisconsin, Maryland, New York.
- b epeiræ* Brues. Psyche, vol. 9, 1902, No. 314, p. 351, Texas, Louisiana, Florida, New Jersey, Pennsylvania, Maryland, New Hampshire.

Aphiochaeta Brues—Continued.

- halictorum*. Melander and Brues, Biol. Bull., vol. 14, 1903, Massachusetts.
a barberi Malloch. This paper, p. 450, New Mexico.
b picta Lehm. Indic. schol. Hamburg, 1822, No. 43, New Hampshire, Maryland, Wisconsin, New Jersey, St. Vincent, West Indies.
a subpicta Malloch. This paper, p. 452, Florida.
a marginalis Malloch. This paper, p. 457, Missouri.
a submarginalis Malloch. This paper, p. 458, Maryland.
b juli Brues. Journ. N. Y. Ent. Soc., vol. 16, 1908, p. 201, Wisconsin, Maryland.
a perditata Malloch. This paper, p. 459, Maryland.
a arcuata Malloch. This paper, p. 460, Maryland.
a fenestrata Malloch. This paper, p. 517, District of Columbia.
b nigriceps Loew. Dipt. Sept. Amer., Cent., 7, 1866, species 99, New Hampshire, Missouri, Massachusetts, Illinois, Tennessee, Texas, Rhode Island.
a winnemana Malloch. This paper, p. 461, Maryland.
a aletix Comstock. Cotton Insects, 1879, p. 208-211, Alabama, New York.
a fisheri Malloch. This paper, p. 463, Maryland.
a inaequalis Malloch. This paper, p. 464, District of Columbia.
a macrochaeta Malloch. This paper, p. 464, Porto Rico.
a spinifemorata Malloch. This paper, p. 465, Jamaica, West Indies.
c ruficornis Meigen. Syst. Besch., vol. 6, 1830, p. 218, species 21, New Hampshire, Maryland, New York, New Jersey.
a aurea Aldrich. Trans. Ent. Soc. Lond., 1896, p. 437, Grenada, West Indies.
b scalaris Loew. Dipt. Sept. Amer., Cent., 7, 1866, species 100, Tobago, West Indies, Brazil, Cuba, Florida, Mexico, Pennsylvania.
a var. cordobensis Malloch. This paper, p. 467, Mexico.
a sublutea Malloch. This paper, p. 468, New Hampshire, New Jersey.
a carlymensis Malloch. This paper, p. 468, Virginia.
b flava Fallen. Dipt. Suec. Phytom., p. 7, species 8 (*Trineura*) 1823.
a obscura Brues. Trans. Amer. Ent. Soc., vol. 29, 1903, p. 362, St. Vincent, West Indies.
a evarthæ Malloch. This paper, p. 472, Michigan.
a straminea Malloch. This paper, p. 472, New York.
a fungorum Malloch. This paper, p. 473, Maryland.
a longipennis Malloch. This paper, p. 473, Louisiana.
a cayuga Malloch. This paper, p. 474, New York.
a straminipes Malloch. This paper, p. 474, New York.
a johannseni Malloch. This paper, p. 474, New York.
a brunnipipes Malloch. This paper, p. 475, Maryland.
a iroquoiana Malloch. This paper, p. 476, New York, Michigan.
a ursina Malloch. This paper, p. 476, British Columbia.
rostrata Melander and Brues. Biol. Bull., vol. 5, 1903, p. 15, Massachusetts.
cata Melander and Brues. Biol. Bull., vol. 5, 1903, p. 16.
a proboscidea Malloch. This paper, p. 477, Maryland.
a arizonensis Malloch. This paper, p. 478, Arizona.
a monticola Malloch. This paper, p. 479, British Columbia.
a franconiensis Malloch. This paper, p. 479, New Hampshire.
a dubitata Malloch. This paper, p. 480, British Columbia.
a divergens Malloch. This paper, p. 480, Maryland, Arizona.
a atomella Malloch. This paper, p. 481, Alaska, British Columbia. (?)
a subatomella Malloch. This paper, p. 481, New Zealand.
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Aphiochaeta Brues—Continued.

- a vulgata* Malloch. This paper, p. 483, Maine, Missouri, Massachusetts, New Hampshire.
- a difficilis* Malloch. This paper, p. 484, Massachusetts, North Carolina, New York.
- a anomala* Malloch. This paper, p. 484, New Hampshire.
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- a conspiciualis* Malloch. This paper, p. 487, California.
- a bicolorata* Malloch. This paper, p. 486, Maryland.
- a inornata* Malloch. This paper, p. 488, New York.
- a borealis* Malloch. This paper, p. 488, British Columbia.
- a rusticata* Malloch. This paper, p. 489, Oregon.
- a perplexa* Malloch. This paper, p. 489, British Columbia.
- a infumata* Malloch. This paper, p. 490, California.
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INDEX TO GENERA AND SPECIES.

[Heavy figures denote the page giving descriptions of genera or species.]

	Page.		Page.
<i>abbreviata</i> (<i>Dohrniphora</i>).....	431	<i>caliginosa</i> (<i>Chaetoneurophora</i>)... 412,	424
<i>abdominalis</i> (<i>Dohrniphora</i>) .	411, 412, 430	<i>carinifrons</i> (<i>Hypocera</i>).....	434
<i>Acontistoptera</i>	413, 417, 509	<i>carlynensis</i> (<i>Aphiochæta</i>).....	468
<i>Ænigmatias</i>	413, 417, 511	<i>cata</i> (<i>Aphiochæta</i>)	413, 477
<i>agarici</i> (<i>Aphiochæta</i>)	413, 499	<i>cavernicola</i> (<i>Aphiochæta</i>).....	491
<i>albidohalteris</i> (<i>Aphiochæta</i>).....	496	<i>cayuga</i> (<i>Aphiochæta</i>).....	474
<i>aldrichi</i> (<i>Conicera</i>).....	437	<i>chætoneura</i> (<i>Aphiochæta</i>).....	490
<i>aletix</i> (<i>Aphiochæta</i>)	413, 462	<i>Chaetoneurophora</i>	412, 415, 422
<i>anomala</i> (<i>Aphiochæta</i>).....	484	<i>Chonocephalus</i>	416, 417, 510
<i>antiguensis</i> (<i>Plastophora</i>)	413, 502	<i>ciliata</i> (<i>Aphiochæta</i>).....	481
<i>Aphiochæta</i>	412,	<i>cimbicis</i> (<i>Dohrniphora</i>).....	431
	413, 416, 445, 446, 447, 452	<i>citreifformis</i> (<i>Hypocera</i>).....	435
<i>Apocephalus</i>	412, 416, 442	<i>clavata</i> (<i>Hypocera</i>).....	435
<i>approximata</i> (<i>Aphiochæta</i>).....	483	<i>clypeata</i> (<i>Pseudohypocera</i>).....	412, 440
<i>arcuata</i> (<i>Aphiochæta</i>).....	460	<i>cocciphila</i> (<i>Syneura</i>).....	413
<i>arcuata</i> (<i>Gymnophora</i>).....	500	<i>colona</i> (<i>Gymnophora</i>).....	500
<i>aridus</i> (<i>Apocephalus</i>).....	444	<i>Commoptera</i>	413, 417, 509
<i>arizonensis</i> (<i>Aphiochæta</i>).....	478	<i>comstocki</i> (<i>Paraspiniphora</i>).....	426
<i>aterrima</i> (<i>Phora</i>)	413, 439	<i>concinna</i> (<i>Dohrniphora</i>)	412, 431
<i>atlantica</i> (<i>Aphiochæta</i>)	413, 470	<i>conglomerata</i> (<i>Aphiochæta</i>).....	445
<i>atomella</i> (<i>Aphiochæta</i>).....	481	<i>conica</i> (<i>Aphiochæta</i>).....	413, 462
<i>atra</i> (<i>Conicera</i>).....	413, 437	<i>Conicera</i>	413, 415, 416, 436
<i>aurea</i> (<i>Aphiochæta</i>).....	467	<i>conspicualis</i> (<i>Aphiochæta</i>).....	487
<i>barberi</i> (<i>Aphiochæta</i>).....	450	<i>convergens</i> (<i>Hypocera</i>).....	435
<i>Beckerina</i>	416, 441	<i>cooki</i> (<i>Wandollecki</i>).....	413
<i>beirne</i> (<i>Plastophora</i>).....	501	<i>coquilletti</i> (<i>Apocephalus</i>).....	443
<i>bergenstanmi</i> (<i>Paraspiniphora</i>) .	412, 426	<i>cordobensis</i> (<i>Aphiochæta</i>).....	467
<i>bernthi</i> (<i>Hypocera</i>).....	434	<i>cornuta</i> (<i>Aphiochæta</i> ?)	524
<i>bicolorata</i> (<i>Aphiochæta</i>).....	486	<i>coronata</i> (<i>Hypocera</i>).....	434
<i>blattoides</i> (<i>Ænigmatias</i>)	413, 511	<i>crassicornis</i> (<i>Dohrniphora</i>).....	431
<i>bohemanni</i> (<i>Paraspiniphora</i>).....	427	<i>crawfordi</i> (<i>Plastophora</i>)	413, 501
<i>borealis</i> (<i>Aphiochæta</i>).....	488	<i>curriei</i> (<i>Plastophora</i>)	413, 501
<i>borinquensis</i> (<i>Puliciphora</i>).....	506	<i>curvinervis</i> (<i>Chaetoneurophora</i>) ..	412, 423
<i>brunnipes</i> (<i>Aphiochæta</i>).....	475	<i>difficilis</i> (<i>Aphiochæta</i>).....	484
<i>buccata</i> (<i>Chonocephalus</i>).....	510	<i>difformis</i> (<i>Hypocera</i>).....	433
<i>californiensis</i> (<i>Aphiochæta</i>).....	447	<i>divaricata</i> (<i>Dohrniphora</i>).....	432

	Page.		Page.
<i>divergens</i> (<i>Aphiochæta</i>).....	480	<i>longifrons</i> (<i>Aphiochæta</i>).....	449
<i>dohni</i> (<i>Dohrniphora</i>).....	430	<i>longipennis</i> (<i>Aphiochæta</i>).....	473
<i>Dohrniphora</i>	412, 415, 430, 511	<i>lubbocki</i> (<i>Platyphora</i>).....	413
<i>dorsalis</i> (<i>Chonocephalus</i>).....	510	<i>lucifera</i> (<i>Puliciphora</i>).....	413
<i>dorsalis</i> (<i>Paraspiniphora</i>).....	429	<i>luggeri</i> (<i>Chætoneurophora</i>).....	424
<i>dubitata</i> (<i>Aphiochæta</i>).....	480	<i>lutea</i> (<i>Aphiochæta</i>).....	413, 471
<i>dyari</i> (<i>Aphiochæta</i>).....	493	<i>macrochæta</i> (<i>Aphiochæta</i>).....	464
<i>Ecitomyia</i>	413, 416, 417, 508	<i>maculata</i> (<i>Paraspiniphora</i>).....	412, 426
<i>ehrmanni</i> (<i>Hypocera</i>).....	435	<i>magnipalpis</i> (<i>Aphiochæta</i>).....	446
<i>epeiræ</i> (<i>Aphiochæta</i>).....	412, 450	<i>marginalis</i> (<i>Aphiochæta</i>).....	457
<i>erythronota</i> (<i>Paraspiniphora</i>).....	428	<i>Melaloncha</i>	416, 500
<i>evarthæ</i> (<i>Aphiochæta</i>).....	413, 472	<i>melandri</i> (<i>Acontistoptera</i>).....	413, 509
<i>excisa</i> (<i>Paraspiniphora</i>).....	427	<i>Metopina</i>	413, 416, 503
<i>fasciata</i> (<i>Aphiochæta</i>).....	412, 448	<i>mericana</i> (<i>Acontistoptera</i>).....	509
<i>femorata</i> (<i>Hypocera</i>).....	434	<i>microcephala</i> (<i>Trupheoneura</i>).....	412, 421
<i>fenestrata</i> (<i>Aphiochæta</i>).....	517	<i>minor</i> (<i>Aphiochæta</i>).....	413, 494
<i>fennica</i> (<i>Chaetoneurophora</i>).....	424	<i>minuta</i> (<i>Aphiochæta</i>).....	413
<i>fenyesi</i> (<i>Metopina</i>).....	503	<i>montana</i> (<i>Phora</i>).....	439
<i>fisheri</i> (<i>Aphiochæta</i>).....	463	<i>monticola</i> (<i>Aphiochæta</i>).....	479
<i>flava</i> (<i>Aphiochæta</i>).....	413, 469	<i>mordellaria</i> (<i>Hypocera</i>).....	434
<i>flavimana</i> (<i>Hypocera</i>).....	434	<i>multiseriata</i> (<i>Paraspiniphora</i>).....	428
<i>flavinervis</i> (<i>Aphiochæta</i>).....	493	<i>navigans</i> (<i>Phora</i> ?).....	524
<i>florea</i> (<i>Bibio</i> ?).....	411	<i>nedæ</i> (<i>Aphiochæta</i>).....	412, 448
<i>formicarum</i> (<i>Plastophora</i>).....	413, 501	<i>neotropica</i> (<i>Conicera</i>).....	437
<i>franconiensis</i> (<i>Aphiochæta</i>).....	479	<i>nigra</i> (<i>Aphiochæta</i>).....	413
<i>fratercula</i> (<i>Trupheoneura</i>).....	412, 420	<i>nigriceps</i> (<i>Aphiochæta</i>).....	460
<i>fungicola</i> (<i>Aphiochæta</i>).....	413, 485	<i>nitida</i> (<i>Dohrniphora</i>).....	511
<i>fungorum</i> (<i>Aphiochæta</i>).....	473	<i>nitida</i> (<i>Puliciphora</i>).....	508
<i>furtiva</i> (<i>Aphiochæta</i>).....	486	<i>nitidifrons</i> (<i>Dohrniphora</i>).....	431
<i>fuscipes</i> (<i>Phora</i> ?).....	524	<i>nudipalpis</i> (<i>Puliciphora</i>).....	504
<i>fuscopedunculata</i> (<i>Aphiochæta</i>).....	498	<i>obscura</i> (<i>Aphiochæta</i>).....	471
<i>giraudi</i> (<i>Aphiochæta</i>).....	451	<i>occidentalis</i> (<i>Puliciphora</i>).....	507
<i>glacialis</i> (<i>Puliciphora</i>).....	507	<i>occidentalis</i> (<i>Trupheoneura</i>).....	417
<i>grenadensis</i> (<i>Hypocera</i>).....	434	<i>occidentata</i> (<i>Phora</i>).....	438
<i>grænlandica</i> (<i>Aphiochæta</i>).....	524	<i>olympiæ</i> (<i>Chætoneurophora</i>).....	424
<i>Gymnophora</i>	416, 500	<i>opaca</i> (<i>Trupheoneura</i>).....	412
<i>halictorum</i> (<i>Aphiochæta</i>).....	450	<i>orientata</i> (<i>Aphiochæta</i>).....	513
<i>humeralis</i> (<i>Aphiochæta</i>).....	413	<i>orphnephiloides</i> (<i>Beckerina</i>).....	441
<i>Hypocera</i>	412, 416, 433, 512	<i>pachycondylæ</i> (<i>Metopina</i>).....	413, 503
<i>hystrix</i> (<i>Xanionotum</i>).....	413, 510	<i>pachyneura</i> (<i>Trupheoneura</i>).....	418
<i>inæqualis</i> (<i>Aphiochæta</i>).....	464	<i>palposa</i> (<i>Puliciphora</i>).....	505
<i>incisa</i> (<i>Aphiochæta</i>).....	470	<i>Paraspiniphora</i>	412, 415, 425
<i>incisuralis</i> (<i>Dohrniphora</i>).....	432	<i>Parasyneura</i>	416, 516
<i>incrassata</i> (<i>Hypocera</i>).....	412, 434	<i>perdita</i> (<i>Aphiochæta</i>).....	459
<i>infumata</i> (<i>Aphiochæta</i>).....	490	<i>peregrina</i> (<i>Aphiochæta</i>).....	492
<i>inornata</i> (<i>Aphiochæta</i>).....	488	<i>perennis</i> (<i>Trupheoneura</i>).....	412
<i>inseparata</i> (<i>Hypocera</i>).....	434	<i>pergandei</i> (<i>Apocephalus</i>).....	443
<i>iroquoiana</i> (<i>Aphiochæta</i>).....	476	<i>perplexa</i> (<i>Aphiochæta</i>).....	489
<i>johannseni</i> (<i>Aphiochæta</i>).....	474	<i>Phalacrotophora</i>	518
<i>johnseni</i> (<i>Hypocera</i>).....	434	<i>Phora</i>	413, 415, 437
<i>juli</i> (<i>Aphiochæta</i>).....	413, 459	<i>picta</i> (<i>Aphiochæta</i>).....	451
<i>kerteszi</i> (<i>Conicera</i>).....	436	<i>Plastophora</i>	413, 416, 500
<i>knabi</i> (<i>Dohrniphora</i>).....	431	<i>Platyphora</i>	413

	Page.		Page.
<i>proboscidea</i> (<i>Aphiochæta</i>).....	477	<i>strobli</i> (<i>Paraspiniphora</i>).....	425
<i>projecta</i> (<i>Aphiochæta</i>).....	446	<i>subatomella</i> (<i>Aphiochæta</i>).....	481
<i>Pseudohypocera</i> 412, 416,	439	<i>subflava</i> (<i>Aphiochæta</i>).....	469
<i>Pseudostenophora</i>	412	<i>subfusca</i> (<i>Truphœoneura</i>).....	422
<i>Psyllomyia</i>	413	<i>sublutea</i> (<i>Aphiochæta</i>).....	468
<i>pubericornis</i> (<i>Pseudostenophora</i>)....	412	<i>submarginalis</i> (<i>Aphiochæta</i>).....	458
<i>pulchella</i> (<i>Melaloncha</i>).....	500	<i>subobscurata</i> (<i>Aphiochæta</i>).....	485
<i>pulicaria</i> (<i>Aphiochæta</i>)..... 413,	495	<i>subpicta</i> (<i>Aphiochæta</i>).....	452
<i>Puliciphora</i> 413, 416, 417,	504	<i>suspecta</i> (<i>Truphœoneura</i>).....	420
<i>pusilla</i> (<i>Aphiochæta</i>).....	413	<i>sylvatica</i> (<i>Puliciphora</i>).....	506
<i>pygmaea</i> (<i>Aphiochæta</i>).....	499	<i>Syneura</i> 413, 416,	503
<i>rectangulata</i> (<i>Hypocera</i>).....	512	<i>tasmaniensis</i> (<i>Aphiochæta</i>).....	514
<i>retardata</i> (<i>Aphiochæta</i>).....	482	<i>testacea</i> (<i>Psyllomyia</i>).....	413
<i>rostrata</i> (<i>Aphiochæta</i>).....	477	<i>thoracica</i> (<i>Chætoneurophora</i>)....	412, 423
<i>rotundipennis</i> (<i>Parasynœura</i>).....	516	<i>trinervis</i> (<i>Truphœoneura</i>).....	412
<i>ruficornis</i> (<i>Aphiochæta</i>).....	466	<i>Trineura</i>	437
<i>rufipes</i> (<i>Aphiochæta</i>)..... 411, 413,	494	<i>trispinosa</i> (<i>Paraspiniphora</i>).....	427
<i>rusticata</i> (<i>Aphiochæta</i>).....	489	<i>Truphœoneura</i> 412, 415,	417
<i>scalaris</i> (<i>Aphiochæta</i>)..... 413,	467	<i>umbrimargo</i> (<i>Beckerina</i>).....	441
<i>schwarzi</i> (<i>Ænigmatias</i>).....	511	<i>ursina</i> (<i>Aphiochæta</i>).....	476
<i>schwarzi</i> (<i>Aphiochæta</i>).....	517	<i>variabilis</i> (<i>Chætoneurophora</i>).....	423
<i>scutellata</i> (<i>Paraspiniphora</i>).....	426	<i>variata</i> (<i>Aphiochæta</i>).....	515
<i>setacea</i> (<i>Aphiochæta</i>)..... 413,	495	<i>varipes</i> (<i>Truphœoneura</i>).....	419
<i>setaria</i> (<i>Aphiochæta</i>).....	514	<i>velutina</i> (<i>Phora</i>).....	439
<i>similis</i> (<i>Apocephalus</i>).....	444	<i>venata</i> (<i>Puliciphora</i>)..... 413,	506
<i>similis</i> (<i>Chonocephalus</i>).....	510	<i>venusta</i> (<i>Dohrniphora</i>)..... 412,	432
<i>similis</i> (<i>Conicera</i>).....	436	<i>virginiensis</i> (<i>Puliciphora</i>).....	519
<i>slossonæ</i> (<i>Paraspiniphora</i>).....	428	<i>vitrinervis</i> (<i>Truphœoneura</i>).....	419
<i>smithii</i> (<i>Aphiochæta</i>).....	497	<i>vitripennis</i> (<i>Hypocera</i>)..... 412,	434
<i>solenopsides</i> (<i>Commoptera</i>)..... 413,	509	<i>vulgata</i> (<i>Aphiochæta</i>).....	483
<i>spatulata</i> (<i>Plastophora</i>).....	502	<i>Wandolleckia</i>	413
<i>spinicosta</i> (<i>Apocephalus</i>).....	442	<i>wheeleri</i> (<i>Apocephalus</i>).....	442
<i>spinifemorata</i> (<i>Aphiochæta</i>).....	465	<i>wheeleri</i> (<i>Ecitomyia</i>)..... 413,	508
<i>spinipes</i> (<i>Chætoneurophora</i>).....	424	<i>winnemana</i> (<i>Aphiochæta</i>).....	461
<i>spinossissima</i> (<i>Paraspiniphora</i>).....	426	<i>Xanionotum</i> 413, 417,	510
<i>spinulosa</i> (<i>Paraspiniphora</i>).....	429	<i>xantippe</i> (<i>Aphiochæta</i>).....	459
<i>straminea</i> (<i>Aphiochæta</i>).....	472		
<i>straminipes</i> (<i>Aphiochæta</i>).....	474		

EXPLANATION OF PLATES.

PLATE 35.

- FIG. 1. Hind tibia of *Paraspiniphora slossonæ*.
 2. Hind tibia of *Paraspiniphora trispinosa*.
 3. Hind tibia of *Paraspiniphora spinulosa*.
 4. Hind tibia of *Paraspiniphora spinosissima*.
 5. Hind tibia of *Paraspiniphora multiseriata*.
 6. Hind tibia of *Paraspiniphora bergenstammi* (abnormal).
 7. Hind tibia of *Paraspiniphora scutellata*.
 8. Wing of *Chætoneurophora thoracica*.
 9. Wing of *Hypocera rectangulata*.
 10. Head of *Pseudohypocera clypeata* (dorsal view), female.
 11. Head of *Pseudohypocera clypeata* (lateral view), female.
 12. Wing of *Pseudohypocera clypeata*, female.

PLATE 36.

- FIG. 1. Frons of *Aphiochæta picta*.
 2. Frons of *Aphiochæta proboscidalis*.
 3. Frons of *Aphiochæta subpicta*.
 4. Frons of *Aphiochæta spinifemorata*.
 5. Frons of *Aphiochæta conica*, female.
 6. Abdomen of *Aphiochæta conica*, female.
 7. Tip of wing of *Aphiochæta barberi*.
 8. Frons of *Beckerina orphnephiloides*.
 9. Wing of *Aphiochæta scalaris*, var. *cordobensis*.
 10. Wing of *Beckerina orphnephiloides*, male.
 11. Wing of *Aphiochæta conica*, female.

PLATE 37.

- FIG. 1. Wing of *Aphiochæta orientata*.
 2. Wing of *Aphiochæta infumata*, male.
 3. Wing of *Aphiochæta longipennis*, female.
 4. Wing of *Aphiochæta fungorum*, male.
 5. Wing of *Aphiochæta divergens*, male.
 6. Wing of *Aphiochæta atomella*, male.
 7. Wing of *Aphiochæta franconiensis*, female.
 8. Wing of *Aphiochæta setacea*, male.

PLATE 38.

- FIG. 1. Wing of *Apocephalus wheeleri*.
 2. Wing of *Apocephalus spinicosta*.
 3. Wing of *Apocephalus pergandei*.
 4. Female ovipositor of *Apocephalus coquilletti*.
 5. Female ovipositor of *Apocephalus wheeleri*.
 6. Female ovipositor of *Apocephalus pergandei*.
 7. Female ovipositor of *Apocephalus similis*.
 8. Female ovipositor of *Apocephalus spinicosta*.
 9. Frons of *Apocephalus wheeleri*, female.
 10. Frons of *Apocephalus pergandei*, male.
 11. Frons of *Apocephalus spinicosta*, female.
 12. Hypopygium of *Apocephalus similis*, male.
 13. Terminal bristle of same.

PLATE 39.

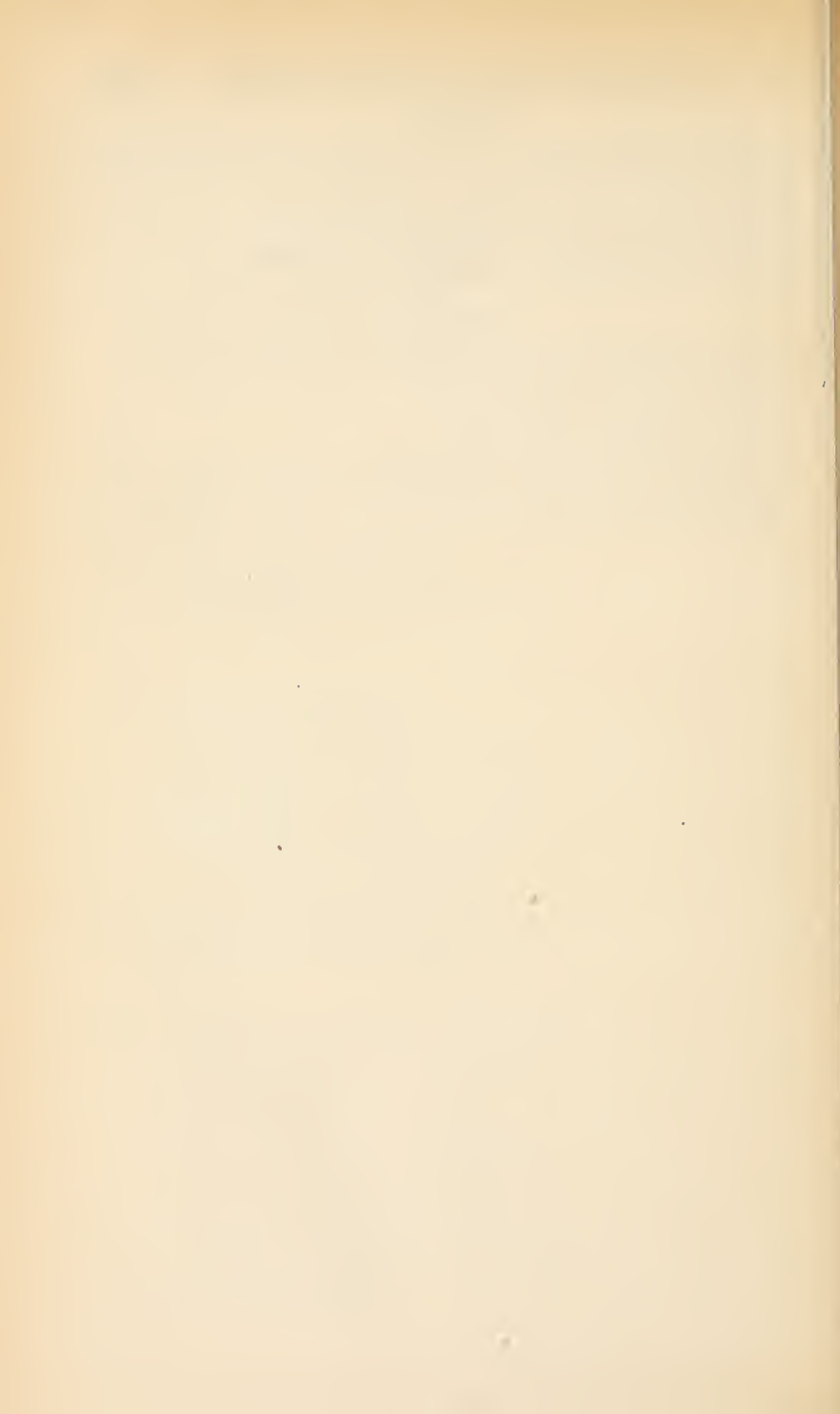
- FIG. 1. Abdomen of *Parasyneura rotundipennis*, female.
 2. Wing of *Parasyneura rotundipennis*, female.
 3. Frons of *Parasyneura rotundipennis*, female.
 4. Frons of *Plastophora curriei*, female.
 5. Frons of *Plastophora crawfordi*, female.
 6. Frons of *Plastophora formicarum*, female.
 7. Female ovipositor of *Plastophora spatulata*.
 8. Female ovipositor of *Plastophora crawfordi*.
 9. Female ovipositor of *Plastophora curriei*.
 10. Hypopygium of *Plastophora curriei*, male.
 11. Hypopygium of *Plastophora antiguensis*, male.
 12. Wing of *Plastophora curriei*.
 13. Wing of *Metopina fenyesi*.

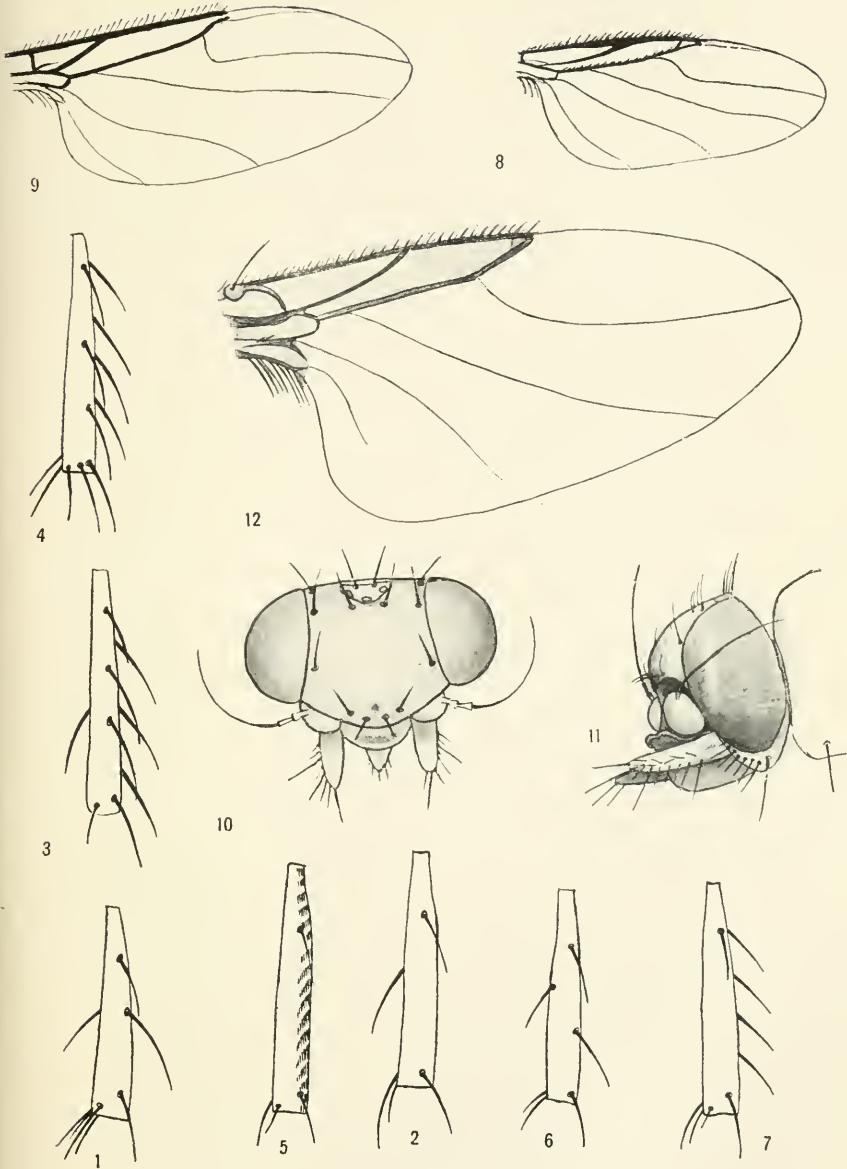
PLATE 40.

- FIG. 1. *Puliciphora glacialis*, female.
2. Portion of hind metatarsus of same.
3. Arista of same.
4. Head and thorax of *P. nitida*, female.
5. Head, thorax, and abdomen of *Chonocephalus buccata*, female.
6. Head of *Acontistoptera mexicana*, female.

PLATE 41.

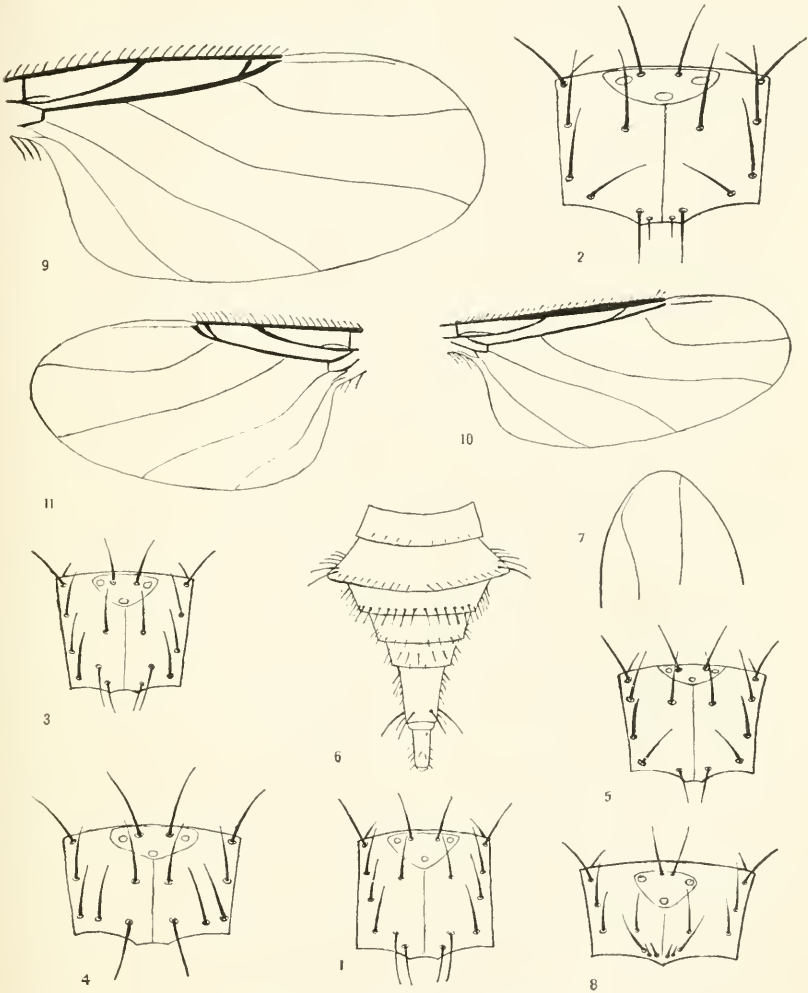
- FIG. 1. Wing of *Acontistoptera mexicana*, female.
2. Wing of *Trupheoneura vitrinervis*, male.
3. Wing of *Puliciphora palposa*, male.
4. Wing of *Puliciphora nudipalpis*, male.
5. Wing of *Alphiochæta subatomella*, male.
6. Hypopygium of *Apocephalus pergandei*, male.
7. Hypopygium of *Apocephalus aridus*, male.





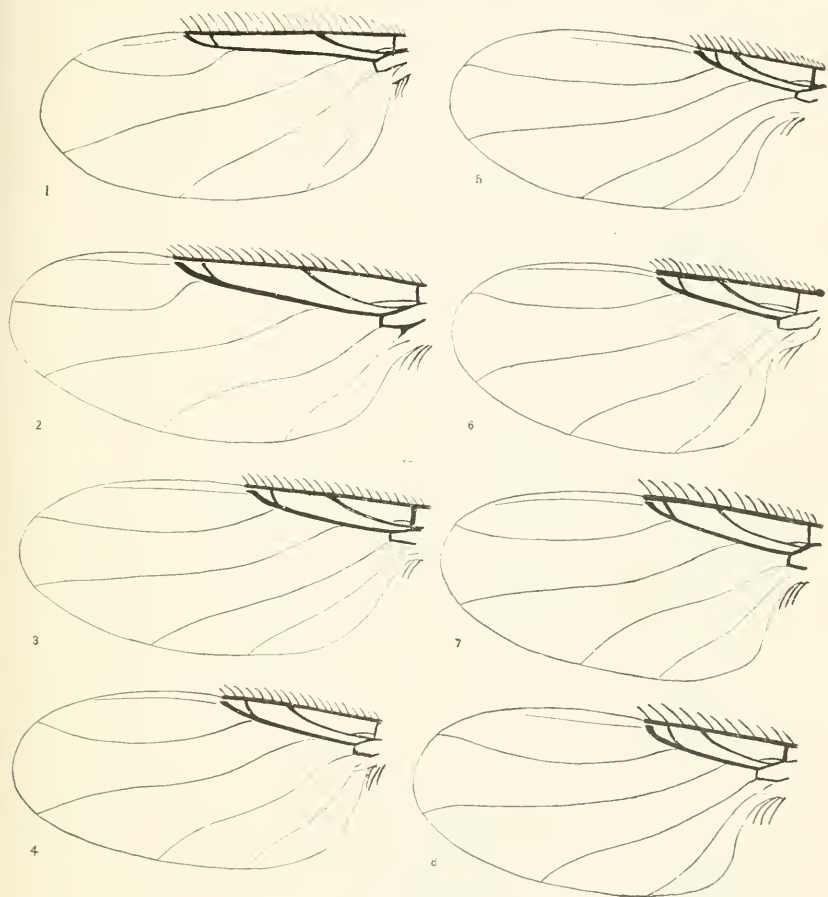
DETAILS OF SPECIES OF PHORIDÆ.

FOR EXPLANATION OF PLATE SEE PAGE 527.



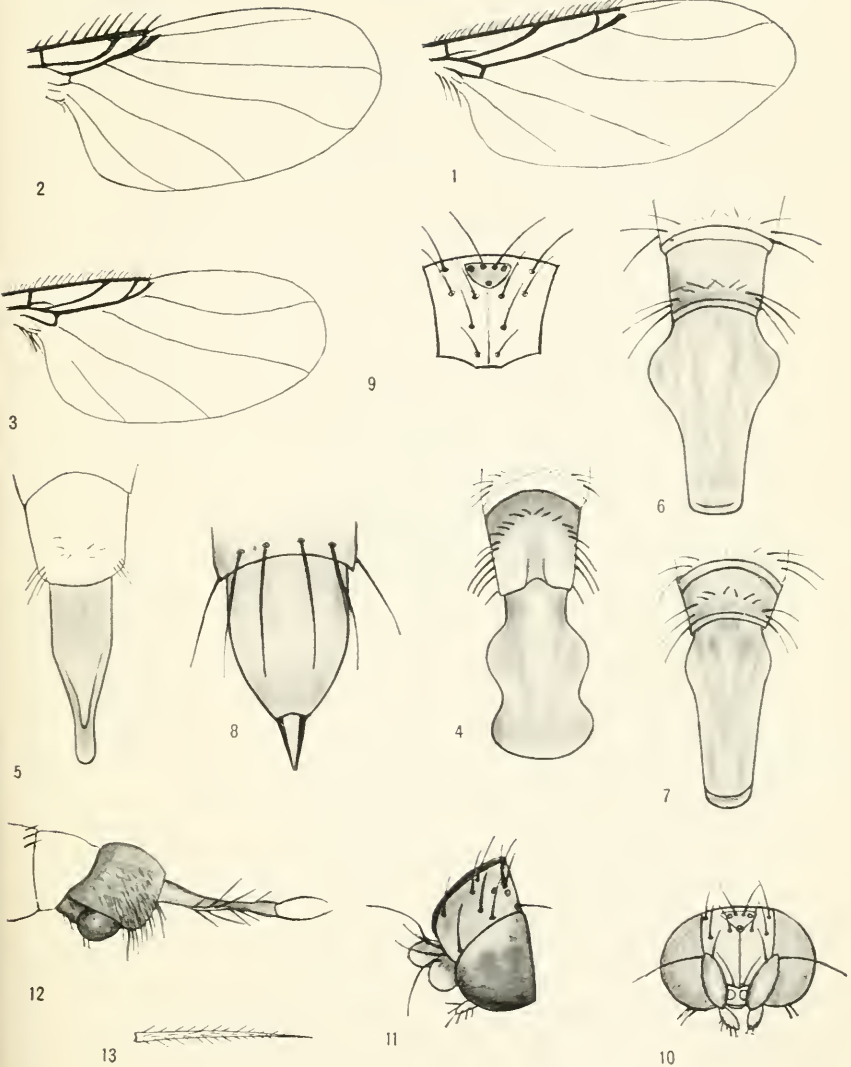
DETAILS OF SPECIES OF PHORIDÆ.

FOR EXPLANATION OF PLATE SEE PAGE 528.



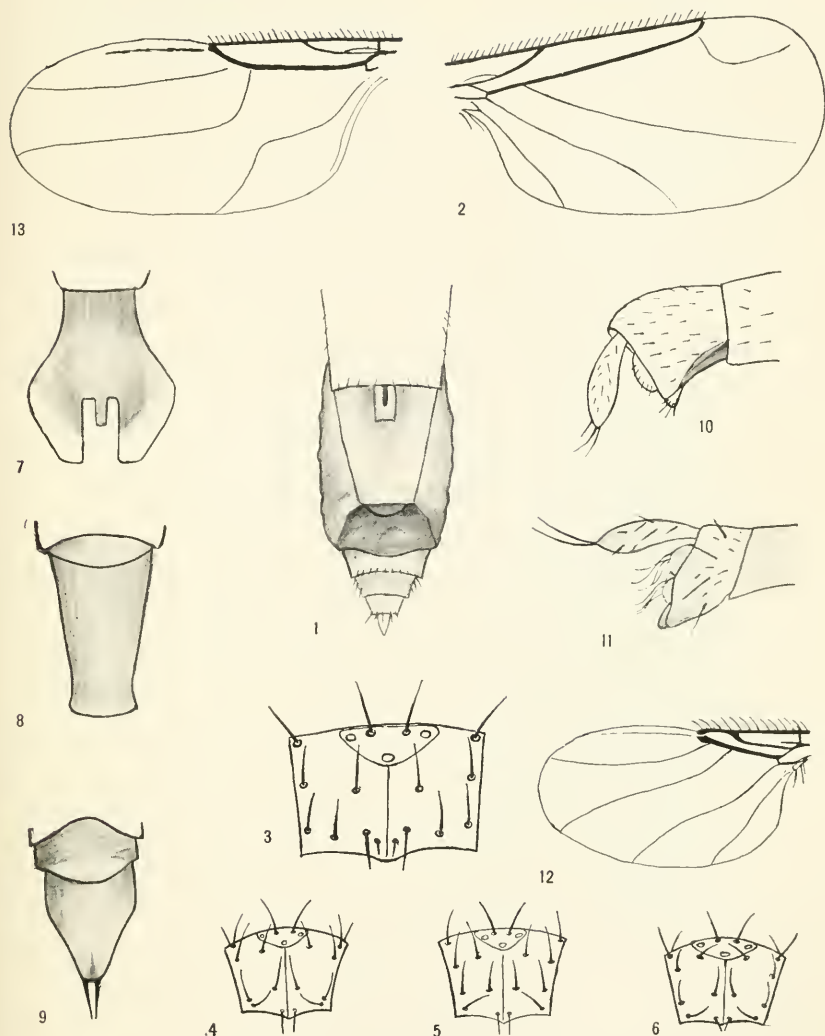
DETAILS OF SPECIES OF PHORIDÆ.

FOR EXPLANATION OF PLATE SEE PAGE 528.



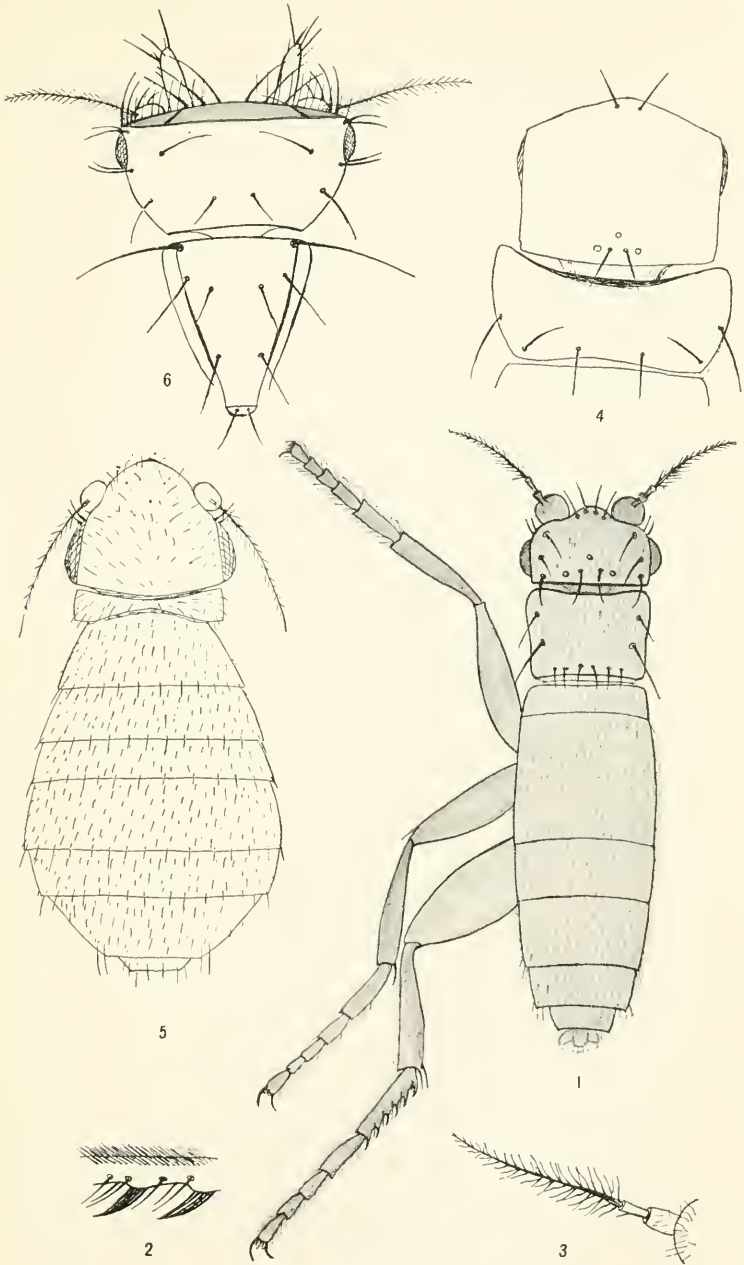
DETAILS OF SPECIES OF PHORIDÆ.

FOR EXPLANATION OF PLATE SEE PAGE 528.



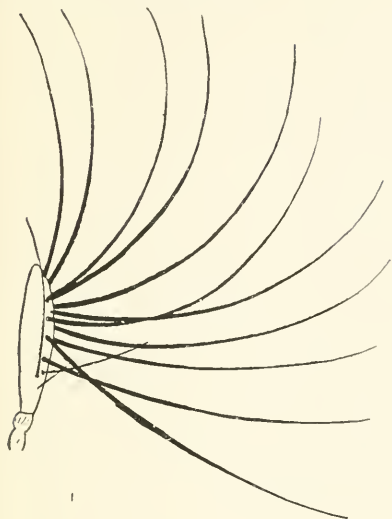
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FOR EXPLANATION OF PLATE SEE PAGE 528.

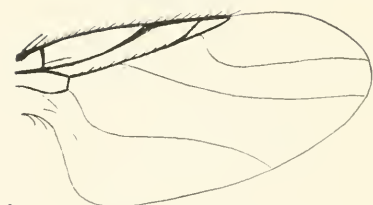


DETAILS OF SPECIES OF PHORIDÆ.

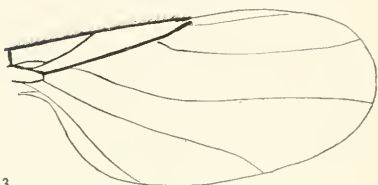
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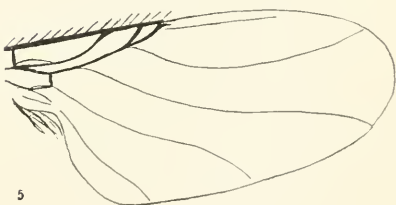
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6

DETAILS OF SPECIES OF PHORIDÆ.

FOR EXPLANATION OF PLATE SEE PAGE 529.

