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## THE GENUS TACHYDROMIA.<sup>1</sup>

BY A. L. MELANDER, PULLMAN, WASH.

Concerning the application of the generic names *Coryneta*, *Tachydromia*, *Platypalpus*, *Tachypeza* and *Tachista* of the family Empididae there is much confusion. In his early paper, the Nouvelle classification des mouches à deux ailes, bearing the date 1800, Meigen gives his forty-fourth genus the name *Coryneta*, describing it as follows. "Antennes à deux articulations: la première petite, hérissée de poils; la seconde conique, terminée par un poil barbu. Trompe perpendiculaire. Cuisses des jambes du milieu enflées. Le tibia armé à l'extrémité d'un piquant. Les ailes croisées."

No species of the genus are mentioned by name, but Meigen states that he has recognized three species. In 1803 in his revision of this paper in Illiger's Magazine, Meigen gave the name *Tachydromia* to the fifty-second genus, mentioning however this time two species, *cursitans* Fabricius and *cimicoides* Fabricius. His diagnosis of *Tachydromia* is as follows. "Die Fühlerhörner vorgestreckt, zweigliederig: das erste Glied becherförmig; das zweite kegelförmig in eine Borste auslaufend. Der Rüssel senkrecht. Schenkel der Mittelfüsse dick, stachlig. Die Flügel flach parallel."

It will be noted that the two descriptions read much alike, which is why Bezzi (in lit.) and Hendel<sup>2</sup> have concluded that both refer to the same genus, and that therefore the older name *Coryneta* should be given preference. The Nouvelle Classification has been an extremely rare paper. But three copies are known to exist, one at the Academy of Natural Sciences, Philadelphia, a second owned by Professor Hayden, and another belonging to the late Osten Sacken, and now in the possession of Dr. Hendel. Because of the obscurity of this early paper of Meigen it has been neglected by all writers. Its names are not given in the nomenclators, and even Meigen himself ignored its

<sup>1</sup> Contribution from the Zoological Laboratory of the State College of Washington.

<sup>2</sup> Verhandl. k. k. zool.-bot. Gesellsch., Wien, 1908. pp. 43-69.

existence in his later works, as if ashamed of the curious meaningless names of his first publication. The diagnoses are brief, general and ambiguous, and, since no species are mentioned the identity of the genera would have remained mostly unknown, were it not that some of the early descriptions bear a similarity to the corresponding ones of the later paper. In nearly all cases however the generic names of 1800 are entirely different from those Meigen later used. The genera of Meigen's second contribution are well known, as for most of them typical species were cited at the beginning, and their names have been in constant usage for our commonest flies for more than a century. Even by this method of comparison and elimination many of the 1800 genera will never be understood.

This early publication of Meigen remained entirely ignored until Dr. F. Hendel republished it entirely in the *Verhandlungen* of the *Wiener Gesellschaft*. If we were to accept his guesses as to the identity of these early genera we would overthrow such well-known names as *Ceratopogon*, *Odontomyia*, *Eristalis*, etc., as well as the long established type-genera of over a dozen families of diptera. But much of his evidence is insecure. The paper is worthless if not interpreted by Meigen's later works, the date of publication cannot be verified, there is even doubt if the paper was distributed on the date it bears, and nowhere are any species cited, so the genera are not true binomial conceptions. This last condition alone should not be followed too closely, for many of Meigen's genera of 1803 and 1804 were likewise published without mention of species.

Naturally to exhume these forgotten names has stirred up much discussion, and in the short interim since Hendel's republishing, there have been a score of opinions given out by various biologists. These opinions are sometimes conflicting but in the main zoologists strongly decry using the law of priority to bolster up such speciesless genera as Meigen's earliest. I shall give a list of the articles that have come to my notice bearing directly or indirectly on the principle of whether or not to adopt the newly disinterred genera. In this long parley the concrete example of Meigen's paper has been lost sight of by many of the contributors, and merely the principle has been under discussion, but nevertheless the entire argument outlined below was caused by the appearance of Hendel's reprint. A short digest of the articles will help to correlate the ideas advanced.

Professor Aldrich wrote in hopes of squelching Hendel's paper, to

deter others from using the ancient names. Yet Kertész' last volume of the *Catalogus Dipteriorum hujusque descriptorum*, volume v., 1909, adopts the family name Omphralidae for the Scenopinidae; his *Catalogue of palaeartic diptera* uses five of the early names in volume iii; while Czerny in a paper on Spanish Diptera<sup>1</sup> has discarded the family names Scatophagidae and Trypetidae, as he uses for them Meigen's earlier type genera *Scopeuma* and *Euribia*, forming thereby the family names Scopeumatidae and Euribiidae. However, Czerny does not use Meigen's early *Cypsela* to replace *Borborus*, as was advocated in Hendel's reprint.

Volume iii of the palaeartic catalogue has dispensed with the following well known genera on the plea of priority: *Ephippium*, *Oxycera*, *Odontomyia*, *Xylophagus*, *Haematopota*, *Subula* and *Leptis*. Surely the dipterist has a bewildering memory-lesson before him.

It is strongly to be urged in this period of nomenclatural unrest that writers be not too hasty in adopting the suggestions of Dr. Hendel. The trend of public opinion is that genera without species shall have no place in our system of classification. In view of the projected action of the Committee of the International Congress of Zoologists (see number 23 below), it would be decidedly rash to rush into publications the once-discarded names of 1800. It would be better to hold in abeyance any personal desires for Meigen's first names until the Committee can rectify the Code on this question. Such conservatism may prevent a premature overthrow of the names of our commonest genera, and might spare our overburdened literature from most confusing rearrangements of synonyms.

1. *Nature*, August 27, 1908, pp. 394-395.

A composite letter by British zoologists deploring the fact that a strict adherence to rules sometimes brings unfortunate consequences.

2. N. Banks, *Science*, xxviii.

Advises others who have rare papers to republish them.

3. S. W. Williston, *Manual*, 3rd. edit. p. 390, 1908.

"Hendel would have deserved the thanks of a long suffering public had he withheld these copies instead of republishing."

4. M. Bezzi, *Wiener entom. Zeit.* xxvii. 252, Sept. 1908.

Comments on the adoption of the names of 1800 that come in vol. iii. of Kertész' *Catalogue of palæartic diptera*, a course in which, naturally, he approves.

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<sup>1</sup> *Verh. k. k. zool.-bot. Gesellsch., Wien*, vol. 59, 1909.

5. J. M. Aldrich, *Canad. Ent.* xl. 370-373. Oct. 1908.  
Compares resurrecting the 1800 paper to finding some old grant to Indian lands. Every possible objection should be made before accepting them; a flawless case must be made out and the identification of the older genera is full of flaws. "Let justice be done" exclaims Hendel. To whom? Certainly not to Meigen by accepting this paper.
6. J. M. Aldrich, *Canad. Ent.* xl. 432, Nov. 1908.  
Quotes from Bezzi's paper (number 4, above) in the *Wiener entomologische Zeitung*. Hendel (number 9, below) says that the quotation is mis-applied.
7. D. W. Coquillett, *Canad. Ent.* xl. 457, Dec. 1908.  
Pleads for the adoption of the early names, citing rules from the code to cover his argument. Does not believe in obstructing the progress of nomenclature by discrediting Hendel's find.
8. P. H. Verrall, *British Flies*, v. 772, 1909.  
Meigen's 1800 genera are not legally established. Does not concur with Coquillett's "aggravated" pleading (no. 7).
9. F. Hendel, *Wiener entom. Zeit.* xxviii. 33-36, Feb. 1909.  
Discusses the comments in numbers 3, 4, 5, 6, 7, and 8. Stability of nomenclature can be had only by a strict adherence to the law of priority. Since Meigen described only genera, but gave the number of species that he knew, and in the preface designated his work as a prodromus of a later work designed to contain only the genera, he can not be said to have carelessly neglected the principles of binary nomenclature. Hendel states that 39 of the *Brachycera* genera can be immediately recognized from the descriptions alone. The future alone can tell whether the majority of dipterists will decide for continuity or for priority.
10. T. D. A. Cockerell, *Science*, xxix. 339, Feb. 26, 1909.  
Calls for a postal vote of opinions about genera without species. "A genus without species has no type, no content, and apparently has no place in our systems of classification."
11. J. M. Aldrich, *Canad. Ent.* xli. 103, March, 1909.  
In a review of Verrall's *British Flies*, Aldrich quotes the discovery of certain Chicago historians that the annulment of one of the marriages of King Henry VIII. was invalid, and that, consequently, King Edward VII. is not King of England. This discovery is on a par with the reasoning that Meigen's earliest genera should claim priority.
12. T. D. A. Cockerell, *Science*, xxix. 813, May 21, 1909.  
The result of the postal vote (number 10) shows the majority of voters not in favor of resurrecting the names of speciesless genera.
13. A. A. Girault, *Science*, xxix. 814, May 21, 1909.  
A genus described without a species is non-existent. Its name has no status until some definite type species has been designated.
14. J. A. Allen, *Science*, xxix. 935, June 11, 1909.  
"Prior to 1810 hundreds of genera now in current use were proposed solely on the basis of a diagnosis; although they were accepted and

- have been in use from the date of their proposal, many of them were without designated types for half a century." "Apparently each case should be dealt with solely on its own merits."
15. F. N. Balch, *Science*, xxix. 998, June 25, 1909.  
In a paper, "A Lawyer on the Nomenclature Question" Mr. Balch advocates an International Court with absolute power to settle everything nomenclatorial. The priority rule was not intended to be the superstition and incubus it has become. "Questions of nomenclature are of utterly insignificant importance so only that they be settled one way or the other, quickly, definitely, and permanently."
  16. F. A. Bather, *Ann. Mag. Nat. Hist.* (8) iv. 37-42, July, 1909.  
In an article "Some Common Crinoid Names and the Fixation of Nomenclature," Dr. Bather advocates the establishment of a court of nomenclature.
  17. Wm. H. Dall, *Science*, xxx. 149, July 30, 1909.  
Most questions of nomenclature can be answered by a serious study of the Code. For the few other cases he advocates giving the Committee power of decision.
  18. A. N. Caudell, *Science*, xxx. 210, August 13, 1909.  
"How can we get a type for a genus where there were no species originally included?"
  19. F. A. Bather, *Science*, xxx. 341, Sept. 10, 1909.  
Advocates a Court for the two cases, first, where the application of the Code is obscure, and second, where its application is clear, but the consequences at the same time would be exceedingly unfortunate.
  20. J. A. Allen, *Science*, xxx. 365, Sept. 17, 1909.  
"The only point is whether they are good genera or bad genera — in other words whether they are identifiable or unidentifiable from the basis furnished by the original founder."
  21. J. Dwight, Jr. *Science*, xxx. 526, Oct. 15, 1909.  
"Zoological nomenclature to-day seems to be little more than an intricate game of names, fascinating sport for its faithful devotees, but an intolerable nuisance for the uninitiated many." "Priority is rather a bog from which the nomenclatorial muck-rakers exhume the fossil remains of a past age." "It is not justice for the dead zoologist that we need so much as justice for the living, and even now the dead get no recognition if they violate the rules of a game unknown in their day."
  22. A. S. Hitchcock, *Science*, xxx. 597, Oct. 29, 1909.  
Believes it impractical for a committee to prepare a list of names that will be stable, because of the changing state of biological knowledge.
  23. J. A. Allen, *Science*, xxx. 596, October 29, 1909.  
Proposes the following recommendation for the International Committee. "A generic name proposed without mention of any described species is invalid unless it is accompanied by a diagnosis of such a character as to indicate that it is based on a previously known species, or group of species, that can be unequivocally identified as the basis of the diagnosis."

Therefore, instead of worrying over just which of the genera can be identified, it will be vastly better for the present to ignore entirely the Nouvelle Classification. It is absurd rigidly to apply modern rules of nomenclature to the works of the early writers, when as in this instance no good can be subserved, and a most confusing and "complete revolution in dipterological nomenclature" would result, a condition that Dr. Hendel seems eagerly to have hoped for. It is commendable to make use of the law of priority when stability and permanence will be guaranteed, but in the present case it is too risky to accept Dr. Hendel's views and make the wholesale changes he has suggested. Dr. Stiles has remarked that "neither the commission nor the congress has any power to force zoologists and others to accept the International Rules." I believe that my dipterist fellow workers should feel that one such occasion confronts them, if rules are to be construed, or misconstrued, to bolster up the once-discarded names.

With this digression we may disregard the name *Coryneta*, and take up the name *Tachydromia*. As just mentioned, Meigen assigned *Musca cursitans* Fabricius and *cimicoides* Fabricius to his genus. The first of these was an erroneous determination which was afterwards named *major* by Zetterstedt. *Cimicoides* Fabricius is a synonym of *arrogans* Linneus, but Meigen was confused in his identification here too, as a part of the specimens he thought were *cimicoides* he afterward described as *connexa*. Meigen had therefore three species before him, of which two were undescribed, and the third had previously been named *arrogans* by Linneus. Obviously, according to modern rulings, the type of *Tachydromia* must be selected from these three, and as *arrogans* was the only described species among Meigen's material, that species would probably be construed as the type. But neither *arrogans* nor *connexa* has the middle femora enlarged, nor are their middle tibiae spurred. Therefore they disagree with the only salient point of the diagnosis. For that reason, according to our present ideas, neither would have been selected as the type, and the honor of serving as type of *Tachydromia* should have been bestowed on Meigen's *cursitans* (*major* Zett.). The old genus has been dismembered, the separated genera have received their types, and our present ideals have not been fulfilled, because of the everlasting blundering between personal whims and priority laws.

Article 30 of the Code states: "If the original type of a genus was not indicated, the author who first subdivides the genus may apply the

name of the original genus to such restricted genus or subgenus as may be judged advisable, and such assignment is not subject to subsequent change." Dr. Stiles<sup>1</sup> has given a personal ruling further that "If an author, in publishing a genus with more than one valid species, fails to designate or to indicate its type, any subsequent author may select the type, and such designation is not subject to change." Although this is a personal opinion its soundness is apparent. With these citations, we may take up the subsequent history of Meigen's *Tachydromia*.

Meigen's early conception of the genus was the same as our present idea of the subfamily Tachydromiinae, or even the combined subfamilies Tachydromiinae and Hemerodromiinae, and in this he was followed by the earlier writers, such as Fallén. In 1822 in the third volume of the Systematische Beschreibungen Meigen separated from *Tachydromia* the genera *Hemerodromia* and *Drapetis*. The remaining Tachydromias he grouped into two divisions, A and B, with his *cimicoides* in A. and his *cursitans* in B, but still retaining all in the genus *Tachydromia*. Macquart in 1827 bestowed the name *Platypalpus* on division B which was the larger group, keeping the name *Tachydromia* for the first group, but Meigen not knowing this renamed the first division *Tachypeza*, to retain the original name for the larger division. This change was published in 1830, and later he refused to adopt Macquart's name because he thought his own ideas were better.

In a paper in the Zeitschrift fuer Entomologie, published in Breslau in 1863 Loew discussed the question at length and following Meigen discarded the name *Platypalpus* because it is a poorly formed compound of Greek and Latin. For the larger group, or those species related to *cursitans*, he retained the name *Tachydromia*. The remainder of the genus he subdivided into *Tachypeza*, *Tachista*, *Dysaletria*, and *Phoneutisca*, bestowing the name *Tachista* on those species grouped about *cimicoides*. The majority of the prominent European dipterists have adopted this view principally out of deference to Meigen and Loew.

The date of publication of the name *Platypalpus* is certain, and its designation is unquestionable. We have therefore no recourse but to accept it as a valid name. To this genus belongs the *cursitans* of Meigen's original *Tachydromia*. Eliminating this species, the *cimi-*

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<sup>1</sup> Bull. 24, Hygienic Laboratory, p. 27 (1905) Rule 10.

*coides* of Meigen should be the type of the restricted *Tachydromia*. Coquillett however has designated *connexa* as the type, forgetting that part of Meigen's *cimicoides* belonged to Linnaeus' early species *arrogans*. This however will not invalidate the limitations of the restricted *Tachydromia*, as *arrogans* and *connexa* are very closely related species, certainly congeneric.

The status of the old genus *Tachydromia* is therefore as follows.

Front and middle femora thickened: *Division B.* Meigen.

**Platypalpus** Macquart, Westwood, Blanchard, Walker, Schiner, Philippi, Coquillett, Melander.

**Tachydromia** Meigen, Burmeister, Zetterstedt, Berendt, Scholtz, Bonsdorff, Loew, Bigot, Mik, Strobl, Becker, Kertész, Bezzi, Frey.

**Phoroxypha** Rondani, Coquillett.

Front femora thickened: *Division A.* Meigen.

Anal cell imperfect. . . . . **Tachypeza** Meigen, Loew.

Anal cell completely wanting. . . . . **Tachydromia** Meigen, Coquillett.

*Tachista* Loew, Becker.

The type species of these genera are as follows:

**Platypalpus.** Type species *cursitans* Fabricius, indicated by Westwood in 1840. It is quite likely that Westwood had Meigen's original *cursitans* in view, in which case the type should be *major* Zetterstedt.

**Tachypeza.** Type species *nubila* Meigen. Rondani in 1856 designated *nervosa* Meigen as the type, and this is a synonym of *nubila*.

**Tachydromia.** Type species *connexa* Meigen. As explained before Meigen indicated two species, *cursitans* and *cimicoides*. As the type species should be one of those originally listed by the describer elimination leaves *cimicoides* as the type, since Meigen's *cursitans* belongs to the subsequently erected genus *Platypalpus*. Meigen's *cimicoides* included two species, *arrogans* Linnaeus and the later described *connexa* Meigen, the second of which Mr. Coquillett has designated as the type.

During the last half century a number of other genera have been proposed for new material rather than as constrictions of the older genus. The relationships of these genera can be seen from the following synopsis of the present subfamily Tachydromiinae. All the known genera and sub-genera are included.

*Genera and Subgenera of the Tachydromiinae.*

Thorax slender, humeri large, strongly constricted: palpi narrow: legs not bristly: front femora thickest.

First basal cell much shorter than the second: black species.

Anal cell present: arista terminal. . . . . **Tachypeza** Meigen.

Anal cell completely wanting.

Arista terminal or sub-terminal: marginal cell long.

**Tachydromia** Meigen.

Arista sub-dorsal: second vein abruptly recurved.

**Phoneutisca** Loew.

First basal cell longer than second; outer angle only of anal cell present: yellow species. . . . . **Dysaletria** Loew

Thorax broad: humeri rarely large: legs hairy and usually with bristles: palpi usually broad.

First basal cell shorter than second: eyes close together, especially below the antennae.

Arista terminal.

Anal cell complete or incompletely formed.

Front and middle femora thickened: middle femora with a double row of spines beneath: middle tibiae ending in a spur: eyes separated: palpi broad. . . . . **Platypalpus** Macquart.

Last joint of tarsi normal. . . . . **Platypalpus** s. str.

Last joint of anterior tarsi greatly lengthened.

**Cleptodromia** Corti.

Femora not thickened: middle legs without spurs and with minute or no spines: eyes contiguous: palpi small: basal cells subequal.

**Symballophthalmus** Becker.

Anal cell wholly wanting: posterior femora more or less thickened.

**Drapetis** Meigen.

Body robust, abdomen shorter than thorax: Wings broad, not ciliate.

Third antennal joint short-oval. . . . . **Drapetis** s. str.

Third antennal joint lanceolate. . . . . **Elaphropeza** Macquart.

Body more slender: abdomen longer than thorax: wings cuneiform: costa long ciliate. . . . . **Ctenodrapetis** Bezzi.

Arista dorsal: front femora thickened. . . . . **Stilpon** Loew.

First basal cell equal to or longer than second: more or less opaque pollinose species: eyes usually widely separated on the face.

Arista dorsal.

Wings less than one-third the abdomen. . . . . **Thinodromia** Melander.

Wings surpassing the abdomen, anal cell faint. . . **Halsanalotes** Becker.

Arista terminal.

Antennae three-jointed: legs thick and bristly: eyes very small.

**Coloboneura** Melander.

Antennae two-jointed: legs but little thickened and with few bristles, face narrow. . . . . **Chersodromia** Walker.

**Tachydromia** sens. str.

Minute, slender flies of shining jet-black color and almost devoid of hairs and bristles. Head globular, eyes large, with large facets, in both sexes broadly contiguous on the face; front narrow, its sides nearly parallel, and but slightly diverging toward the vertex; three ocelli present; occiput broad, produced sub-conically at the neck and provided with sparse short bristles. Antennae short, two-jointed, the outer joint short rounded oval, with the long slender nearly bare arista terminal or nearly so. Proboscis shorter than the head, rigid, vertical: palpi applied against the proboscis and tipped with several short bristles.

Thorax longer than broad, not greatly convex, not truncate in front but considerably narrowed from the wings forward; humeri remarkably enlarged and separated from the narrow central part of the mesonotum by more or less deep furrows; a prealar lateral bristle on mesonotum; scutellum normally with two pairs of short marginal bristles, the basal pair microscopic, usually no other thoracic bristles or hairs present. Hypopygium small, more or less globular, or triangular in outline, terminal. Legs slender, the front femora somewhat thickened, devoid of bristles, but with microscopic hairs, those of the under side of the front tibiae serrately arranged, no spurs or conspicuous spines present. Sometimes the male legs have small spines on the middle femora or tibiae beneath. Wings narrow, costa ending at the fourth vein and sometimes thickened beyond the insertion of the first vein, hind margin of the wing short ciliate; no trace of an anal cell present.

Our known American species of *Tachydromia* divide nicely into two groups. The first of these includes slender species with elongate wings and legs. This group is typical of *Tachydromia* and is largely represented in the palaeartic fauna. The second group is more aberrant. Our species will probably be separated ultimately from *Tachydromia* as several genera, but for the present it would be quite unwise to do so. It is unfortunate that the small size and difficulty of capture of these species are responsible for their scarcity in collections. Undoubtedly we know but a fraction of the forms the world over, and until our collections are more complete we cannot hope to understand the relationships of these interesting little flies.

The typical Tachydromias are shining black, nearly bristleless flies and have a dark band, or two dark bands, across the wings. The

arista is terminal and the palpi are long and narrow. The front of the head is very narrow, its sides almost parallel. The emargination of the eyes at the level of the antennae is less deep, and all the facets are of nearly uniform size. The pectus is pruinose, the coating extending backwards to form a conspicuous glistening white spot over the front coxae and under the humeri. The hypopygium is also somewhat smaller than with the other members of the genus. The first basal cell is generally very long. It is to this group that *arrogans* and *connexa* belong.

The species of the second group differ in having a shorter and broader thorax, with the humeri not so pronounced. They lack the pruinosity above the front coxae. The arista is subterminal and the palpi are usually broader. The front of the head is broader, with its sides diverging above. The eyes are more deeply emarginate, and the lower facets are conspicuously larger than the upper. The wings are shorter in proportion to the body, and are not fasciate; the two basal cells are more nearly equal in size, and the marginal cell is usually shorter.

Although the genus separates into two definite groups whose characters may seem to be of generic value, I hesitate about placing together the species of group two as a restricted genus, for they appear to represent several phyletic lines. The basic points of difference between these species are the following:

1. *simplicior*. Wings as in *Drapetis*: palpi narrow: thorax glistening, devoid of bristles: humeri prominent.
2. *maculipennis*, *calva*. Palpi narrow: thorax narrow, glistening black, devoid of bristles, humeri prominent.
3. *insularis*. Thorax shorter, somewhat glaucous, humeri smaller: palpi long and narrow.
4. *agens*, *universalis*. Thorax somewhat glaucous, shorter, with bristles; humeri smaller: palpi broader.

The table following is given for the determination of the American species. Several other species have been referred to this genus by one writer or another. The accompanying notes will explain their status.

*Tachydromia lata* Coquillett<sup>1</sup> is omitted from the tables as it probably is a *Drapetis*. Since the description states that the mesonotum is broader than long, the legs are provided with bristles and the first

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<sup>1</sup> Proc. Ent. Soc. Wash. V. p. 266 (1903).

basal cell is much shorter than the second it is evident that the species is not a *Tachydromia*. Mr. Coquillett separates *Tachista* (or *Tachydromia* as here given) from *Drapetis* in his analytic key only by the comparative thickness of the front femora, an elusive characteristic.

*Tachydromia nubifera* Coquillett<sup>1</sup> has been referred by its author<sup>2</sup> to the genus *Coloboneura*, a genus which has very bristly legs. I am unable to corroborate this from his description alone. The shortened second basal cell of *nubifera* excludes the species from *Tachydromia*, but the subopaque pruinosity and colored wings are at variance with the typical species of *Coloboneura*.

Mr. Coquillett has assigned *Drapetis flavida* Williston to *Tachista*<sup>3</sup> While the male is unusually slender for a typical *Drapetis* this species lacks the constricted swollen humeri of the *Tachydromia* group and moreover the legs are pubescent and provided with bristles and both the marginal and the first basal cells are short as in *Drapetis*. The species can with all propriety be located in Bezzi's recent subgenus *Ctenodrapetis*. It may be here noted that the description of *Tachydromia bacis* Walker described from Jamaica tallies with this species. As Mr. Walker's description is unusually complete, mentioning even the bristles of the legs, it is reasonably certain that both species are the same. I have specimens from Yucatan, Orizaba, Vera Cruz, Cuba and Hayti. Mr. Coquillett reports it from Porto Rico, and Dr. Williston's specimens came from St. Vincent. It is evidently a common species within its geographic range. There is an ancient and brief description of *Tachydromia abdominalis* Wiedemann<sup>4</sup> from China that also applies to our specimens. *Ctenodrapetis ciliatocosta* Bezzi<sup>5</sup> from Australia is also quite similar, but is somewhat smaller. Possibly there is but one widely distributed form. I take it that *abdominalis* is a *Ctenodrapetis* rather than a *Platypalpus* as the abdomen is described as lusterless. In almost all the species of *Platypalpus* the abdomen is shining.

Mr. Coquillett<sup>6</sup> thinks that *Phoneutisca bimaculata* Loew is a synonym of *maculipennis* Walker which was described from Hudson

<sup>1</sup> Dipt. Commander Isl. p. 343 (1898).

<sup>2</sup> Proc. Ent. Soc. Wash. V. p. 265 (1903).

<sup>3</sup> Proc. U. S. Nat. Mus. X.XII. p. 251 (1900).

Proc. Ent. Soc. Wash. V. p. 265, note. (1903.)

<sup>4</sup> Auss. zweifl. Ins. II. 12 (1829).

<sup>5</sup> Ann. Mus. Nat. Hung. II. p. 355 (1904).

<sup>6</sup> Proc. Ent. Soc. Wash. V. p. 266 (1903).

Bay Territory. I do not think this is so. *Bimaculata* is a much smaller species with white palpi, and is rare. The only specimen I have seen is the type from Alaska. I take it however that *maculipennis* is the same as our common *pusilla* Loew. I have examined over fifty specimens of this species from Massachusetts, Wisconsin, Illinois, Missouri, and South Dakota. Since it is so widely distributed in the States it probably occurs in Canada also. The rest of Mr. Walker's *Tachydromias* I can not decipher. They may belong to *Tachypeza* or to the present genus. Osten Sacken listed *vicarius* as a *Platypalpus*. The two-line description reads that the legs are slender which raises more doubt as to what the species really is.

Table of the North American Species of *Tachydromia*.

1. A white glistening pruinose spot between the front coxae and the humeri, rarely absent: wings with two dark bands: the distance between the two cross veins more than twice the length of the hind cross vein: arista terminal. . . . . 2.  
No glistening spot on the pleurae: wings with a single brownish subapical cloud or hyaline; cross veins separated scarcely more than the length of the hind cross vein: arista subterminal. . . . . 6.
2. Palpi and halteres black: marginal cell obliquely truncate  
**enecator** Melander.  
Palpi and halteres paler: marginal cell rounded at the end. . . . . 3.
3. Dark cross bands united along the costa. . . . . **varipennis** Coquillett.  
Dark cross bands separated. . . . . 4.
4. Wings blunt, fringed with comparatively long hairs: propleurae not pruinose. . . . . **ciliata** sp. nov.  
Wings slender, the marginal hairs short: propleurae pruinose. . . . . 5.
5. Legs nearly uniformly dusky. . . . . **schwarzii** Coquillett.  
Base of legs pale yellow, outer portions in part black.  
**schwarzii** var. **diversipes**, var. nov.
6. Palpi black: wings with a broad subapical cloud.  
**maculipennis** Walker.  
Palpi yellowish: wings unclouded. . . . . 7.
7. Thorax shining, humeri prominent: palpi narrow. . . . . 8.  
Thorax and abdomen sub-glaucous, humeri smaller. . . . . 9.
8. Third and fourth veins divergent. . . . . **simplicior** Wheeler & Melander.  
Third and fourth veins subparallel. . . . . **calva** sp. nov.
9. Palpi long and narrow: scutellum with four bristles: antennae reddish  
**insularis** sp. nov.  
Palpi broader: scutellum with two bristles. . . . . 10.
10. Acrostichal and dorsocentral bristles present: legs slender piceous, antennae black. . . . . **agens** sp. nov.  
Middle of dorsum without bristles: base of legs and of antennae yellow, last tarsal joint black. . . . . **universalis** sp. nov.

**Tachydromia enecator** Melander.

Trans. Am. Ent. Soc., xxviii, 226, ♀ (1902).

Length  $3\frac{1}{4}$  mm. Totally jet black, shining, except that the knees narrowly and the metatarsi are piceous, the palpi, antennae and halteres are dull black, and the hinder occiput, pectus, metanotum, a narrow vertical stripe on the metapleurae, front coxae, and underside of the front femora are provided with a light pruinose coating. Outer antennal joint elliptical, arista terminal. Humeral swellings of mesonotum large and well marked: no bristles on disc of mesonotum, scutellum with four minute bristles. The ♂ abdomen depressed, less shining apically, the hypopygium small, terminal, somewhat triangular in outline, it and the last ventral segment provided with short blackish hairs. Wings with two dark cross bands, the second vein appendiculate in the known specimens.

But five specimens are known of this species. The two cotypes, both females, are from Quebec and Wyoming. They are now located in the Wheeler collection at the American Museum of Natural History, New York City. I have a male and two females, collected by my former student, E. L. Jenne, at Douglas, Alaska, August 2, 1901. This is our largest species.

**Tachydromia schwarzii** Coquillett.

Coquillett, Proc. U. S. N. Mus. xviii. 440 (1895).

Melander, Trans. Am. Ent. Soc. xxviii. 225, fig. 52 (1902).

Length 2.5 mm. Shining black, the legs yellowish. Occiput and propleurae pruinose. Antennae fuscous to black, the outer joint rounded, the terminal arista about four times the length of the antenna. Facets of the eyes nearly uniform, front narrow. Palpi glistening white to dirty white, elongate and slender. Mesonotal disc shining, bristleless, scutellum with four short bristles. Hypopygium moderate, rounded, its curved slender appendages sometimes exerted. Legs including the coxae dusky yellow, the hind legs darkest, the tibiae and tarsi more or less infuscated. Halteres pale yellow. Wings slender, rather pointed, crossed by two broad brownish fasciae, leaving the base, middle and tip hyaline; the marginal cilia normally short.

This is a common insect in the West. During the entire summer it hurries about in quick little zig-zag runs in search of its small victims, curiously probing among grass, stones, sidewalks, houses, in fact it can be found almost everywhere in this region. I have seen hundreds of living specimens, and have examined nearly a hundred mounted individuals from Moscow, Idaho, and Pullman and Wenatchee, Washington. The types came from California and Utah. They are numbered 3246 and 3247 in the National Museum collection.

In structure, venation, and general appearance this species resembles *annulimana* Meigen, of the European fauna; which however has striped femora, incrassate front tibiae, an erect hypopygium, some dorsocentral bristles in front of the scutellum, and moreover lacks the white pruinose spots beneath the humeri.

***Tachydromia schwarzii* var. *diversipes* var. nov.**

Melander, Trans. Am. Ent. Soc. xxviii. 225 (1902). *T. schwarzii*, var.

Male. Similar to *schwarzii* in all structural characters, but differing in coloration. The base of the legs is lighter, the outer portions blacker than in typical form, thus making a greater contrast in color. The coxae, trochanters, base of all the femora, the basal two-thirds of the front tibiae, and the tarsi except the tip almost white in color. The outer third of the front tibiae is abruptly black; the four posterior tibiae, except the knees, and the hind femora except the base, black. The palpi are blackish. The cross-bands of the wings are lead-gray, and are darker than is usually the case with *schwarzii*, where they generally have a brownish tinge.

Two males which I captured at Dry Creek, near Austin, Texas, April 20, 1901. The specimens were running over rather large stones in this moist ravine at the base of Mount Barker.

***Tachydromia ciliata* sp. nov.**

Wheeler and Melander, Biologia Cent. Am., Dipt. Suppl. 375 (1901) *schwarzii*.

Female. Length about 2 mm. Quite similar to *schwarzii* in general appearance, but differing in the structure of the wings. Shining black, legs clear yellow except the infuscated outer two-thirds of the hind femora and tibiae. Antennae yellow; as they are defective nothing can be stated about the arista. Front narrow, facets of the eyes uniform. Palpi whitish. Occiput and thorax shining black, the propleurae not pruinose: humeri large and deeply constricted: the inner pair of scutellar bristles moderately long. First ventral segment white or whitish. Halteres yellow. Wings comparatively short and broad, blunt at the end, and margined with a conspicuous fringe of hairs which are prominent even on the costa; two brown cross-bands are present as in *schwarzii*, but because of the shortened wings the outer fascia appears less extensive; the third and fourth veins more distant from each other and continuing to the wing-tip without converging (in *schwarzii* they lie closer together and converge towards the tip).

I have two specimens before me from Guerrero, Mexico, one taken at Chilpancingo, at 4600 feet altitude, the other labeled Sierra de las Aguas Escondidas, 9500 feet. There are some minor differences between the two specimens. The former measures 1.75 mm. and has

the outer cross-band nearly as in typical *schwarzii*. The latter individual measures fully two mm. The base of its wings is less hyaline, but otherwise the wings are as described. The first ventral segment of the abdomen is only dusky, not white. The third specimen mentioned in the *Biologia* is in the Wheeler collection at the American Museum. This species corresponds to *excisa* Loew of the European fauna.

***Tachydromia varipennis* Coquillett.**

Coquillett, Proc. Ent. Soc. Wash., v. 266 (1903).

Slosson, Ent. News, xiv. 266 (1903) habits.

Length 2 mm. Shining black, pro- and metapleurae pruinose, coxae, base of femora and proximal part of tarsi fuscous. Outer antennal joint short ovate, the terminal arista three times the length of the antenna. Palpi whitish. Humeri constricted from the central part of the thorax by an evident groove; no bristles on disc of notum, scutellar bristles minute. Hypopygium minute, terminal, without conspicuous hairs. Halteres white. Wings infumated, the base, tip and a transverse streak in the middle, but not including the marginal and submarginal cells hyaline.

I have four specimens from the type lot, received from Mrs. Annie Trumbull Slosson. They were taken in the White Mountains at Franconia, New Hampshire. The type is in the National Museum, number 6774. It is this species that is mentioned in Aldrich's Catalogue, page 314 under *schwarzii*, as occurring in New Hampshire.

In her article, Hunting Empids, in the October issue of the Entomological News for 1903, Mrs. Slosson gives the following notes on the habits of this fly. "About the first of July I always find here a pretty little creature running rapidly over wet stones at the margin of streams. It is a tiny fly with gray wings variegated with black, and its habits are odd and interesting. Though its wings are fully formed and quite capable of flight, it very rarely uses them. When pursued by the collector it runs swiftly like an ant on and around the stone, and will continue this elusive performance for many minutes, though by spreading its pretty wings it could at once escape capture. Only in desperate extremity, as a very last resort, will it sometimes take flight and rest upon another near-by stone. For a long time I found them very difficult to catch. But at last I discovered that by seizing the stone on which one was running and dropping it quickly into my net I had the little fellow safe and sound."

***Tachydromia maculipennis* Walker.**

Walker, List Dipt. Ins. in Coll. Brit. Mus., iii. 507 (1849).

Loew, Cent. v., 74 (1863) *Tachypeza pusilla* ♀.

Melander, Trans. Am. Ent. Soc. xxviii. 228; and 229, f. 51 (*pusilla*); and 204, f. 1. (*Phoneutisca bimaculata*, Dakota specimens) (1902).

Coquillett, Proc. Ent. Soc. Wash. v. 266 (1903) *Phon. bimaculata*.

Aldrich, Catalog N. Am. Dipt., 310 (1905), *Phon. bimaculata*.

Length 2 mm. Shining black, antennae, palpi, proboscis and halteres also black, no pruinose spots on thorax. Outer joint of antennae short-conical, the arista two times the length of the antenna, almost terminal. Humeral swellings prominent, well constricted from the central portion of the thorax; no notal bristles; scutellum with four marginal bristles, the outer pair short. Hypopygium swollen, black hairy, the last ventral segment with a conspicuous fringe of black bristles. Legs largely blackish, the coxae, trochanters, and base of the femora paler; front tibiae and tarsi more or less yellowish; the last two tarsal joints black. Halteres whitish. Wings with a brownish cloud filling the submarginal and first posterior cells; the two cross veins approximate.

The type of this species, now in the Museum of Comparative Zoology, Cambridge, Massachusetts, was collected by LeBaron in Illinois. I have specimens before me from Chicago, Illinois, Milwaukee, Wisconsin, Atherton, Missouri (C. F. Adams) and Brookings, South Dakota (J. M. Aldrich). Dr. Hough has taken the species at New Bedford, Massachusetts. Mr. C. W. Johnson records *pusilla* from New Jersey in Smith's Catalog. The synonymy of this species is discussed in the introduction *anteà*, page 52.

***Tachydromia simplicior* Wheeler and Melander.**

Wh. and Mel., Biologia Cent. Am., Dipt. Suppl. 375 (1901) *Phoneutisca*.

Melander, Trans. Am. Ent. Soc. xxviii. 205, f. 6. (1902) *Phoneutisca*.

Length 1.5 mm. Body shining black, legs entirely yellow. Antennae short, the outer joint minute, smaller than the basal joint, the arista sub-dorsal. Palpi pure white, moderately broad. No bristles on mesonotal disc; scutellum with a pair of well separated marginal bristles; humeri well constricted and prominent; the sides of the thorax are very lightly pruinose, but there is no pruinose spot above the front coxae. Abdomen depressed, brownish hairy, the hypopygium small, terminal. Legs including the coxae yellow, the hind femora a little infuscated apically. Halteres yellow. Wings nearly hyaline, a very faint darker streak passes longitudinally through the middle of the wing; marginal cell short, submarginal cell full, third and fourth veins divergent.

A single male collected by Mr. H. H. Smith at Vera Cruz, January, 1888, from the Wheeler collection of the American Museum of Natural History. This specimen very likely belongs with the type female, which was collected in Chilpancingo in Guerrero. The two locations are on opposite sides of Mexico. The specimen is glued on a card and is not in the best of condition for description. The type has the third vein nearly straight. Here it is rounded in an even curve diverging from the fourth. This specimen has less of the purplish and bronze tinge to the body.

The definition characters of *Phoneutisca* led us to place this species in that genus. An examination of the true *Phoneutisca bimaculata* in the Museum of Comparative Zoology showed it to be quite a different insect than was supposed. The abruptness of the marginal cell in *Phoneutisca* is very striking.

**Tachydromia calva** sp. nov.

Shining black above, paler beneath, outer half of femora blackish. Antennae black, palpi slender, whitish, dorsum without evident bristles; wings lightly infumated, third and fourth veins sub-parallel.

*Female.* Front jet black, triangular; ocelli prominent, occiput with sparse short black hairs; eyes deeply and broadly emarginate at antennae, face obliterated by the contiguity of the eyes, facets nearly uniform. Antennae short black, last joint not as long as broad and smaller than basal joint, the arista subterminal, finely and closely pubescent, nearly five times the length of the antenna. Palpi narrowly elongate, whitish yellow: proboscis very small, black.

Thorax shining black, the humeri large, so that the thorax is nearly quadrate, a few microscopic dorsal bristles only, a single bristle in front of the wings, scutellum with a pair of short bristles, the scutellum very lightly dusted. Abdomen pitchy black, sub-shining. Coxae, trochanters, basal half of femora and the tibiae yellow, outer half of femora blackened, tarsi a little dusky; front femora somewhat thickened. Halteres yellow. Wings narrow, nearly hyaline, lightly infumated especially noticeable at tip of first vein, marginal cell long, third and fourth veins parallel.

Described from a single female, presumably collected by Mr. G. R. Pilate as it bears the label, Tifton, Georgia, Sept. 25, 1896. The specimen was presented to me by Dr. G. deN. Hough. It measures one millimeter in length.

**Tachydromia insularis** sp. nov.

*Male.* Length 1.1 mm. Head and thorax pruinose; legs testaceous; wings clear hyaline; antennae reddish at base; palpi elongate, reddish;

scutellum with four black bristles; acrostichal and dorsocentral bristles microscopic; hypopygium large, flexed to the right.

Front narrowly V-shaped, cinereous; ocelli large, ocellar bristles present, black; first antennal joint testaceous, the outer joint fuscous, pubescent, arista subterminal, pubescent, four times the length of the antenna. Eyes completely contiguous on the face, facets uniform. Palpi twice as long as broad, sericeous, testaceous. Proboscis slender, vertical, piceous, one-half the height of the head. Occiput and entire thorax rather lightly covered with cinereous pollen; humeri comparatively small and not so deeply constricted as in the other species; the usual black bristles present along the sides of the notum; scutellum with two long decussating and two short bristles; acrostichal and dorsocentral rows of minute whitish bristles present, with about six bristles to each row, the last dorsocentral large; no pleural hairs. Abdomen brown-black, sub-shining, last segments black hairy; hypopygium large, globular, flexed to the right. Coxae shining yellowish, legs yellowish, femora dusky on the outer half, legs provided with short white bristly hairs, middle tibiae with series of minute black setulae beneath, front femora much thicker than the others. Halteres dusky. Wings clear hyaline, veins strong, hind margin ciliate; first posterior cell ending at wing tip, and there somewhat contracted, marginal cell a little longer than the submarginal along the costa.

Described from a single specimen labeled, Grenada, W. I., received from Prof. J. M. Aldrich.

***Tachydromia agens* sp. nov.**

*Male and female.* Length 1.3 mm. Head and thorax pruinose, legs dark fuscous, wings clear hyaline; antennae blackish; palpi sub-quadrated, pale; acrostichal and dorsocentral bristles conspicuous, scutellum with four white bristles; hypopygium terminal.

Front broad above, narrow and sub-parallel below, cinereous; ocelli small, ocellar bristles small; occiput lightly pollinose, its cilia white and conspicuous; antennae small, black, the basal joint blackish, arista almost terminal, short, although four times the length of the antenna, microscopically pubescent. Eyes completely contiguous on the face, deeply but narrowly excised at the antennae, facets nearly uniform, those below larger. Palpi of male yellowish, one-half longer than broad, with three long terminal white hairs, in the female the palpi are dusky but with a white sheen. Proboscis black, no longer than the palpi, projecting somewhat forward.

Thorax cinereous pollinose, humeri round, not quite as broad as the inter-humeral space, the furrow not deep except behind; all the thoracic bristles white, the acrostichal and dorsocentral rows well developed, the lateral bristles comparatively short, about a dozen in front of the wings: scutellum with two long and two short white bristles; no pleural bristles. Abdomen sub-shining olivaceous black, with sparse stubby whitish hairs, the lateral margins of the intermediate segments with the round black pits characteristic of *Coloboneura*, *Parathalassius*, etc. Hypopygium closed, terminal, elongate. Coxae shining,

posterior ones piceous, front coxae fuscous and with white hairs; legs dark fuscous, with whitish pubescence, middle tibiae setulose beneath, front femora somewhat the thickest, reddish beneath. Halteres yellowish; tegulae with a few white cilia. Wings clear hyaline, veins strong, hind margin short ciliate, marginal cell long, third and fourth veins parallel.

Type male collected on a windowpane July 3, 1906, in my house at Pullman, Washington. Type female taken in a wheat field nine miles west of Baird, Washington, June 23, 1908. This species was noticed actively running about the ground and stalks in wheat fields in several places in Central Washington. I have also five mounted paratypes which I collected at Lynden, Baird, and Pullman, all in Washington State.

**Tachydromia universalis** sp. nov.

Black, sparsely and lightly dusted; wings nearly uniformly hyaline; arista subterminal, the basal antennal joint red; palpi broad, white; legs reddish, variegated with brown; halteres yellow.

*Male and female.* Length 1.75 mm. Black, shining, lightly dusted with a gray pruinosity, which is more conspicuous on the pleurae, propleurae not glistening white. Antennae short, the two joints about equal in length, the basal joint red, the outer joint blackened, rounded oval, with a subterminal arista which is two and one-half times the length of the antenna. Front broad, its sides diverging above, the ocelli widely spaced. Upper facets minute, the lower ones larger. Palpi conspicuous, pendant, broad, white, with white hairs: proboscis black in the male, blackish in the females. Thorax comparatively broad, the humeri rather large but not long, the grooves rather distinct; acrostichals wanting, only a couple of weak dorsocentrals present near the scutellum; scutellum pruinose, and with two short bristles. Abdomen depressed, shining jet black, but overlaid with a light coating of gray dust: hypopygium large, shining, provided with a stout curved end-process which projects to the right; sides of the abdominal segments with minute muscle-attachment pits, as in *agens*. Legs reddish yellow, the upper side of the hind femora, the ends of the tibiae and the last tarsal joint darker; front femora thickened, hind femora scarcely reaching the last third of the abdomen. Halteres yellow. Wings rather broad, hyaline, but with a faint smokiness following the veins; veins strong, dark, but becoming yellowish at the base of the wing; marginal cilia minute; hind cross vein making an acute angle at the lower corner of the second basal cell.

Described from five specimens collected in the following widely separated localities: Chester County, Pennsylvania, June, 1902 (J. C. Bradley), Algonquin, Illinois, July 17, 1896 (Dr. Wm. Nason), and Austin, Texas.

This species is related to *agens* as is evident from the shortened broad thorax with the humeri less pronounced than in typical *Tachydromias*, the broad palpi, the widened front, subterminal arista, and pruinosity of the body. However it is readily distinguishable by the paler color of the legs, antennae, halteres and root of wing.

Catalogue of the Described Species of *Tachydromia*.<sup>1</sup>

1. *aemula* Loew, Zeitschr. Entom. Bresl. XVII. 22 (1863) . . . . . Eur. C.
- \*2. *agens* sp. nov. . . . . Wash.
3. *aliterpicta* Becker, Act. Soc. Fenn. XXVI. 32 (1900) . . . . . Eur. S. C.  
*alteropicta* Becker, Berl. Ent. Ztschr. XXXIII. 343. (1899).
- \*4. *annulimana* Meigen, Syst. Bes. III. 69 (1822) . . . . . Eur.  
*albitarsis* Zetterstedt, Dipt. Sc. 1. 313 (1842).  
*arrogans* Linnaeus, Zetterstedt, Ins. Lapp. 546. var. d. (1838).  
*cimicoides* Fabricius, Walker, Ins. Brit. I. 140 (1851).  
*umbrarum* Haliday, Ent. Mag. I. 161 (1833).
- \*5. *arrogans* Linnaeus, Fauna Suec. 1857 (1761) . . . . . Eur.  
*bifasciata* Rossi, Fauna Etr. Mant. II. 77 (1794).  
*cimicoides* Fabricius, Spec. Ins. II. 447 (1781).
6. *brevipennis* v. Roser, Wuerttemb. Corresp. 1. 53 (1840) . . . . . Eur. C.  
? *microptera* Loew, Ztschr. Ent. Bresl. XVII. 26 (1863).
- \*7. *calcanea* Meigen, Syst. Bes. VII. 95 (1838) . . . . . Eur. C.  
*longipennis* Loew, Ztschr. Ent. Bresl. XVII. 29 (1863).
- \*8. *calva* sp. nov. . . . . Georgia.
9. *catalonica* Strobl, Mem. R. Soc. Esp. III. 319 (1906) . . . . . Eur. S.  
var. *striatipennis*, Strobl. l. c. 320.
- \*10. *ciliata* sp. nov. . . . . Mex.
- \*11. *connexa* Meigen, Syst. Bes. III. 70 (1838) . . . . . Eur.  
*cimicoides* Fabricius, Meigen, p. p. Klass. I. 239 (1804).  
*morio* Zetterstedt, Ins. Lapp. 546 (1838).
12. *dichroa* Bezzi, Jenaische Denkschr. XIII. 183 (1908) . . . . . Afr. S.
- \*13. *enecator* Melander, Trans. Am. Ent. Soc. XXVIII. 226 (1902)  
Alask., Wyom., Quebec.
14. *excisa* Loew, Zeitschr. Ent. Bresl. XVII. 27 (1863) . . . . . Eur. C.
15. *incompleta* Becker, Act. Soc. Fenn. XXVI. 33 (1901) . . . . . Siberia.
- \*16. *insularis* sp. nov. . . . . Grenada.
- \*17. *interrupta* Loew, Zeits. Ent. Bresl. XVII. 19 (1863) . . . . . Eur. S.
- \*18. *maculipennis* Walker, List. Dipt. Ins. III. 507 (1849) N. Am.  
*pusilla* Loew, Cent. V. 74 (1864).  
*bimaculata* Loew, Melander, Trans. Am. Ent. Soc. XXVIII. 204.
19. *minima* Becker, Act. Soc. Fenn. XXVI. 32 (1901) . . . . . Siberia.
20. *monserratensis* Strobl, Mem. Soc. Esp. III. 318 (1906) . . . . . Eur. S.
21. ? *morio* (Zetterstedt) Walker, Ins. Brit. I. 141 (1851) . . . . . England.

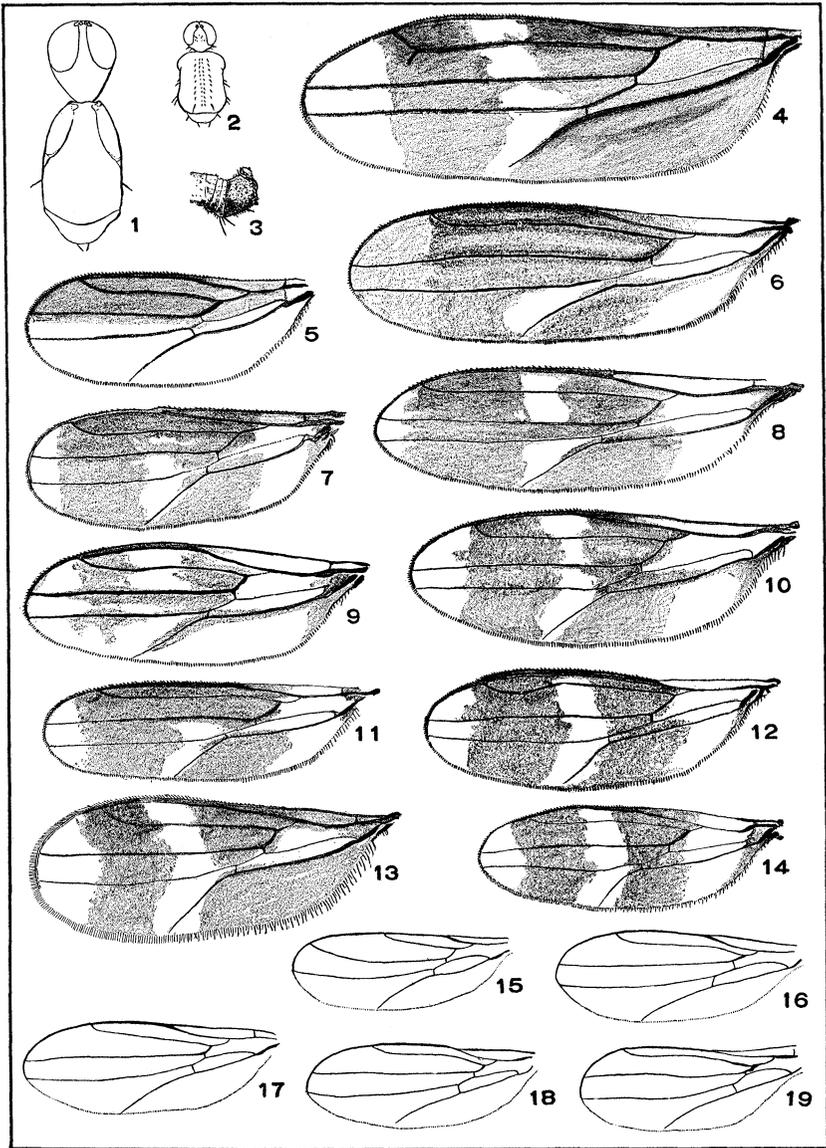
<sup>1</sup> Those species figured on the plate are marked with an asterisk.

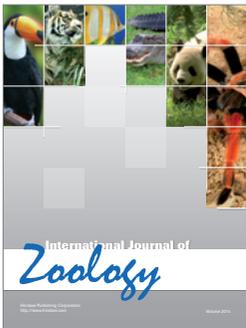
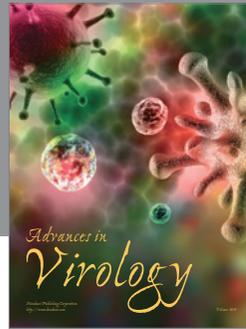
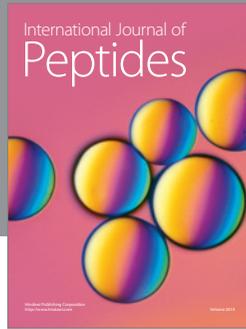
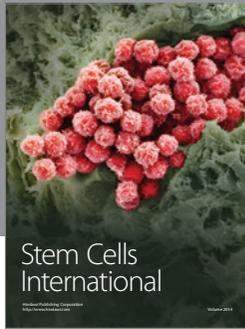
22. *ornatipes* Becker, Wien. Ent. Ztg. IV. 69 (1890).....Tyrol.  
 23. *punctifera* Becker, Act. Soc. Fenn. XXVI. 32 (1901).....Siberia.  
 24. *sabulosa* Meigen, Syst. Bes. VI. 342 (1830).....Eur. N. C.  
*fenestrata* Zetterstedt, Dipt. Sc. I. 318 (1842).  
 \*25. *schwarzii* Coquillett, Proc. U. S. N. M. XVIII. 440 (1895). N. Am. W.  
 var. *diversipes*, var. nov.....Tex.  
 \*26. *simplicior* Wheeler and Melander, Biologia C. Am. Dipt. I. 375 (1901).  
 Mexico  
 \*27. *styriaca* Strobl, Mitth. Ver. Steierm. XXIX. 124 (1893).....Alps.  
 var. *semifasciata* Strobl, l. c. 125.  
 28. *terricola* Zetterstedt, Kon. Vet. Ak. Handl. 81 (1819).....Eur. N. C.  
 29. *tuberculata* Loew, Zeitschr. Ent. Bresl. XVII. 19 (1863).....Eur. C.  
 30. *undulata* Strobl, Mem. Soc. Esp. III. 317. (1906).....Eur. S. E.  
 \*31. *universalis* sp. nov.....U. S.  
 \*32. *varipennis* Coquillett, Proc. Ent. Soc. Wash. V. 266 (1903).....N. H.  
 33. *vitripennis* Bezzi, Jenaische Denkschr. XIII. 182 (1908).....Afr. S.

## EXPLANATION OF PLATE 3.

The figures are drawn to practically the same scale of magnification, the camera lucida being used. The enlargement is about twenty diameters. As but four of the exotic species (*connexa* Meig., *incompleta* Beck., *ornatipes* Beck., and *punctifera* Beck.) have been figured, I have included drawings of the wings of those European species I possess.

- Fig. 1. *Tachydromia enecator* Mel. Dorsal aspect of head and thorax.  
 " 2. " *agens*, n. sp. " " " " " "  
 " 3. " *maculipennis* Walker. Lateral aspect of hypopygium.  
 " 4. " *enecator* Mel. Wing.  
 " 5. " *maculipennis* Walk. Wing.  
 " 6. " *calcanea* Meig. Determination by Strobl. Europe.  
 " 7. " *connexa* Meig. Determination by Strobl. Europe.  
 " 8. " *styriaca* Strobl. Determination by Strobl. Europe.  
 " 9. " *interrupta* Loew. Determination by Strobl. Europe.  
 " 10. " *arrogans* Linn. Determination by Kertesz. Europe.  
 " 11. " *varipennis* Coq.  
 " 12. " *annulimana* Meig. Determination by Bezzi. Europe  
 " 13. " *ciliata* n. sp.  
 " 14. " *schwarzii* Coq.  
 " 15. " *simplicior* Wh. and Mel.  
 " 16. " *universalis* n. sp.  
 " 17. " *insularis* n. sp.  
 " 18. " *calva* n. sp.  
 " 19. " *agens* n. sp.





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