

NEW EAST ASIAN AND AMERICAN GENERA OF THE "CYRTUS-OPSEBIUS" BRANCH OF THE ACROCERIDAE (Diptera)

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Abstract: The acrocerid taxa showing evolutionary affinity to the well-known genus *Cyrtus* Latreille are analyzed. There are eight genera involved in this complex of the Acrocerinae. These are distributed in South Africa, India, North Africa, Southwestern Europe, the Himalayas, Japan, Taiwan, much of the Nearctic, and as far south as Haiti in the Neotropical Region. A key is presented to separate these genera. Morphological structures used extensively to differentiate these genera are the mouthparts, the venation, the two types of thoracic pile, the degree of pilation on the eyes, and the placement of the abdominal spiracles. A discussion is presented to clarify the unfortunate situation that led to what I consider an improper interpretation of past generic concepts by various workers discussing these genera. Altogether four new genera, nine new combinations and two new synonyms are established. The new genera with their type species are: *NIPPONCYRTUS* for *Cyrtus shibakawae* Matsumura [Japan]; *PARACYRTUS* for *Cyrtus kashmirensis* Schlinger [Kashmir]; *HADROGASTER* for *Cyrtus formosanus* Shiraki [Taiwan]; and *TURBOPSEBIUS* for *Opsebius diligens* Osten Sacken [British Columbia, Canada]. A map is presented showing probable evolutionary pathways for the derivatives of the genus *Psilodera* Gray.

The new combinations and their original citations are: *Nipponcyrtus shibakawae* (Matsumura) (= *Cyrtus shibakawae*); *Nipponcyrtus taiwanensis* (Ôuchi) (= *Opsebius taiwanensis*); *Paracyrtus albofimbriatus* (Hildebrandt) (= *Cyrtus albofimbriatus*); *Paracyrtus kashmirensis* (Schlinger) (= *Cyrtus kashmirensis*); *Hadrogaster formosanus* (Shiraki) (= *Cyrtus shibakawae* var. *formosanus*); *Turbopsebius diligens* (Osten Sacken) (= *Opsebius diligens*); *Turbopsebius gagatinus* (Loew) (= *Opsebius gagatinus*); *Turbopsebius sulphuripes* (Loew) (= *Opsebius sulphuripes*) and *Turbopsebius brunnipennis* (Sabrosky) (= *Opsebius brunnipennis*). The new synonyms are: *Nipponcyrtus shibakawae* (Mats.) (= *Opsebius nipponensis* Cole) and *Nipponcyrtus shibakawae* (Mats.) (= *Opsebius nipponensis* var. *macrorrhynchus* Gil Collado).

INTRODUCTION

For the past fifteen years I have been preparing a monograph of the Dipterous family Acroceridae (=Cyrtidae). References to most of the papers already published in connection with this monograph can be found in Schlinger (1960c, 1961, 1968a & b, 1971a & b, and 1972a & b). This paper is another in a series which deals with reviews or revisions of groups of acrocerids, and is published at this time to establish certain generic concepts and names which are being used in connection with other papers in press or in process of publication, including the Acroceridae in the proposed "Catalog of Oriental Diptera" edited by Drs. M. D. Delfinado and D. E. Hardy.

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Considerable confusion has slowly become evident to me through an analysis of the various authors concepts of the genera related to the genus *Cyrtus* Latreille of the sub-family Acrocerinae. Although the several genera delimited in this paper are not easily distinguished at first glance, (a fact that some will argue is necessary for establishing genera), it is hoped that enough morphological evidence for their separation will be presented to clearly establish them as separately evolved groups of species that now show significant zoogeographical patterns as well. Even though I argue that the previous conservative concepts of these genera were confused through the use of obvious, but often differently evolved or derived structures, others may argue that the concept prescribed here is a splintered one and is perhaps unnecessary. It seems to me, however, that those who are engaged in zoogeographical studies (as I am) should be the ones to critically examine the specific and generic concepts of the groups being analyzed. Indeed, it is my belief that much of the confusion that exists today in the literature on zoogeography (especially insect groups) is due to an uncritical evaluation of the group in question; or, more often exists because those involved in zoogeographical studies cannot themselves undertake the systematic evaluations necessary for the proper interpretation of the zoogeographical conclusions. This, together with what I consider important morphological considerations, is why I have decided to name these new genera.

The genera involved in this complex, according to previous viewpoints, are *Cyrtus* Latreille, *Opsebius* Costa, *Subcyrtus* Brunetti and *Psilodera* Gray. These genera were erected for species originally collected as follows: *Cyrtus gibbus* (Fabricius) from Western Europe; *Opsebius perspicilatus* Costa from Sicily; *Psilodera bipunctata* (Wiedemann) from Cape Province, South Africa and *Subcyrtus splendens* Brunetti from India. During the course of time species were added to these genera to extend the ranges of the genera as follows: *Cyrtus* (from Europe to South Africa, Taiwan and Japan); *Opsebius* (from Europe and North Africa to Japan, Taiwan, Canada, U. S. A. and Haiti); *Subcyrtus* (only India) and *Psilodera* (South Africa and India). Although partial generic revisions have been presented for *Psilodera* by Schlinger (1960a), the Palearctic species of *Cyrtus* and *Opsebius* by Sack (1936) and for the Nearctic species of *Opsebius* by Sabrosky (1948), nothing has been published concerning this group or branch of genera. *Subcyrtus* has not been mentioned in the literature since its description in 1926.

As with most evolving projects of this kind it took me a number of years before I was able to examine specimens of "true" species for most of these genera. But it can now be shown that neither *Cyrtus* or *Opsebius* occurs in East Asia or for that matter apparently not in South Africa, definitely not in India, and that in the case of *Opsebius*, not in North America.

The two described "*Opsebius*" species from Japan and Taiwan were found to belong to two distinct genera, neither being closely related to *Opsebius* Costa. Also the only described Japanese "*Cyrtus*" species, which becomes the type of the new genus *Nipponcyrtus*, is a synonym of the Japanese "*Opsebius*" species; but the variety of the same "*Cyrtus*" species described from Taiwan turns out to be the type of yet another distinct new genus, *Hadrogaster*.

The *Opsebius* species of North America are related to the new genus, *Nipponcyrtus*, from Japan, rather than to the true *Opsebius* from Europe and North Africa. Although the coloration and shapes of species of these genera are different, the obvious generic

characters of the European and North American "*Opsebius*" are so similar that they represent a case of nearly complete convergence. This certainly accounts for all the species originally being called *Opsebius*, but since their evolutionary pathways have been quite divergent, a new genus necessarily is proposed for the North American *Opsebius* species. Likewise, a new genus is proposed for the Kashmir and Chinese "*Cyrtus*" species.

A SHORT HISTORY OF MAN'S INVOLVEMENT WITH *Cyrtus*-LIKE GENERA

I am sure when Latreille named the genus *Cyrtus* in 1796, he had observed something which looked quite different from "*Empis*," but little did he know what confusion lay ahead for his black and yellow, small-headed flies! Even though the European type species of *Cyrtus* was nearly without body pile and had pilose eyes, Wiedemann (1819, 1830) described three South African flies in *Cyrtus* all having bare eyes and considerable pile on their bodies. These characters played no special role in the erection of the South African genus *Psilodera* by Gray (1832), for he obviously did not know of Wiedemann's descriptions (the type species, *P. capensis* Gray being the same as *C. bipunctatus* Wied.). Anyway, the genus was known some 28 years before Walker (1860) described his first *Cyrtus*, and yet he must have followed Wiedemann and not Gray, for his species has only just recently been placed in *Psilodera* (Schlinger, 1960a).

Costa (1856) was able to differentiate another group of black and yellow flies from *Cyrtus* Latreille, (those without obvious mouthparts), and he named this European taxon, *Opsebius*. Ironically, Loew (1857) had apparently come to the same conclusion and had named the same European taxon *Pithogaster*, but he was a year too late. However, this establishes one fact, Loew knew what characterized European *Opsebius*. So, when in 1866 and 1869 he further described two North American species in *Opsebius*, he opened the door for others to describe taxa in *Opsebius*, species of which might now reasonably occur from Europe to North America and which might be bare or hairy, black and yellow or black or brown with even some green thrown in. Osten Sacken was the first to follow Loew's concept of *Opsebius*, when in 1877 he described *O. diligens* from British Columbia.

During the period from 1830 to 1870, a few European species of *Cyrtus* and *Opsebius* were described and Loew (1861) worked on *Psilodera*, but otherwise everything seemed to be running taxonomically "sound" for this group until after 1900. This of course is only my interpretation of what I have been able to read *into* and *out of* the works of the numerous authors involved with acrocerids in general.

It was in the year 1916 that Matsumura started the *Cyrtus*-like puzzle moving again when he figured a very hairy, metallic-greenish colored fly in his book on Insects of Japan and called it *Cyrtus shibakawae*. This was the first record of *Cyrtus* from the Orient, but more would soon follow.

In 1919a, Cole described what he believed to be the first acrocerid from Japan and called it *Opsebius nipponensis*. An examination of the type specimen probably will reveal that the short proboscis, typical of *Cyrtus shibakawae*, is either broken off or, if present, is hidden underneath the head. This character "absence" allowed "*Opsebius*" to be carried taxonomically in the literature to the present time for several eastern Palearctic species. One year later, Brunetti, in his Diptera studies for the Fauna of British India,

described the species *Lasia aurata* from India (?). This new species was particularly important, for 1) it was the first "*Lasia*" described from outside the Neotropical region; and 2) he, as others, had confused *Lasia* with *Panops* from the Australian region. This species was placed in the genus *Psilodera* by Schlinger (1959), a genus otherwise known only from South Africa. Brunetti (1926) then described the new genus and species, *Subcyrtus splendens*, from the Indian Himalayas and related it to European *Cyrtus* species, even though it clearly was more like *Cyrtus shibakawae* of Japan judging from the characters he used. In the same paper he described the species *Cyrtus nyasae* from Nyasaland. Except for the hairy eyes, this species fits *Psilodera*, but its correct placement remains in doubt.

In 1928, Gil Collado described what he believed to be a Japanese variety of *Opsebius nipponensis*, called *macrorrhynchus*, since his specimen had a distinct, but short proboscis. He apparently was unaware of Matsumura's "*Cyrtus shibakawae*."

The first Chinese species, *Cyrtus albofimbriatus*, was described by Hildebrandt (1930), and although it is related to the Japanese "*Cyrtus*" and Indian *Subcyrtus*, he chose to place it with "typical" European *Cyrtus*. In the same year, Pleske revised the Palearctic species of the family and, although he questioned the placement of some of the Asian "*Opsebius-Cyrtus*" species, he nevertheless retained their generic assignments.

A short paper was published by Shiraki (1932) where he described *Cyrtus shibakawae* variety *formosanus* from Taiwan. This variety becomes the generotype of a new genus in this paper, but again to examine the confusion about these genera, Shiraki wasn't sure that his new variety might not be a synonym of *Thyllis nigroaenea*, which, it turns out, is a member of the distinct subfamily Philopotinae and now placed in the genus *Oligoneura* Bigot (see Schlinger, 1971a).

Sack (1936) simply revised the Palearctic species without adding or changing but few of the taxa treated by Pleske in 1930. However, an important paper was published by Ôuchi in 1938 where he described *Opsebius taiwanensis* from Taiwan. Here, unlike Cole (1919a), he figured the fly showing distinct mouthparts, but, as Cole did, he showed the presence of a 5th posterior cell, a feature not characteristic of either the European or American "*Opsebius*" species. In 1948, Sabrosky revised the North American *Opsebius* and described the first tropical American species, *brunnipennis* from Haiti.

In 1959, Schlinger described the second species of *Cyrtus* from the Himalayas, *kashmirensis*, from Kashmir. It was noted, however, that this species, together with *albofimbriatus*, was quite different from other or typical "*Cyrtus*" species.

In 1960a, Schlinger included "*Cyrtus*" in a review of South African Acroceridae on the basis of *C. nyasae* Brunetti, a species still unknown to me. It is my assumption, based on the long-haired eyes, that this species may be better placed in still another genus.

This rough outline of the chronology of events which led many authors to their decisions about generic assignments was presented to 1) show the complexity of this problem, and 2) to substantiate the position I have taken in this paper to erect several new genera and to redefine and delimit the morphological expression of species included within each genus.

MORPHOLOGICAL CHARACTERS USED TO SEPARATE GENERA

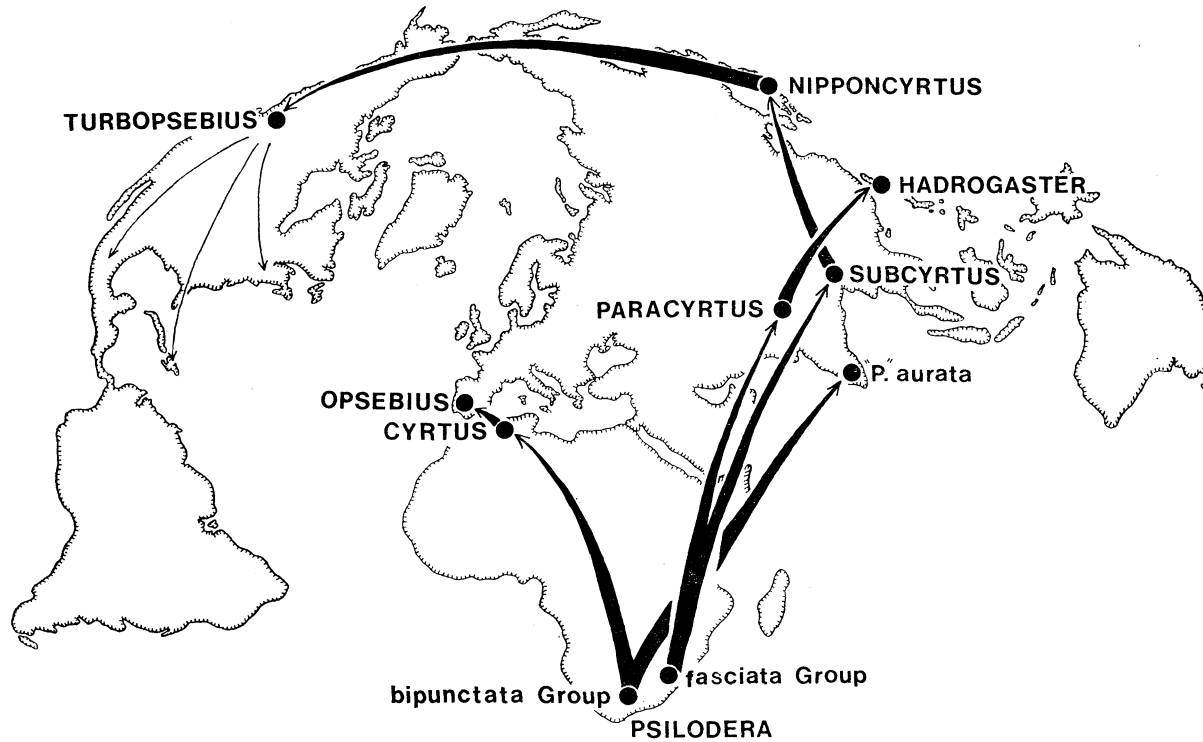
As I mentioned earlier, the characters used to separate the old and newly proposed genera are not "easy to see." However, it is my view that they are so evolutionarily significant, that for one to overlook them would be like returning to Lamarckian times.

Most of the important generic features I have ascertained belong to structures of the head. In particular, the presence or absence and the development of such structures as the proboscis, the labellum, the maxillary palpus, the clypeus (and anteclypeus), the labrum, the prementum (labium), the hypopharynx, the postclypeus (peristome), and the galea have been considered. Also, the degree of pilation of the eyes, and particularly the placement of the abdominal spiracles, whether in the tergites, sternites or in the intersegmental membranes, has also been useful. Wing venation, although only differing slightly, is quite distinct between genera. Since all species of all genera have not been available for dissection, I am not using male genitalia to help separate genera at this time. The dissections of genitalia I have made for species representing the several different genera indicate direct correlation with other structural differences noted.

Another significant character concerns the structure of the thoracic pile. The presence of two types of pile structure was first noticed by Schlinger (1960a) and was used, along with other characters, to separate two species groups of *Psilodera*. Some genera of this complex under study have only simple, unbranched, long hairs, such as in true *Cyrtus* and *Opsebius*; while others have both simple and shorter, branched hairs, particularly on the front of the mesonotum and humeral area, such as *Turbopsebius*, *Nipponcyrtus* and *Hadrogaster*. This character has not been assessed for *Paracyrtus* or *Subcyrtus*, but judging from other character associations it would seem likely that when the type specimens are examined they will be found to have some branched pile on the thorax.

The interpretation of these new morphological characters has led me to tentatively conclude a series of evolutionary lines for the "*Cyrtus-Opsebius*" group which differ greatly from accepted theories or practice (see Table 1). In Map 1, I have attempted to show the evolutionary paths and the zoogeographical relationships of species within the units studied as viewed from a nordic position. These patterns are only briefly discussed below since a critical evaluation of these and other evolutionary units of the subfamily Acrocerinae will have to form the basis of a separate article.

It is quite probable that *Psilodera* formed the basic ancestral stock for all other units shown in the Map. Two distinct groups later evolved from *Psilodera* which are termed the *fasciata* group and the *bipunctata* group. One or more members of the *fasciata* group moved northward and eastward eventually giving rise separately to the derivatives *Paracyrtus* and *Subcyrtus*. This latter genus must have had representatives which spread further eastward to Japan and Taiwan where this evolutionary line gave rise to *Nipponcyrtus*. *Paracyrtus* also had eastward moving representatives, one of which gave rise to *Hadrogaster*, now known only from Taiwan. *Nipponcyrtus* must have had members moving northeastward through the Bering Strait into North America where its derivatives, represented by *Turbopsebius*, now reside. Thus, the *fasciata* group gave



Map. 1 Evolutionary trends for derivative groups of *Psilodera* depicted on a nordic projection map. Note critical branching differences between the strongly convergent genera *Opsebius* and *Turbopsebius*.

Table 1. Comparison of past and present assignments of *Cyrtus-Opsebius*-like taxa.

New Combination	Past Concept, Authority and Date	Present Concept	Region
X	<i>Cyrtus shibakawae</i> Matsumura (1916)	<i>Nipponcyrtus shibakawae</i> (Matsumura)	Japan
X	<i>Cyrtus shibakawae</i> Matsumura (Shiraki, 1932 : 332)	<i>Nipponcyrtus shibakawae</i> (Matsumura)	Japan
X	<i>Oncodes shibakane</i> (Pleske, 1930 : 167)	<i>Nipponcyrtus shibakawae</i> (Matsumura)	Japan
X	<i>Opsebius nipponensis</i> Cole (1919)	<i>Nipponcyrtus shibakawae</i> (Matsumura)	Japan
X	<i>O. nipponensis</i> var. <i>macrorrhynchus</i> Gil Collado (1928)	<i>Nipponcyrtus shibakawae</i> (Matsumura)	Japan
X	<i>O. nipponensis</i> Cole (Pleske, 1930: 163)	<i>Nipponcyrtus shibakawae</i> (Matsumura)	Japan
X	<i>O. nipponensis</i> Cole (Sack, 1936 : 15)	<i>Nipponcyrtus shibakawae</i> (Matsumura)	Japan
X	<i>Opsebius taiwanensis</i> Ôuchi (1938)	<i>Nipponcyrtus taiwanensis</i> (Ôuchi)	Taiwan
	X <i>Cyrtus</i> species of Europe & North Africa	Same	Europe & North Africa
	X <i>Cyrtus</i> species of South Africa	<i>Psilodera</i> species of South Africa	South Africa
	X <i>Lasia aurata</i> Brunetti (1920)	<i>Psilodera aurata</i> (Brunetti) (?)	India
X	<i>Cyrtus albofimbriatus</i> Hildebrandt (1930)	<i>Paracyrtus albofimbriatus</i> (Hildebrandt)	China
X	<i>Cyrtus albofimbriatus</i> Hildebrandt (Sack, 1936 : 11)	<i>Paracyrtus albofimbriatus</i> (Hildebrandt)	China
X	<i>Cyrtus albofimbriatus</i> Hildebrandt (Pleske, 1930 : 161)	<i>Paracyrtus albofimbriatus</i> (Hildebrandt)	China
X	<i>Cyrtus albofimbriatus</i> Hildebrandt (Schlinger, 1959 : 158)	<i>Paracyrtus albofimbriatus</i> (Hildebrandt)	China
X	<i>Cyrtus kashmirensis</i> Schlinger (1959)	<i>Paracyrtus kashmirensis</i> (Schlinger)	Kashmir
	X <i>Subcyrtus splendens</i> Brunetti	Same	India
	X <i>Opsebius</i> species of Europe & North Africa	Same	Europe & North Africa
X	<i>Cyrtus shibakawae</i> var. <i>formosanus</i> Shiraki (1932)	<i>Hadrogaster formosanus</i> (Shiraki)	Taiwan
X	<i>Opsebius diligens</i> Osten Sacken (1877)	<i>Turbopsebius diligens</i> (Osten Sacken)	Western North America & Mexico
X	<i>Opsebius gagatinus</i> Loew (1866)	<i>Turbopsebius gagatinus</i> (Loew)	Pennsylvania
X	<i>Opsebius sulphuripes</i> Loew (1869)	<i>Turbopsebius sulphuripes</i> (Loew)	Eastern USA & Canada
X	<i>Opsebius brunnipennis</i> Sabrosky (1948)	<i>Turbopsebius brunnipennis</i> (Sabrosky)	Haiti

rise to two distinct evolutionary lines, one presently terminating with *Hadrogaster* in Taiwan and the other with the North American *Turbopsebius*.

The *bipunctata* group must have had members, some of which moved eastward and gave rise to the questionable "*Psilodera*" *aurata* line, and some of which moved northward where *Cyrtus* was derived. *Cyrtus*, presently quite sympatric with *Opsebius*, then gave rise to *Opsebius* which represents the end of the *bipunctata* group evolutionary line.

If these assumptions, based on considerable morphological data, are valid, as I believe is the case, then the remarkable case of "convergence" between *Opsebius* and *Turbopsebius* is verified. Both of these genera are represented by morphological similarities throughout their bodies, including the great reduction in mouthparts, complete loss of the 4th posterior cell, fusion of most abdominal somites, etc. The subtle, but significant differences between them include the different pile structure on the thorax, the exact placement of the abdominal spiracles II-IV, the setation of the minute proboscis, and the slight differences in the distance the antennae are placed from the vertex.

At present, host spiders are known only for *Turbopsebius*, but when other hosts are associated with species of other genera of the *Psilodera* branch, perhaps further corroboration of the above conclusions can be made.

KEY TO THE GENERA OF THE "CYRTUS-OPSEBIUS" BRANCH OF
THE ACRO CERINAE FROM THE NORTHERN HEMISPHERE

1. Eyes covered with at least some hairs or pile 2
Eyes bare (South Africa; India?) **Psilodera** Gray
2. Eyes with many short or long hairs or pile 3
Eyes with but a few microscopic hairs (India)..... **Subcyrtus** Brunetti
3. Proboscis clearly visible, from one-half as long as head height to much longer than abdomen 4
Proboscis not easily observed; if evident, then proboscis only protruding as a short bump beyond clypeal margin.....7
4. Maxillary palpus and labellum present; proboscis much longer than head height 5
Maxillary palpus not visible; labellum present or absent; proboscis as long as, or much shorter than head height 6
5. Abdominal spiracle V placed in sternite V; eyes covered with medium dense, short hairs; antennal tubercle separated from apex of ocellar tubercle by distinct depression, when viewed laterally; yellow and black species (Southern Europe, North Africa).....
..... **Cyrtus** Latreille
Abdominal spiracle V placed in intersegmental membrane between tergite and sternite V; eyes covered with dense, long hairs; antennal tubercle not separated from apex of ocellar tubercle by depression; black, or dark metallic green species (Kashmir; and Szechwan, China) **Paracyrtus** n. gen.
6. Labellum present; eyes covered with medium dense, short hairs; abdominal spiracles II, III and IV placed in intersegmental membranes (Taiwan).....**Hadrogaster**, n. gen.
Labellum absent; eyes covered with dense, long hairs; abdominal spiracles II, III, and IV placed in corresponding sternites (Taiwan and Japan)..... **Nipponcyrtus**, n. gen.
7. Mesonotal pile appearing erect, long, dense and consisting of two types, (a) longer, unbranched and (b) shorter and distinctly branched hairs; proboscis aseptate, hardly discernable, well separated from anteclypeal bump; abdominal spiracles II-IV situated

in intersegmental membrane area; antennae separated from apex of ocellar tubercle by distance about equal to length of antennal segment II; black or brown species (United States, Canada, Mexico and Haiti) **Turbopsebius**, n. gen.
 Mesonotal pile appearing quite appressed, medium dense and of medium length, consisting of only unbranched hairs; proboscis short but evident just posterior to anteclypeus and distinctly setate; abdominal spiracles II-IV situated in sternites; antennae nearly approximate to apex of ocellar tubercle; black and yellow species (Europe, North Africa)..... **Opsebius** Costa

Genus *Cyrtus* Latreille

Cyrtus Latreille 1796: 154. Sack, 1936 (revision).

Type-species: *Empis acephalus* Villiers, as *Syrphus gibbus* Fabricius, by subsequent monotypy by Latreille (1802).

Diagnosis: Medium to large flies from 5 to 12 mm in length; black or dark brown with distinct yellow markings.

Head: Placed low on thorax; eyes covered with dense short hairs, reaching out nearly as high as apex of antennal segment II; antennae placed a short distance from ocellar tubercle, with distinct depression evident between antennae and ocellar tubercle; three ocelli evident, median one small; observable mouthparts include proboscis, labellum, anteclypeus, and maxillary palpus. *Thorax*: Strongly humpbacked; pile dense, short, erect, and consisting of only unbranched type hairs; thorax about 3/4 to 5/6 length of abdomen, about 1/5 higher than wide and 1/5 longer than wide; legs long, thinly built; pulvilli rather thin, empodium narrowest, all about as long as tarsal claws; venation with 5 posterior cells. *Abdomen*: Inflated, longer than wide, slightly wider than high, with 6 visible segments; pile very short and dense over abdomen; spiracle I in tergite I; spiracles II-IV in sternites II-IV; spiracle V-VI in intersegmental membrane of somites V-VI, but occasionally spiracle V appears to be in sternite V; lateral intersegmental membranes of body somites only evident at somites V and VI; intersegmental line between tergites and sternites I-IV evident only as indistinct line beneath integument; genitalia well concealed under swollen tergite VI.

Species now included in Cyrtus: *Syrphus gibbus* Fabricius (1794), *Cyrtus dentatus* Macquart (1838), *Cyrtus pusillus* Macquart (1834), *Cyrtus pallidus* Gil Collado (1929), *Cyrtus maroccanus* Séguy (1930).

Revised Distribution: Southwestern Europe and North Africa.

Host spider: Unknown.

SPECIES EXAMINED FOR PRESENT STUDY: *C. gibbus*, *C. dentatus*, *C. pusillus* and *C. pallidus*.

Discussion: Adequate species descriptions for the above species can be found in Séguy (1926), Gil Collado (1929 and 1932) and Sack (1936) and need not be repeated here. It should be noted, however, that considerably more variation in color pattern exists among the specimens that I have examined than is recorded in the literature and keys, indicating that a revision of this genus is warranted.

Good illustrations of wing venation and general habitus drawings are available in Sack (1936).

Genus *Opsebis* Costa

Opsebis Costa, 1856: 20, Sack, 1936 (revision).

Type-species: *Opsebis perspicillatus* Costa, by monotypy.

Pithogaster Loew, 1857: 33.

Type-species: *Pithogaster inflata* Loew, by monotypy.

Opsebis of authors dealing only with Southwestern European and North African species.

Diagnosis: Medium sized flies from 4.0 to 7.0 mm in length; black or brown, but always with distinct yellow markings.

Head: Placed low on thorax; eyes covered with dense short hairs reaching out to about apex of antennal segment II or slightly beyond; antennae placed nearly approximate to ocellar tubercle, without depression between ocellar tubercle and antennae; lateral ocellus large, median ocellus absent; observable mouthparts short, hardly protruding beyond oral margin, consisting of distinct anteclypeus and directly behind it a small, setate proboscis. *Thorax*: Strongly humpbacked; pile dense, of medium length, mostly sloping strongly backwards, semi-appressed, consisting only of unbranched type hairs; thorax about 3/4 length of abdomen, about as wide as long; legs long, thinly built; pulvilli rather thin, empodium narrowest, all shorter than tarsal claws; venation with 4 posterior cells. *Abdomen*: Inflated, wider than long, about as high as long with 6 visible segments; pile very short and dense on abdomen, somewhat longer anteriorly; spiracle I placed in tergite I; spiracles II-V placed in corresponding sternites; spiracle V sometimes appears to be in intersegmental membrane; spiracle VI placed in intersegmental membrane; lateral intersegmental membranes of body somites only evident at somites V and VI; intersegmental line between tergites and sternites I-IV evident only as indistinct line beneath integument; genitalia well concealed under swollen tergite VI.

Species now included in Opsebis: *Opsebis perspicillatus* Costa (1856), *Opsebis pepo* Loew (1870), *Opsebis inclinatus* Séguy (1930), *Opsebis cyrtus* Séguy (1930), *Pithogaster inflata* Loew (1857) (= *perspicillatus*?), *Opsebis formosus* Loew (1871) (= *perspicillatus*?)

Revised Distribution: Southwestern Europe and North Africa.

SPECIES EXAMINED FOR THIS STUDY: *O. pepo* and *O. inflata*.

Discussion: Since reasonable descriptions of the above species are available in Sack (1936), they are not repeated here. Illustrations showing general habitus and wing venational features are also in Sack (1936).

Genus *Subcyrtus* Brunetti

Subcyrtus Brunetti, 1926: 585.

Type-species: *Subcyrtus splendens* Brunetti, by monotypy.

I have not seen any specimen which could represent this genus, nor has any discussion of this genus appeared in the literature since Brunetti's description. The following diagnosis is brief and very incomplete, but includes those features extracted from Brunetti's description which I believe to represent generic characters.

Diagnosis: Proboscis short, barely protruding below mouth opening, eyes practically bare, only a few microscopic hairs present; antennae placed just below vertex; thorax considerably

humped, covered with rather long but not dense pile; wing venation similar to *Cyrtus* (with 5 posterior cells); abdomen $1\frac{1}{2} \times$ longer than thorax and little wider than long.

Distribution : Known only from the type ♀ specimen from Darjeeling, Assam, India.

Host spider : Unknown

Discussion : According to Brunetti (1926), the eyes of his type specimen were practically bare and contained only microscopic hairs. This character seems sufficient at present to retain *Subcyrtus* as a separate genus. Other characters such as color and the presence of a short proboscis indicate a relationship to the new genus *Nipponcyrtus*. This latter genus has densely hairy eyes.

Genus *Psilodera* Gray

Psilodera Gray, 1832 : 279; Schlinger 1960a : 481-495 (recent revision).

Type-species : *Cyrtus bipunctatus* Wiedemann (1819) as *Psilodera capensis* Gray (1832), by monotypy.

Mesocera Macquart, 1838 : 173.

Type-species : *Mesocera flavicornis* Macquart (1838), by monotypy.

Diagnosis : Medium to large flies, 5.0 to 14.0 mm, black or brown with yellow, orange or white markings.

Head : Large, placed about midway down from dorsum of thorax; eyes bare; antennae placed in middle of head just above anteclypeus; eyes holoptic only above antennal tubercle to apex of flat, triocellate vertex; antennal tubercle a small, raised, shiny triangle; proboscis well developed with long thin labellum; maxillary palpus absent; anteclypeus well developed and shiny. *Thorax* : Not strongly humpbacked; covered with dense, long erect pile; additionally (in *fasciata* group) dense, short-branched, long pile occurs on mesonotum, humerus, and pro- and mesopleural areas, more obvious behind head; legs long and thin; three pulvilli, short, subequal in length; wing with 5 posterior cells (venation complete as shown in fig. 14-22, Schlinger, 1960a); alula absent. *Abdomen* : Wider than long when viewed dorsally (exclusive of genitalia); covered with long, erect, simple, dense to medium-dense pile, and often with considerable appressed pile; spiracle I in tergite; (*fasciata* group) spiracles II-V in intersegmental membranes; (*bipunctata* group) spiracles II-V in corresponding tergites; genitalia often well-concealed underhood-like tergite VI (*fasciata* group), or often not well-concealed and exerted under less of a hood-like tergite VI (*bipunctata* group).

Species now included in Psilodera : (*fasciata* Group of Schlinger 1960a), *P. confusa* Schlinger (1960a), *P. fasciata* (Wiedemann, 1819), *P. hessei* Schlinger (1960a), *P. nhluzane* Schlinger (1960a), and presumably *P. orbifer* (Walker, 1860). In the *bipunctata* Group of Schlinger (1960a), are : *P. affinis* Westwood (1848) (= *P. stuckenbergi* Schlinger, 1960a), *P. bipunctata* (Wiedemann, 1819); *P. natalensis* Schlinger (1960a), *P. pallidiventris* Schlinger (1960b), *P. valida* (Wiedemann, 1830) and presumably *P. aurata* (Brunetti, 1920).

Distribution : South Africa, North to Southern Rhodesia, and one species presumably from South India.

Host spider : Unknown.

Species examined for this study : All of the above species except *P. aurata* and *P. orbifer*.

Discussion: The genus *Psilodera* was recently revised by Schlinger (1960a, 1960b) and is significant to the discussion of the "*Cyrtus-Opsebius*" like genera because I regard it as the most likely ancestor to the branch. The characteristic different types of thoracic pile displayed by the two groups of *Psilodera* may well indicate that from a descendent of the *fasciata* group was derived the *Subcyrtus-Turbopsebius* lines, and from a descendent of the *bipunctata* group was derived the true *Cyrtus-Opsebius* line.

Although I am unaware of a general habitus drawing for *Psilodera*, features of wing venation and color patterns are given by Schlinger (1960a).

Genus *Paracyrtus* Schlinger, new genus

Cyrtus: Hildebrandt, 1930: 219-221; Schlinger, 1959: 157-158 (in part); (*not* Latreille, 1796).

Type-species: *Cyrtus kashmirensis* Schlinger (1959), by present designation.

Diagnosis: Medium to large flies, 5 mm to 12 mm in length, with metallic dark green and/or black coloration.

Head: Eyes holoptic with dense long hairs; ocellar tubercle slightly elevated, with distinct lateral and indistinct median ocellus; antenna three segmented placed just below ocellar tubercle by distance equal to length of antennal segment I; antennal segment I distinct, nearly as long as II; segment II slightly longer than wide; segment III spindle shaped basally, extending into long thin style with thin apical seta; antennal tubercle distinct and elevated behind; mouthparts produced and include well developed proboscis, labellum, labrum, maxillary palpus, anteclypeus and postclypeus. *Thorax*: Humpbacked, mostly covered with dense, long pile; thorax nearly as long as abdomen; mesopleuron greatly swollen, squamma large; legs strongly built; 3 large pulvilli; wing long and narrow; venation with 5 posterior cells; alula absent. *Abdomen*: With 6 visible segments; spiracle I in tergite, spiracles II, III and IV in sternites; spiracles V and VI in intersegmental membrane; genitalia (♀) recessed under tergite VI in caudal-ventral position.

Species now included in Paracyrtus: *Cyrtus albofimbriatus* Hildebrandt (1930) and *Cyrtus kashmirensis* Schlinger (1959).

Distribution: Kashmir and Southwestern China.

Host spider: Unknown.

SPECIES EXAMINED FOR THIS STUDY: *C. kashmirensis*.

Discussion: Both included species are adequately described by Hildebrandt (1930) and Schlinger (1959) and do not need repeating. The head and wing venation of the type species was figured by Schlinger (1959).

Genus *Nipponcyrtus* Schlinger, new genus

Cyrtus: of Matsumura, 1916: 380, pl. 22, Fig. 9 (*not* Latreille, 1796).

Opsebius: of Cole, 1919a: 94-95; Ôuchi, 1938: 34-36, Fig. as pl. 4; (*not* Costa, 1856).

Type-species: *Cyrtus shibakawae* Matsumura (1916), by present designation.

Diagnosis: Medium to large flies, 6.0 mm to 9.0 mm in length, with metallic blue, green, purple or brown body coloration.

Head: Eyes holoptic with dense, long pile; ocellar tubercle small, slightly elevated, with large distinct lateral and small indistinct median ocellus; antenna 3 segmented, placed just below ocellar tubercle; segment I small, round, indistinct laterally; segment II $2\times$ as long as wide; segment III spindle-shaped basally, extending into long thin style with thin apical seta; antennal tubercle small, raised, partially covering antennal segment I; mouthparts reduced, consisting of labrum, postclypeus and a proboscis which is $1/2$ to slightly longer than head height; labrum is $1/3$ to $1/2$ of proboscis length (not easily observed). Mouthparts observable only by dissection include also minute maxillary palpus (small segment with single apical seta), small bulb-like hypopharynx and a distinct clypeus; proboscis covered with numerous long and short hairs (see fig. 4). **Thorax:** Not strongly humpbacked, covered with dense long pile;

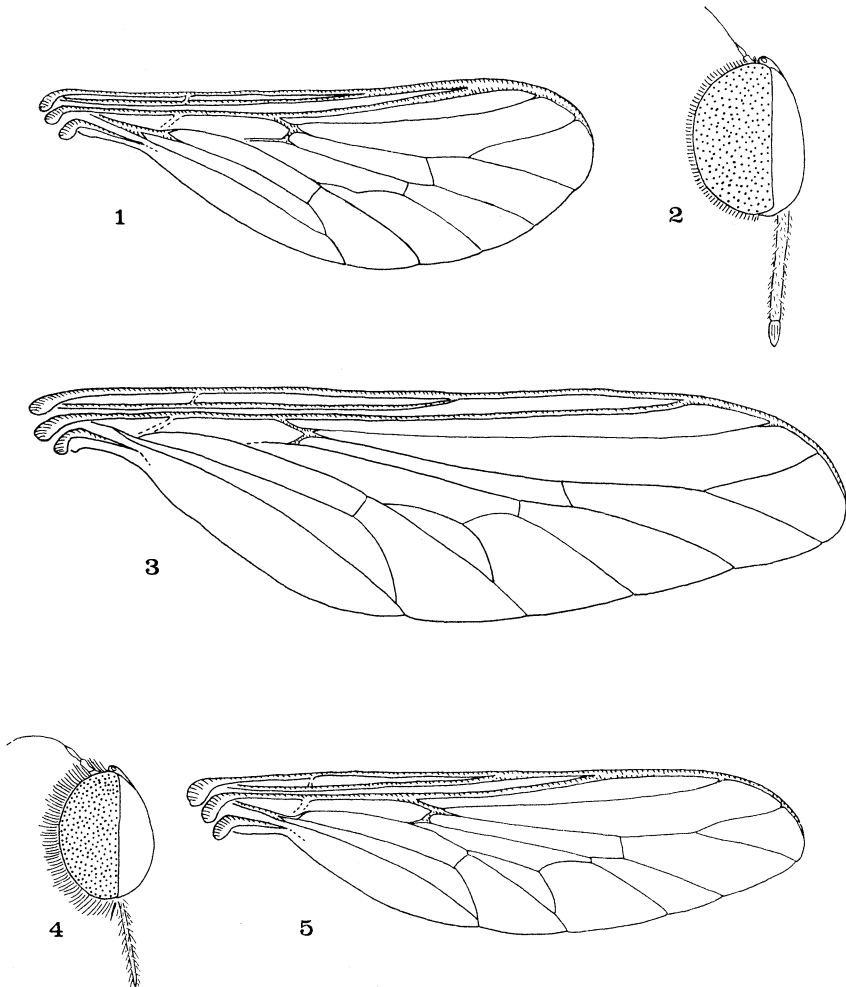


Fig. 1-5. Fig. 1, 3, 5, wings; Fig. 2, 4, heads in lateral view. Fig. 1, *Turbopsebius diligens* (Osten Sacken, California ♂); Fig. 2, 3, *Hadrogaster formosanus* (Shiraki, Homotype ♀, Taiwan); Fig. 4, 5, *Nipponcyrtus* sp. nr. *shibakawae* (Matsumura, ♂, Japan).

thorax about as high as wide and as high as long; prothoracic lobes small, separated by distance equal to 1/2 of head width; mesopleuron swollen; squama large, attached to thorax for less than 1/2 of the length of basal margin; legs thin; 3 large pulvilli, the empodium somewhat smaller; wing long and narrow; venation with 5 posterior cells (see fig. 5); alula absent. *Abdomen*: Longer than wide, wider than high, with 6 visible segments; spiracle I in tergite, spiracles II, III and IV in sternites or rarely in indistinct intersegmental membrane; spiracles V and VI in distinct intersegmental membrane; all segments seem to be fused together with no flexibility between any part of any segment: genitalia (♂) recessed under tergite VI in caudal position, in ♀ sub-ventral under tergite VI.

Distribution: Japan and Taiwan

Host spider: Unknown

Species now included in Nipponcyrtus: *Cyrtus shibakawae* Matsumura (1916) and *Opsebius taiwanensis* Ôuchi (1938).

SPECIES EXAMINED FOR THIS STUDY: *C. shibakawae*, plus two new undescribed species of *Nipponcyrtus* from Japan.

Discussion: The original description of the type species was inadequate and the species is redescribed below. There was a good general habitus drawing of *N. taiwanensis* in the work of Ôuchi (1938), including the wing venation. The excellent habitus drawing of *N. shibakawae* by Cole (1919a) as "*Opsebius nipponensis*" is fine except for the missing proboscis!

***Nipponcyrtus shibakawae* (Matsumura), new combination**

Cyrtus shibakawae Matsumura, 1916: 380, pl. 22, Fig. 9.

Redescription: ♂: Length of entire specimens 6.0 to 9.0 mm; wing lengths 6.0 to 8.0 mm.

Color: Black, brown, yellow with bluish-green and coppery metallic reflections; black are eyes, ocellar tubercle, occiput, most of thoracic and abdominal integument which is often obscured by bluish-green or coppery reflections, coxae and extreme tips of tarsal claws; dark brown are antenna, ocelli, trochanters, wing veins, most of tarsal claws, abdominal intersegmental membrane areas, and proboscis which may also be lighter brown; light yellowish brown are proboscis, remainder of legs, halter stem and knob, rim of squama, pulvilli and genitalia; bluish green are commonly mesonotum, scutellum and tergites, often also most of thorax and abdomen and rarely occiput have some blue reflections; wing membrane light brown infuscated throughout; squama hyaline but with even brown infuscation.

Pile: That on eyes dense, long, dark brown, reaching out to middle of basal swelling of segment III of antenna; that on ocellar tubercle and occiput similar but often light brown to yellow; that on proboscis dense, much shorter than on eye and light yellow in color; that on thorax mostly long, dense, erect, shaggy, whitish yellow to dark yellow; the much sparser, shorter, branched pile on the anterior part of mesonotum is usually white; that on abdomen with both erect and appressed pile and whitish yellow or yellow; abdominal pile longer and more erect anteriorly; that on legs dense, yellow, short except longer on femora; that on squama long, white to brownish yellow.

Head: Proboscis much shorter than head height as 8:13. *Thorax*: Mesonotum about 1/3 wider than scutellum as 10:7; scutellum more than 1/2 wider than abdomen as 7:12. *Abdomen*: Widest at tergite IV, longer than wide as 15:12.

♀: Similar to that described for male except for genitalic characters and the following: Length of entire specimens 6.5 to 9.0 mm, wing length 7.0 to 10.0 mm. Abdomen is wider than

long as 7: 6. Color more bluish brown, particularly on abdominal sternites, and more bluish green on dorsum.

SPECIMENS EXAMINED: More than 120 ♂ ♀ were examined from Honshu Island, Japan which represented this species. Specimens from the type locality of Mino, Osaka included a series of "cotypes," some with Matsumura's handwritten determination label "*Oncodes shibakawae* Mats." on them. Since a revision of this genus is in preparation by the author as the Acroceridae of Japan, Part II (see Schlinger, 1971a) including several new species from Japan, complete locality and date information will be provided for all species at that time.

In 1961, when I visited Japan, I was able to examine the type ♀ of this species at Hokkaido University in Sapporo, and also another ♀ specimen labeled a type in the National Institute of Agricultural Science collection in Tokyo. Both of these specimens are crushed, and in bad condition. The one in the Hokkaido University Collection has a "type Matsumura" label on it, while the specimen in the Tokyo collection has a label "*shibakawae* Type?". I interpret the "type" as the specimen in the Matsumura collection at Hokkaido University.

Genus *Hadrogaster* Schlinger, new genus

Cyrtus: of Shiraki, 1932: 332, Taiwan specimens only (*not* Latreille, 1796).

Type-species: *Cyrtus shibakawae* var. *formosanus* Shiraki (1932), by present designation.

Diagnosis: Medium size flies (7.0 mm in length) with black ground color mostly obscured by dense pile.

Head: Placed low on thorax; eyes holoptic with medium dense, short hairs; ocellar tubercle small but raised, lateral ocellus distinct, median ocellus present but indistinct; antennae 3 segmented placed nearly approximate to ocellar tubercle; antennal segment I indistinct, round; segment II about 2× as long as wide, segment III spindle-shaped at base extending into long thin style (probably terminating in thin apical seta; broken off); antennal tubercle small, indistinct; mouthparts produced, consisting of distinct setate proboscis and labellum, but maxillary palpus not evident (see fig. 2). **Thorax:** Strongly humpbacked, covered with dense erect long pile; mesonotal pile consisting of two types, one long, erect and simple, the other short and branched, even more dense, and the latter occurring throughout dorsum of thorax but abundant on forepart of mesonotum, humerus, and also on pro- and mesopleura; legs long and thin, three large pulvilli subequal in size; wing long and narrow; venation with 5 posterior cells as in fig. 3; alula absent. **Abdomen:** Much wider than long when viewed dorsally, with 6 visible segments, all covered with scarce, simple erect pile and dense, appressed simple pile as well as dense branched pile along anterior margin of tergite II; spiracle I in tergite; spiracles II-V placed in intersegmental membranes; genitalia (♀) ventral under hood-like tergite VI.

Distribution: Taiwan.

Host spider: Unknown.

Discussion: Since there are no available figures or description for the only included species, it is necessary to redescribe it. Except for the elongate proboscis, distinct labellum, and wing venation, the type species shows considerable resemblance to the female of *Turbopsebius sulphuripes* (Loew) as illustrated by Cole (1919b) as *Opsebius sulphuripes*.

Hadrogaster formosanus (Shiraki), new combination

Cyrtus shibakawae var. *formosanus* Shiraki, 1932: 332.

Redescription: ♀: Length of entire specimen 7.0 mm, wing length 9.0 mm.

Color: Brown, black and yellow; black are eyes, occiput, ocellar tubercle, thorax, most of abdomen, and tips of tarsal claws; brown are antennae, ocelli, tip of humerus, prothoracic spiracle, wing veins, narrow posterior fascia on tergites and sternites, most of tergite VI, abdominal intersegmental areas, abdominal spiracles II-VI and base of tarsal claws; yellow are proboscis including labellum, legs, base of halter and cercus; halter knob white; wing membrane light brown infuscated throughout, somewhat darker along anterior apical margin; squama hyaline with thin, light yellow rim.

Pile: That on eyes medium dense, short, whitish brown, reaching out to apex of antennal segment II; that on ocellar tubercle somewhat longer; that along eye margin just in front of raised occiput, dense, silver, and appressed; that on proboscis dense, little shorter than on eyes; that on thorax mostly long, dense, erect, shaggy and white to silvery-white except that on mesonotal disc area light brown; the shorter, branched pile on mesonotum, humerus and mesopleura, white; that on abdomen with both appressed and erect pile, mostly white with silvery tinge, but some erect pile, particularly on median area of tergites II-III, brown; that on squama medium dense, long, shaggy and white; that on legs whitish yellow, dense, short except much longer on femora.

Head: Proboscis including labellum equal in length to head height; labellum about 1/5 as long as proboscis as 4: 19.

Thorax: Mesonotum about 2 × as wide as scutellum as 50: 27; abdomen about 2.6 × as wide as scutellum as 70: 27.

Abdomen: Widest as tergite III, slightly wider than long as 14: 13.

♂. Unknown.

SPECIMENS EXAMINED: 1 ♀, Matsumine, Taiwan (Formosa), 1.VII. 1939, A. Aoki, National Institute of Agricultural Science, Tokyo. Also, 1 ♀, Arisan, Taiwan, 21.IV.-4.V.1917, T. Shiraki, "Type," det. by Shiraki as "*Oncodes shibakawae* Mats., *formosanus*", with red label "Formosa", also in the National Institute of Agricultural Sciences, Tokyo.

I have no doubt that this "type" specimen is valid, but Shiraki (1932) indicated he had another specimen from Karenko, Taiwan. I have not been able to examine this latter specimen (if it still exists), but it probably also bears a "type" label. Assuming there are two type specimens, I have chosen to place a lectotype label on this type specimen, and also I have placed a homotype label on the above specimen from Matsumine.

The above description was based primarily on the homotype specimen which is in excellent condition. The lectotype specimen has both wings missing, three legs missing and is rather dirty. Also part of the labellum is broken, but that part remaining indicates a labellum was present. As far as structures of the type specimen were available, they agreed completely with the above description of the homotype.

The reason for the lectotype specimen carrying the "*Oncodes*" determination by Shiraki, who clearly described this as a species of "*Cyrtus*", probably came about by Shiraki comparing his specimen with *Cyrtus shibakawae* Matsumura, the type specimen which also bore the name "*Oncodes shibakawae* Mats." placed there by Matsumura.

Genus **Turbopsebius** Schlinger, new genus

Opsebius: of authors on North American species, see Sabrosky, 1948: 385, for most recent revision of genus in North America. (*not* Costa, 1856).

Type-species: *Opsebius diligens* Osten Sacken (1877), by present designation, since it is the best known species of the genus.

Diagnosis: Small to medium size flies (4.0 mm to 8.0 mm) with black or brown ground color. *Head*: Placed low on thorax; eyes holoptic with dense medium length hairs; ocellar tubercle small but raised; lateral ocellus distinct, median ocellus small often indistinct; antennae 3 segmented, placed away from ocellar tubercle by distance equal to length of raised antennal tubercle; antennal segment I short, round, often quite indistinct; segment II longer than wide; segment III with short basal spindle, then extending into long thin style with long apical seta; antennal tubercle distinct, often raised, becoming flush with apex of ocellar tubercle; mouthparts not produced but with minute proboscis appearing as bump in oral cavity (in ventral view). *Thorax*: Strongly humpbacked, covered with dense, long, erect pile; mesonotal pile consisting of 2 types, one long erect and simple, the other short, branched, even more dense, the latter covering most of mesonotum, humerus and pro- and mesopleura in ♀♀, less evident in ♂♂; legs long and thin, but femora often thickened; 3 large pulvilli, empodium equal to or longer than lateral pulvilli; wing of medium length and broad in ♀♀ and in some ♂♂, but in other ♂♂ wing is long and more narrowed and forms a tooth-like projection of fore margin where R₁ joins the costa; wing with 4 posterior cells, venation as show in fig. 1; alula absent. *Abdomen*: About as wide as long, to somewhat wider than long when viewed dorsally, consisting of 6 visible segments; all covered with dense to medium dense, long, erect pile and some species also with appressed pile; some ♀♀ have various amounts of branched pile on tergite II; spiracle I in tergite; spiracles II-VI in intersegmental membranes; genitalia (♂ and ♀) well concealed under hood-like tergite VI.

Species now included in Turbopsebius: *Opsebius diligens* Osten Sacken (1877), *Opsebius gagatinus* Loew (1877), *Opsebius sulphuripes* Loew (1869) and *Opsebius brunnipennis* Sabrosky (1948). Synonymy for these species is clarified in Schlinger (1965).

Revised Distribution: Southern Canada, U. S. A.; Mexico south to Durango, and Haiti.

Host spiders: *Agelenopsis naevia* (see Melander, 1902) and *Hololena curta* (see Schlinger, 1952).

SPECIES EXAMINED FOR THIS STUDY: All species now in this genus except *O. gagatinus* Loew.

Discussion: Even though good descriptions of most species included in this genus exist in Cole (1919b) and Sabrosky, (1948), and excellent figures were presented by Cole (1919b) of general habitus and wing venation, it seems advisable to redescribe the type species to clarify certain points.

Turbopsebius diligens (Osten Sacken), new combination

Opsebius diligens Osten Sacken 1877: 278.

Redescription: ♂. Lengths of entire specimens 4.0 to 6.0 mm; wing lengths 3.5 to 5.5 mm.

Color: Black, brown and yellow with some metallic reflections; black are eyes, occiput, ocellar tubercle, anteclypeus, thorax, abdomen and tips of tarsal claws; dark brown are antennae,

ocelli, prothoracic spiracle, tip of humerus, coxae, wing base, spot below halter, intersegmental membrane area and spiracles of abdomen, posterolateral margins of tergite VI and base of tarsal claws; light brown or light yellowish brown are oral area, remainder of legs, pulvilli, wing vein, base of halter, cercus and tips of claspers and aedeagus; halter knob bright yellow; wing membrane hyaline; squama hyaline with thin, clear, whitish yellow margin. *Pile*: That on eyes dense, light to dark brown, long, reaching out to mid-line of swollen base of antennal segment III, that on ocellar tubercle and occiput somewhat longer than on eyes and yellow; that on mesonotum with 2 types of hairs; the simple, common, erect pile, dense, long and golden yellow to whitish yellow, and the branched pile, particularly on anterior marginal area of mesonotum, whitish yellow, shorter than and less dense than simple type of hairs; that on squama medium dense, long, shaggy and whitish yellow; that on abdomen golden brown consisting of both erect and appressed pile over entire abdomen; the erect pile long, sparse, more pronounced on dorsum anteriorly and along median area, except also quite evident throughout tergites V and VI; that on coxae and femora golden brown to whitish yellow, long, dense and shaggy; that on remainder of legs shorter than on femora and much shorter than on tarsi. *Head*: About 1/3 higher than long, about as high as longest part of squama. *Thorax*: Mesonotum about $2 \times$ as wide as scutellum, and about 1/4 shorter than greatest width of abdomen as 30:43; squama 1/3 higher than long. *Abdomen*: Widest at tergite III; wider than high as 43:35, and about as long as high; height of abdomen same as width of abdomen when height is measured caudally from tip of tergite VI to tip of tergite III.

♀. Same as described for male except as follows: Color is usually similar, but legs are often of a lighter color being more whitish yellow, particularly the tibiae and tarsi; pile is generally of lighter color on thorax and abdomen, sometimes even a silvery white, particularly on abdominal sternites; branched pile on thorax much more abundant and often present throughout dorsum of thorax; wing veins are often darker colored; mesonotum about 1/3 shorter in width than abdominal width; abdomen widest at tergites III and IV, about 5/6 as long as wide; height of abdomen about 1/4 as wide as abdomen when height is measured caudally from tip of tergite VI to top of tergite III.

SPECIMENS EXAMINED: More than 200 specimens have been evaluated from British Columbia, Canada (type locality), south to Durango, Mexico, but always west of the Rocky Mountains.

Host spider: *Hololena curta* McCook (see Schlinger, 1952).

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