ON THE GENERA OF THE CHALCID-FLIES BELONGING TO THE SUBFAMILY ENCYRTINÆ.

By William H. Ashmead,

Assistant Curator, Division of Insects.

Among the many thousands of minute Hymenopterous insects existing in the world and to which have been given the popular name Chalcid flies, there is probably no single family that is of more interest or of greater economic importance than the family Encyrtidæ.

The species in this family, like the vast majority of other Chalcid flies, live parasitically in the eggs, larvæ, or pupæ of other insects, and hardly a single order of Hexapodous insects is wholly free from their attacks; but in this family, and more especially in the subfamily Encyrtinæ, the species are of more than ordinary interest and importance, since so many of them are found attacking and destroying the scale- and bark-lice (Coccidæ and Aleyrodidæ) and the plant-lice (Aphididæ and Psyllidæ), containing some of the most destructive and troublesome pests with which fruit-growers, agriculturists and florists have to contend.

The subfamilies Eupelminæ, Encyrtinæ, and Signiphorinæ, the latter based upon my genus *Signiphora*, established in 1880, as I have already published elsewhere, constitute a distinct family in the subfamily Chalcidoidea, to which the family name Encyrtidæ should be applied.

The subfamily Eupelminæ was subjected to a generic revision nearly three years ago by the present author, and was published in the Proceedings of the Washington Entomological Society for 1898. He now presents a similar work on the subfamily Encyrtinæ.

The manuscript, as originally written, with the above title, was read before the Washington Entomological Society, May 13, 1897. Since that time, however, Dr. L. O. Howard[1] has characterized a number of new genera in the group, and the paper has been withheld from publication, in order to incorporate the new genera and to make certain necessary changes in nomenclature.

The family Encyrtidæ is readily distinguished from all others in the

[1] Proc. U. S. Nat. Mus., XXI, 1898, p. 231.

Chalcidoidea *by the large, non-impressed mesopleura, the large triangular mesepisternum, which does not extend to the front coxæ, and by the large saltatorial spur of the middle tibiæ, which is most frequently long and stout, or dilated at base, and usually armed with a double row of black teeth or stiff bristles.* No other family possesses this large saltatorial middle tibial spur, and only a few species, in one or two of the other families, possess the non-impressed mesopleura.

Family LXVII. ENCYRTIDÆ.[1]

The three subfamilies mentioned above, into which this family is divided, may be separated upon the following characters:

Mesonotum *not* entire, most frequently depressed or concave on disk, rarely convex, the parapsidal furrows distinct, or at least more or less present; marginal vein usually long ..... Subfamily I. EUPELMINÆ.

Mesonotum entire, convex or subconvex, the parapsidal furrows always entirely wanting.

Marginal vein rarely very long, often punctiform, and always very much shorter than the subcostal vein; stigmal vein usually short but distinct, rarely very long; scutellum normal, the axillæ never closely united to form a transverse linear sclerite at base of scutellum; middle tibiæ without lateral spurs. Subfamily II. ENCYRTINÆ.

Marginal vein long, as long or nearly as long as the subcostal vein; scutellum abnormal, the axillæ closely united without suture between, forming a transverse linear sclerite at base of scutellum proper; middle tibiæ *with* lateral spurs, the lateral apical spur lobed ..... Subfamily III. SIGNIPHORINÆ.

Subfamily II. ENCYRTINÆ.

This subfamily, as here defined, is identical with Förster's family Encyrtoidæ or Mayr's Encyrtiden, and is based upon Latreille's genus *Encyrtus*, established in 1809.

The genus was very imperfectly characterized by Latreille, who indicated as types two species, namely, *Chrysis ? infidus* Rossi (Illiger) and *Mira macrocera* Schellenberg. The latter is now manifestly not applicable, since it itself is the type of a well-characterized genus. *Chrysis infidus* Rossi, therefore, becomes the type of Latreille's genus *Encyrtus*.

Chrysis infidus Rossi was very imperfectly described and has long remained unknown, but I have identified it as the Coccid parasite known to us to-day under the name *Comys scutellata* Swederus. In the original description nothing was said of the characteristic tuft of hairs on the scutellum, and it has thus been overlooked by writers on these insects.

In 1820, Dalman, a Swede, redescribed the genus *Encyrtus* and described many new species. His diagnosis, however, was necessarily a broad one, and in reality represented the family rather than the genus,

[1] For characters of the other families see Classification of the old family Chalcididæ by W. H. Ashmead, Proc. Wash. Ent. Soc., IV, 1898-99, pp. 242-249.

and in it he included many species that are now relegated to many of our more modern genera.

From the publication of Dalman's paper down to the year 1856 several new genera were erected by Dahlbom, Nees, Westwood, Haliday, Walker, and Ratzeburg, either upon some of the Dalmanian species, or upon new discoveries.

In 1856 a great advance was made in our knowledge of the group by Dr. Arnold Förster, in his well known publication Hymenopterologische Studien, Heft II, in which he for the first time properly defined the group as a family under the name Encyrtoidæ, brings together the known genera in tabular form, and describes no less than twelve new genera.

A year later, or in 1857, Dahlbom established four new genera, namely, *Ageniaspis*, *Euscapus*, *Lonchocerus*, and *Trimorphocerus*. The second is identical with *Dinocarsis* Förster, the third with *Mira* Schellenberg, while the fourth and last seems to have been based upon a male *Bothriothorax*.

The Russian General Motschulsky, in 1863, erected his genus *Callipteroma*[1] from Ceylon; while a few years later an Italian, Camillo Rondani, described in the group three additional genera, wretchedly characterized, namely, *Tineophaga*, 1868, *Tineomyza*, 1872, and *Selitrechus*, 1877. None of them, however, belong here, but all belong to the family Eulophidæ. Tineophaga equals *Eulophus* Geoffroy; *Tineomyza* is apparently identical with *Tetrastichus* Haliday; while *Selitrechus*, as I have identified it, is a good genus in the subfamily Entedoninæ.

In 1876 the European genera and species of the Encyrtinæ were subjected to a thorough revision, by Dr. Gustav Mayr, of Vienna, Austria, in a work entitled Die Europäischen Encyrtiden, biologisch und systematisch bearbeitet.

In this most valuable contribution Dr. Mayr has shown that several of the previously described genera were synonyms, being based principally upon the opposite sex or upon apterous or subapterous forms of other genera. Dr. Mayr in his work, however, established 8 new genera, gave full descriptions of all the known genera and species, except some of Walker's, besides characterizing 25 species as new to science.

About the time of the appearance of Dr. Mayr's excellent work on the group, the well-known Swedish entomologist, Dr. C. G. Thomson, was also engaged in a systematic study of the Encyrtinæ, and the result of his labors appeared shortly afterwards.[2]

The title-page of this work antedates that of Dr. Mayr's, and I was at first inclined to give Thomson priority for certain genera which prove to be synonymous with those of Dr. Mayr's. Since my paper was read, however, Dr. L. O. Howard has most conclusively shown,

[1] Von Dalla Torre records this in his Catalogus Hymenopterorum under the family Braconidæ.

[2] Skandinaviens Hymenoptera, IV, pp. 112–183.

from a letter from Dr. Christopher Aurivillius, of the Stockholm Museum, the incorrectness of this title-page, and proves without the shadow of a doubt the priority in publication of Dr. Mayr's work.

The group was called by Thomson a tribe—Encyrtina—and he divided it into three sections, based principally upon mandibular characters, besides giving an excellent table for distinguishing the genera. Eight new genera and 26 new species were described. Three of these genera are, however, synonyms: *Liocarus* equals *Prionomastix* Mayr; *Nóbrimus* equals *Homalotylus* Mayr; while *Trechnites* equals *Metallon* Walker.

Thomson designates as the type of *Encyrtus*, *E. scutellaris* Dalman, a species evidently synonymous with *Encyrtus* (*Chrysis*) *infidus* Rossi.

The work of Thomson is unquestionably of great value, and he has drawn attention to several important structural characters not previously or subsequently noticed. In my own work I have made use of some of these characters, one of which—the shape and dentition of the mandibles—although not easily seen, I consider of tribal value.

In 1888 Christopher Aurivillius discovered and described his genus *Arrhenophagus*, a remarkable form in the group.

A year later, 1889, De Stefani, an Italian, established his genus *Hoplopsis*, a genus still unknown to me in nature, but which, judging from the description, does not belong to this subfamily, but to the subfamily Eupelminæ, "*Thorax foveolatus*" being a character found only in the Eupelminæ.

In the United States until within comparatively recent years very little original work was done in the family.

The first American who described a species in the group was Thomas Say, whose *Serlion terminalis*, described in 1828 and placed by Cresson in the genus *Scelio*, in the family Proctotrypidæ, is an encyrtine belonging to Mayr's genus *Homalotylus*.

It has been since redescribed twice: Once by Dr. Shimer as *Eutelus scymnæ*, and again by Dr. Howard as *Homalotylus obscurus*.

Since Say's time, besides myself, the only one in this country who has given special attention to these insects is Dr. L. O. Howard, whose valuable contributions toward elucidating the habits, genera, and species of this difficult group, found in America, are known to all working entomologists. He has characterized many new genera and many new species—many beautifully figured—and it is through his kindness and liberality in placing at my disposal all his material in the group that I am able to incorporate all of these genera in my tables.

I desire here also to express my thanks and obligations to the well-known hymenopterologist, Dr. Gustav Mayr, of Vienna, Austria, the leading European authority on the group, for sending me during our correspondence, extending over an interval of nearly twenty years, specimens of most of the European genera.

With these preliminary remarks I shall now proceed with the classification of the group.

CLASSIFICATION.

The subfamily Encyrtinæ, for convenience and the ready recognition of the genera, if upon no other grounds, may be divided into four tribes, as follows:

TABLE OF TRIBES.

Mandibles edentate, acute at apex 4
Mandibles bi- or tri-dentate, or broadly truncate at apex, never acute; tarsi always 5-jointed 2
2. Mandibles stout, 3-dentate at apex, although the teeth are sometimes very minute, the labrum usually conspicuous 3
Mandibles not stout, or only moderately so, rather long and always bi-dentate at apex, the labrum free; abdomen in female with the hypopygium large, lanceolate or plowshare shaped, inclosing the ovipositor and extending beyond the anus; second abdominal segment most frequently large; antennæ usually inserted just above the clypeus, rarely just below the middle of the face ..... Tribe I. ECTROMINI.
Mandibles stout, but short and polished, the apex broadly truncate, unarmed or nearly so; labrum conspicuous; abdomen with the hypopygium less evidently prominent, not projecting; body usually stout, not metallic; antennæ inserted below the middle of the face; hind tibiæ with two spurs ..... Tribe II. ENCYRTINI.
3. Hypopygium not prominent; hind tibiæ with only one spur; body most frequently, but not always, metallic; antennæ variable ..... Tribe III. MIRINI.
4. Tarsi 4- or 5-jointed; marginal vein punctiform or subobsolete ..... Tribe IV. ARRHENOPHAGINI.

Tribe I. ECTROMINI.

The species falling in this tribe are, as a rule, more elongate and narrower, the marginal vein proportionately longer, the stigmal vein shorter, while the mandibles are longer, narrower, and always bidentate at apex. This last character, together with the prominent hypopygium, in the female, may always be depended upon to distinguish a species falling in this group.

The genera may be recognized by the use of the following table:

TABLE OF GENERA.

Males 12
Females:
Face *with* a distinct carina between the bases of antennæ 8
Face *without* such a carina, rarely with a rounded ridge.
Antennæ inserted just above the clypeus or below the middle of the face.
Species wingless or subapterous 6
Species winged 2
2. Front wings with the marginal vein rather long, at least twice as long as the stigmal vein or even longer, the stigmal and postmarginal veins short; scape slender, cylindrical.
Wings fuscous, marked with white bands or rays; frons broad, the lateral ocelli nearer to the eye margin than to the front ocellus ..... (1) *Calocerinus* Howard.
Wings hyaline; frons not so broad, the lateral ocelli not nearer to the eye margin than to the front ocellus.
(2) *Tetralophidea* Ashmead, new genus.

Front wings with the marginal vein short, the postmarginal vein very short. 5

Front wings with the marginal vein long, linear, longer than the stigmal vein, the stigmal and postmarginal veins *not* short, or very rarely short, the postmarginal most frequently longer than the stigmal.

Funicle 6-jointed *without* ring-joints 3

Funicle 4-jointed with two ring-joints.

Frons minutely shagreened, with minute punctures scattered over the surface; scape slender, cylindrical, the flagellum at the most subclavate; stigmal vein very oblique, subclavate.

(3) *Meromyzobia* Ashmead, new genus.

3. Stigmal and postmarginal veins not short, usually long, the latter the longer, sometimes as long as the marginal; front wings *without* a discoidal blotch 4

Stigmal and postmarginal veins short, the latter sometimes hardly developed; front wings with a discoidal blotch.

Frons very minutely shagreened, with minute punctures scattered over the surface, or almost smooth.

Head viewed from in front longer than wide; scutellum with a tuft of long hairs; abdomen scarcely longer than the head and thorax united, the ovipositor *not* or scarcely exserted; flagellum gradually broadened toward apex, compressed, the pedicel hardly as long as the first joint of funicle; the joints after the third broader than long.

(4) *Chrysopophagus* Ashmead.

Head viewed from in front not longer than wide, if anything a little wider than long; scutellum *without* a tuft of long hairs; abdomen distinctly longer than the head and thorax united, with a prominent ovipositor which is longer than half the length of the abdomen; flagellum subclavate, not compressed, the funicle joints longer than thick.

(5) *Tineophoctonus* Ashmead, new genus.

4. Frons minutely shagreened, with minute punctures scattered over the surface; scape *not* compressedly dilated beneath, cylindrical or subcylindrical.

Antennæ not longer than the body, usually somewhat shorter, the first joint of the flagellum rarely more than twice as long as thick; stigmal vein not curved; axillæ just meet at inner basal angle .....(6) *Ericydnus* Walker.

Antennæ longer than the body, the first joint of the flagellum about five times as long as thick; stigmal vein gently curved; axillæ unite and form a slight ridge at base of scutellum.

(7) *Leptomastix* Förster.

Frons regularly punctate; scape beneath broad, compressedly dilated, the flagellum long, filiform, cylindrical; scutellum triangular, acute at apex, the axillæ somewhat widely separated.

(8) *Dinocarsis* Förster.

Frons *not* regularly punctate, broad and smooth, margaritaceously shining, or at the most feebly shagreened; scape long, slender, the flagellum long, subcylindrical, feebly compressed, the first joint the longest, somewhat more than twice as long as thick; scutellum with two deep foveæ at base.

(9) *Ectroma* Westwood.

5. Frons finely shagreened or alutaceous, subopaque; lateral ocelli close to the eye margin; scape usually broadly compressedly dilated beneath, the flagellum *slender, cylindrical;* axillæ not quite meet-

ing at inner basal angles; front wings with a hairless line extending obliquely inward from the stigmal vein.

(10) *Anagyrus* Howard.

Frons narrow, almost smooth; lateral ocelli close to the eye margin; scape broadly dilated beneath, the flagellum *compressed, fusiform,* as seen from the side; axillæ meeting at inner basal angle.

(11) *Anusia* Förster.

6. Frons smooth, margaritaceously shining, or at the most microscopically shagreened..... 7

Frons regularly punctate or coriaceous or shagreened with distinct scattered punctures over the surface.

Scutellum subtriangular, rounded, not acute at apex; scape slender, cylindrical, or at most subclavate.

Flagellum filiform or subclavate, *not* compressed; axillæ touching each other at base of scutellum.

Funicle 4-jointed, with 2 minute ring-joints; ocelli normal, the lateral close to the eye margin but not touching it.

(3) *Meromyzobia* Ashmead.

Funicle 6-jointed, with no ring-joints; ocelli very minute, the lateral lying close to the eye margin..... *Ericydnus* Walker.

Flagellum compressed; axillæ separated *not* touching each other at base of scutellum; lateral ocelli not close to eye margin; ovipositor exserted, the hypopygium very prominent lanceolate.

(12) *Henicopygus* Ashmead, new genus.

Scutellum triangular, acute at apex; scape dilated and compressed beneath.

(8) *Dinocarsis* Förster.

7. Scutellum subtriangular; head transverse.

Scutellum with two foveæ at base; scape and flagellum *not* at all compressed, cylindrical..... (9) *Ectroma* Westwood = *Sphenolepis* Nees.

Scutellum without foveæ at base; scape broadly dilated beneath, the flagellum compressed, fusiform..... (11) *Anusia* Förster.

Scutellum lunate; head seen from above subquadrate, wider than the thorax, the lateral ocelli rather close to the eye margin; thorax with a silvery pubescence..... (13) *Bæocharis* Mayr.

8. Frons not broad..... 9

Frons broad, sublenticular, the occipital margin acute.

Front wings with the postmarginal and stigmal veins rather long, equal, not or scarcely shorter than the marginal; clypeus excised at apex; antennæ long, filiform, somewhat distant at base, the pedicel shorter than the first joint of funicle.

(14) *Stenoterys* Thomson.

Front wings with the marginal and postmarginal veins very short, the latter scarcely developed, the marginal vein nearly punctiform; clypeus normal; antennæ long, cylindrical, subclavate, the scape slender, the pedicel twice as long as the first joint of funicle..... (15) *Tetracnemoidea* Howard.

9. Axillæ widely separated at inner basal angle; postmarginal vein not developed.

Eyes rounded; antennæ inserted far anteriorly below an imaginary line drawn from the base of the eyes..... (16) *Tetracnemus* Westwood.

Axillæ united at inner basal angle, or at least touching each other.

Eyes bare..... 10

Eyes pubescent.

Marginal vein a little shorter than the stigmal, the postmarginal vein at least as long as the stigmal; flagellum clavate, the funicle joints short, wider than long..... (17) *Habrolepoidea* Howard.

10. Wings fuscous, *with* white rays or bands 11
Wings hyaline.
Marginal vein about three times as long as the stigmal, the postmarginal not longer than the shaft of the stigmal, the latter short, perpendicular; axillæ just meet at inner basal angle; pronotum very short, scarcely visible from above; mesonotum scaly punctate or reticulate.
(18) *Tetralophiellus* Ashmead new genus (Type *T. brevicollis* Ashmead).
Marginal vein only a little longer than the stigmal, the postmarginal vein very short, hardly developed; axillæ meeting at inner basal angle; pronotum not short, conical; mesonotum smooth; antennæ not short, subclavate.....(19) *Tetracladia* Howard
Marginal vein fully twice as long as thick, or about half the length of the stigmal, the postmarginal only slightly developed; antennæ clavate, the club ovate, 3-jointed, much stouter than the funicle, the scape more than twice as long as thick at apex; funicle joints one-fourth longer than thick; pronotum very short, transverse linear; mesonotum microscopically reticulate; hypopygium very prominent, plowshare shaped.
(20) *Tetracnemopsis* Ashmead, new genus (Type *T. westwoodii* Cockerell).
Marginal vein punctiform, not longer than thick, the postmarginal vein *not* developed; antennæ subclavate, the pedicel hardly longer than thick at apex, but longer than the first joint of funicle; funicle joints submoniliform; pronotum very short; mesonotum shagreened or scaly punctate..(21) *Pentacnemus* Howard.
11. Marginal vein about twice as long as thick, not longer than the stigmal, the postmarginal vein hardly so long; axillæ not quite meeting at inner basal angles; antennæ subclavate, inserted close to the mouth, the scape long, slender, only slightly thickened toward apex; funicle joints 1–2 subequal, scarcely longer than thick, the following gradually increasing in thickness; eyes very large; frons narrow; mesonotum smooth, metallic, a little shorter than the scutellum, the latter opaque, shagreened; abdomen ovate, shorter than the thorax, depressed.
(22) *Habrolepopteryx* Ashmead, new genus (Type *Psilophrys pulchripennis* Ashmead).
12. Males.
Epistoma carinate 17
Epistoma not carinate.
Antennæ simple *without* branches, the scape and flagellum sometimes dilated or compressed 13
Antennæ ramose, with 4 branches.
Marginal vein rather long, the stigmal and postmarginal veins short.
Wings with fuscous rays; lateral ocelli nearer to the eye margin than to the front ocellus; axillæ meeting at base of scutellum.
(1) *Calocerinus* Howard.
Wings hyaline; lateral ocelli not nearer to the eye margin than to the front ocellus; axillæ not quite meeting at base of the scutellum.....(2) *Tetralophidea* Ashmead, new genus.
13. Wingless or subapterous forms..... 16
Winged.
Front wings with the marginal vein usually shorter, the stigmal and postmarginal veins short, or the stigmal vein is longer than the short marginal and postmarginal veins united..... 15

Front wings with the marginal vein long or somewhat long, the stigmal and postmarginal veins not short 14

Front wings with the marginal vein linear, longer than the stigmal, the postmarginal vein rather short, hardly so long as the stigmal or clearly shorter, the stigmal vein bent so as to be nearly parallel with it.

Frons and scutellum finely coriaceous, the thorax metallic or submetallic, with silvery hairs; flagellum filiform, the joints subequal, at least three times as long as thick, with long, sparse hairs ..... (4) *Chrysopophagus* Ashmead.

14. Frons minutely shagreened, with some minute punctures scattered over the surface.

Antennæ 9-pointed, with a 4-jointed funicle.

(3) *Meromyzobia* Ashmead, new genus

Antennæ 11-jointed, with a 6-jointed funicle.

Antennæ not longer than the body, the flagellum with the joints closely united and clothed with a short, dense pubescence.

(6) *Ericydnus* Walker.

Antennæ much longer than the body, the flagellum with subpedunculated joints and each joint furnished with two whorls of long hairs ..... (7) *Leptomastix* Förster.

Frons broad, smooth, margaritaceously shining, impunctate.

Antennæ long, filiform, 9-jointed, feebly compressed.

(9) *Ectroma* Westwood.

15. Marginal vein rather short and stout, the stigmal and postmarginal veins very short.

Scape usually broadly dilated below, the flagellum slender, cylindrical.

(10) *Anagyrus* Howard.

Marginal vein normal, not stout.

Stigmal vein long; scape long, dilated and compressed beneath, the flagellum filiform, clothed with a short dense pile; scutellum triangular, acute at apex; body shagreened.

(8) *Dinocarsis* Förster=*Euscapus* Dahlbom.

Stigmal vein short; scape broadly compressedly dilated beneath, the flagellum compressed, fusiform, broadest toward the middle, and gradually tapering off toward apex ..... (11) *Anusia* Förster.

16. Scutellum triangular or subtriangular, never lunate.

Scutellum triangular, acute at tip ..... (8) *Dinocarsis* Förster.

Scutellum subtriangular, rounded off at tip, *not* acute.

Frons shagreened or feebly punctate; scape and flagellum normal, the latter clothed with a short dense pile ..(6) *Ericydnus* Walker.

Frons smooth, shining, somewhat iridescent.

Scutellum *with* two foveæ at base; scape and flagellum *not* at all compressed, cylindrical ..... (9) *Ectroma* Westwood.

Scutellum *without* foveæ at base; scape broadly dilated beneath, the flagellum compressed, fusiform ..... (11) *Anusia* Förster.

Scutellum lunate.

Frons convex, finely coriaceous; scape rather short, clavate, the pedicel twice as long as thick at tip, longer than the first funicle joint ..... (13) *Baeocharis* Mayr.

17. Frons broad.

Axillæ united at inner basal angles.

Antennæ long, fusiform, *without* branches inserted rather high up on the face, the flagellum clothed with sparse black pile.

(14) *Stenoterys* Thomson.

Antennæ *with* four branches, a branch on flagellar joints 1–4.

(15) *Tetracnemoidea* Howard.

Frons *not* broad.

Axillæ widely separated; antennæ with four branches.

(16) *Tetracnemus* Westwood.

Axillæ united or touching each other at their inner basal angles; antennæ simple, or ramose.

Eyes bare 18

Eyes pubescent.

Marginal vein a little shorter than the stigmal, the postmarginal at least as long as the stigmal; flagellum hairy *without* branches ..... (17) *Habrolepoidea* Howard.

18. Antennæ with *four* long branches.

Marginal vein about three times as long as the stigmal, the postmarginal very short; pronotum short, scarcely visible from above.

(18) *Tetralophiellus* Ashmead, new genus.

Marginal vein only a little longer than the stigmal, the postmarginal very short; pronotum *not* short, conical, at least the length of the mesonotum, or a little longer ..... (19) *Tetracladia* Howard.

Marginal vein only twice as long as thick, about half the length of the stigmal, the postmarginal hardly developed; pronotum very short, transverse linear.

(20) *Tetracnemopsis* Ashmead, new genus.

Antennæ with *five* long branches.

Marginal vein punctiform, not half the length of the stigmal, the postmarginal vein wanting ..... (21) *Pentacnemus* Howard.

Tribe II. ENCYRTINI.

The species belonging in this tribe are broad and robust, with broad, stout mandibles which are broadly truncate at apex and edentate or very nearly; the labrum is conspicuous; the antennæ similar in both sexes, the marginal vein in the front wings short, the stigmal and postmarginal veins usually long; in the hind wings the marginal cell is long, broad, and distinct, while the hind tibiæ have two apical spurs.

Only three genera are known, separated as follows:

TABLE OF GENERA.

Metathorax with the lateral ridge, or at least the metapleura, clothed with a silvery white pubescence; spurs of the hind tibiæ unequal, the outer one being very small 2

Metathorax with the lateral ridge bare; spurs of the hind tibiæ nearly equal.

Frons broad, with sparse, thimble-like punctures, thicker toward the scrobes; front wings with the stigmal and postmarginal veins long, nearly equal in length and three or more times longer than the marginal; apical half or more of the wings usually infumated.

Scutellum *with* a bunch of hairs at apex above; first joint of flagellum scarcely so long as the second.

(23) *Encyrtus* Latreille = *Comys* Förster = *Eucomys* Förster.

(Type *Chrysis infidus* Rossi = *Comys scutellata* Swederus.)

Scutellum *without* a bunch of hairs at apex above; first joint of flagellum a little longer than the second.

(24) *Howardiella* Dalla Torre = *Howardia* Dalla Torre.

2. Frons not broad, almost smooth, opaque, or minutely shagreened, at the most with a few minute punctures scattered over the surface; front wings with the stigmal and postmarginal veins unequal, the latter only partially developed, the marginal vein very short, hardly developed; front wings hyaline, but with a discoidal cloud.

(25) *Prionomastix* Mayr = *Liocarus* Thomson.
(Type *Encyrtus morio* Dalman.)

Tribe III. MIRINI.

To this tribe belong the vast majority of the known Encyrtinæ. It is distinguished from the other tribes principally by the mandibles, which are somewhat differently shaped, and *always tridentate at apex*. In most of the genera these have three small equal, or very nearly equal, teeth, while in others the outer tooth is the longest and most acute. One or two genera, however, have the two outer teeth longer than the inner. The marginal cell in the hind wings is usually long and narrow, nearly obsolete, but never very broad, as in the Encyrtini; while the hind tibiæ have only *one* apical spur.

It may be well here to call attention to two tribes founded provisionally, in 1892 and 1895, by Dr. L. O. Howard, since all of one and part of the other belong here, namely, the Tetracnemini,[1] and the Bothriothoracini,[2] which Dr. von Dalla Torre, in the fifth volume of his Catalogus, has elevated to subfamily rank.

The first is an unnatural assemblage of genera, as Dr. Howard has already pointed out, based upon the fact that certain genera have been discovered having ramose antennæ in the males, which in itself, although interesting, is of no tribal significance, since there is scarcely a family in the Order Hymenoptera, from the most specialized to the more generalized, that does not possess one or more genera with this characteristic feature.

The second, or the tribe Bothriothoracini, too, seems to have scarcely any more reason for its existence, being based principally upon the thimble-like punctuation possessed by certain genera, all the other characters mentioned by Dr. Howard, in his diagnosis of the tribe, being common to many other genera. The thimble-like punctuation of certain genera, as well as other styles of punctuation, is a valuable diagnostic character, but of no other value, since I find all intermediate grades, from the strong, thimble-like punctuation possessed by *Bothriothorax*, of varying shades and degrees, down to a perfectly smooth impunctate surface. I consider, therefore, that both tribes are unnatural and not tenable.

The genera of this tribe are exceedingly numerous, about 59 having been recognized. It is believed, however, that all can be easily distinguished by the use of the following table.

[1] Proc. U. S. Nat. Mus., XV, 1892, p. 361. [2] Idem., XVII, 1895, p. 605.

TABLE OF GENERA.

Males 30

Females.

Mandibles shorter, with less acute, equal or nearly equal teeth; labrum not conspicuous; frons frequently, but not always, with a series of large, thimble-like punctures; wings frequently ornate or dusky, although often hyaline; scrobes usually semicircular 5

Mandibles rather long, with acute teeth, the apical tooth usually the longest and more acute than the two inner (rarely with the two outer longer than the inner); labrum conspicuous; frons very closely punctate or finely coriaceous, the thimble-like punctures absent, or the punctures smaller and sparsely scattered over the surface; wings not ornate, and usually with a very short or punctiform marginal vein, the hind wings usually with a long costal cell extending to the hooklets; abdomen usually more or less compressed toward apex, the ventral valve extending as far as the anus but not plowshare shaped; head as viewed from in front usually somewhat long, often much longer than wide, or subtriangular, the scrobes forming a triangle.

Marginal vein distinct, at least twice as long as thick, but usually longer, the postmarginal vein longer than the stigmal 4

Marginal vein punctiform, *not* or scarcely longer than thick (very rarely twice as long as thick), the postmarginal vein not at all or only slightly developed, rarely as long as the stigmal; the stigmal vein comparatively long, always more than twice as long as the marginal, or much longer; body metallic or lustrous 2

2. Head, viewed from in front, not longer than wide, the cheeks, or malar space, not especially long 3

Head, viewed from in front, long, subtriangular, much longer than wide, the cheeks or malar space long.

Front wings *not* ciliate; antennæ very long and slender, the flagellar joints all very long and cylindrical, the sixth being at least four times as long as thick, the preceding still longer.

(26) *Psilophrys* Mayr.

Front wings ciliate.

Pedicel fully three times or more longer than thick at apex.

Antennæ like *Psilophrys*, very long and slender, the scape very long, slender; cheeks not quite the length of the eyes; ovipositor very long ..... (27) *Parapsilophrys* Howard.

Flagellum long and slender, fully or about twice as long as the scape, the funicle joints all long and cylindrical, the club not or hardly thicker than the last joint of the funicle.

(28) *Liothorax* Mayr.

Flagellum scarcely one and a half times as long as the scape, the funicle joints gradually decreasing in length, but all *not* or very little longer than thick, usually transverse; head and mesonotum finely closely punctate or shagreened; frons not especially broad, club much thickened, obliquely truncate from beneath; eyes bare.

(29) *Litomastix* Thomson.

Flagellum *not* long, not much longer than the scape, the funicle joints, except the first, *not* longer than thick, the club

distinctly thickened, broader than the funicle; frons broad; eyes faintly hairy. .....(30) *Berecyntus* Howard.

Pedicel *not* three times as long as thick; cheeks the length of eyes or nearly; antennæ rather long, the funicle joints rarely more than twice as long as thick, gradually thickening apically, the sixth joint, however, never much longer than wide, sometimes wider than long.

(31) *Copidosoma* Ratzeburg.

3. Cheeks more than half the length of the eyes; pedicel scarcely twice as long as thick, the flagellum not long, the joints of the funicle all small except the first, not longer than wide, submonilie form, gradually increasing in size.

(32) *Prionomitus* Mayr.

Cheeks very short, almost obsolete; pedicel three times as long as thick, the flagellum very short, clavate, the joints of the funicle annular, wider than long, the club greatly enlarged, longer than the funicle; mesonotum short, twice as wide as long, the pronotum not visible from above; frons very narrow, the lateral ocelli close to eye margin, the eyes large, rounded, pubescent. .....(33) *Archinus* Howard.

4. Mesonotum smooth, impunctate, blue or metallic; pedicel about thrice as long as thick, the flagellum long, the joints of funicle much longer than thick, the club somewhat stouter than the funicle; eyes pubescent; scutellum, but not the axillæ, shagreened..... (34) *Parencyrtus* Ashmead, new genus.

Mesonotum feebly sparsely punctate, metallic blue-green; pedicel *not* twice as long as thick, the flagellum long and slender, joints 4–5 twice longer than thick, cylindrical, the club 3-jointed, not thicker than the funicle; eyes large, glabrous; scutellum as well as the axillæ sculptured.

(53) *Cerchysius* Westwood (part).

5. Abdomen with the dorsum flat or concave, *not* rigidly pubescent..... 6

Abdomen globose or subovate, much shorter than the thorax, compressed, clothed with a rigid white pubescence, the second segment usually large, smooth medially; species sometimes apterous.

Pronotum large, conical, longer than the mesonotum; antennæ with the scape and flagellum strongly compressed, broad, leaf-like; abdomen globose.

(35) *Mira* Schellenberg=*Encyrtus* Latreille (part)=*Lonchocerus* Dahlbom=*Euryscapus* Förster=*Dicellocerus* Mengel.

Pronotum not large; antennæ simple, the flagellum usually long, subclavate, *not* broad, compressed.

Head above rounded, seen from in front much longer than wide; frons narrow; scape long and slender; scutellum not longer than the mesonotum, coriaceous; abdomen ovate, as long as the thorax .....(36) *Sphæropisthus* Thomson.

Head, seen from in front, *not* longer than wide; frons broad, antennæ not long, inserted on a line with the base of the eyes, the flagellum subclavate, the funicle joints, or at least 3–6, wider than long; scutellum large, longer than the mesonotum; front wings in female with a substigmal cloud; postmarginal and stigmal veins long, the latter nearly parallel with costal margin; abdomen shorter than the thorax, compressed.

(37) *Chestomorpha* Ashmead, new genus.

6. Head *not* or less distinctly lenticular, smooth, shagreened or finely closely punctate, rarely with a few large punctures scattered over the surface; if with large, coarse, thimble-like punctures, the antennæ are inserted on the middle of the face.

Head always distinctly lenticular, the scrobes short, the punctures frequently large, thimble-like; hind wings with the costal cell usually extending to the hooklets.

Marginal vein at least twice as long as thick, usually much longer; mesonotum smooth, impunctate, or finely rugulose 10

Marginal very short, or wanting, punctiform, *not* or scarcely longer than thick; mesonotum punctate.

Mesonotum with the punctuation unlike that of the head, the punctures less dense and the surface coriaceous 8

Mesonotum with the punctuation similar to that of the head 7

7. Scape strongly dilated beneath or with a leaf-like expansion, the club much enlarged, as long or longer than the funicle.

(38) *Enasius* Walker.

Scape not dilated, normal, never with a leaf-like expansion, at most clavate.

Punctures on head and thorax coarse and dense.

Mesonotum very short, only half the length of the scutellum; club of antennæ as long as all the funicle joints united; postmarginal vein as long as the stigmal..(39) *Chalcaspis* Howard.

Mesonotum at least as long as the scutellum; club of antennæ shorter than the funicle; postmarginal vein much shorter than the stigmal .....(40) *Bothriothorax* Ratzeburg.

Punctures on head and thorax smaller and less dense; mesonotum a little longer than the scutellum; funicle joints longer than thick.....(41) *Aratus* Howard.

8. Vertex very narrow or not very broad, sparsely or very feebly punctate, never closely punctate 9

Vertex broad, with a distinct thimble-like punctuation.

Club of antennæ shorter than the funicle; postmarginal and stigmal veins short, subequal .....(42) *Pentelicus* Howard.

Club of antennæ very large, longer than the funicle and pedicel united; postmarginal and stigmal veins very long, the latter the shorter.....(43) *Blepyrus* Howard.

9. Vertex not very narrow, very sparsely and feebly punctate; eyes not especially large, nor nearly occupying the whole sides of the head; scropes rather deep; scape slightly dilated beneath toward apex, the flagellum subclavate ringed with white, the club scarcely thicker than the funicle; ocelli in an obtuse triangle, the lateral farther apart than to middle or front ocellus; wings hyaline, subfuliginous toward base, the marginal vein punctiform, the stigmal longer than the short postmarginal and marginal united.

(44) *Hemænasius* Ashmead, new genus.

Vertex and face very narrow, feebly punctate; eyes very large, occupying nearly the whole sides of the head and almost meeting on vertex; front ocellus placed far in advance of the lateral ocelli, the latter close upon the eye margin; flagellum short, clavate, the pedicel large, obconic; first joint of funicle as well as the following transverse; wings with a large discal cloud beneath stigmal and marginal veins, the postmarginal and stigmal veins very long .....(45) *Euryrhopalus* Howard.

10. Marginal vein rather long, rarely shorter than the stigmal 11
Marginal vein short, rarely much more than twice longer than thick.
Head with some sparse thimble-like or umbilicate punctures; scutellum a little longer than the mesonotum; eyes pubescent.
Club of antennæ not longer than joints 1 and 2 of funicle united, the funicle joints all longer than wide; marginal vein scarcely so long as the stigmal, the postmarginal longer than the stigmal; abdomen conic-ovate, a little longer than the head and thorax united, with the ovipositor subexserted, dorsum subconcave; mandibles with the two outer teeth longer and more acute than the inner.
(46) *Hemencyrtus* Ashmead, new genus.
Club of antennæ very large and distinctly longer than the funicle, the funicle joints all very short, wider than long; abdomen depressed, oval, shorter than the thorax; mandibles with small, subequal teeth.
(47) *Coccophoctonus* Ashmead, new genus.
11. Wings embrowned, the costal cell in hind wings narrow and short; mesonotum scarcely as long as the scutellum, finely shagreened, with sparse punctures; eyes large, bare; flagellum ringed with white; pedicel obconical, only a little longer than thick, the following joints gradually shortening, the last three funiclar joints being not longer than wide.
(48) *Phœnodiscus* Förster.
Wings hyaline, the costal cell in hind wings long and narrow; mesonotum much shorter than the scutellum, finely transversely regulose or shagreened, especially anteriorly; eyes pubescent; flagellum subclavate, *not* ringed with white; pedicel very long, three times as long as thick, the funiclar joints, except the first, wider than long.
(49) *Rhytidothorax* Ashmead, new genus.
12. Antennæ inserted near the mouth border or very far below the middle of the face 13
Antennæ inserted on or a little above the middle of the face.
Frons convex, somewhat coarsely and closely punctured; scape not extending beyond ocelli; mesothorax rather coarsely shagreened; front wings with the marginal, stigmal, and postmarginal veins long, subequal ..... (50) *Tanaoneura* Howard.
Frons highly convex but smooth; scape very long, extending far beyond the ocelli; mesonotum smooth, polished; front wings fasciate or maculate, the marginal vein short, the postmarginal and stigmal veins much longer.
(51) *Hexacladia* Ashmead.
13. Antennæ with the funicle 3, 4, or 5 jointed 29
Antennæ with the funicle 6-jointed.
Metathorax bare or with the lateral ridges superiorly alone pilose 16
Metathorax with the pleura and the lateral ridges always clothed with a dense silvery-white pubescence; body rather robust.
Antennæ in sexes dissimilar, the club *not* thicker than the funicle ... 14
Antennæ in sexes similar, the club strongly obliquely acuminate, conical, often white; front wings most frequently with a fuscous cloud or macula; scape cylindrical, not at all dilated.
Marginal vein *not* punctiform, the stigmal and postmarginal veins rather long, at least twice longer than the marginal.
(52) *Homalotylus* Mayr.

Marginal vein punctiform, the stigmal vein long, curved, the postmarginal vein entirely wanting or punctiform.

(53) *Isodromus* Howard.

14. Marginal and postmarginal veins not very short, the former usually but not always a little longer than the stigmal.

Thorax *without* a white lunula before the tegulæ; ovipositor *not* exserted, or if exserted very slender, the sheaths never broad..... 15

Thorax *with* a white lunula before the tegulæ, rarely without; ovipositor strongly exserted, thick and compressed, the sheaths broad; abdomen rather long, as seen from above conic-ovate..... (54) *Cerchysius* Westwood.

15. Frons rather narrow, the eyes large, converging above, the lateral ocelli lying close to the eye margin; abdomen oval or ovate, the ovipositor not exserted; thorax not closely or deeply punctate; hind wings with the costal cell short and narrow.

(55) *Sceptrophorus* Förster.

Frons not narrow, the eyes smaller and only slightly converging above, the lateral ocelli not close to eye border, distant; scrobes semicircular; abdomen oval, rotund, the ovipositor exserted but very slender; thorax short, closely punctured or with large, deep punctures; hind wings with the costal cell broad and extending to the hooklets.

(56) *Echthroplexis* Förster.

16. Head with the frons prominent, the face inflexed; antennæ frequently strongly compressed, dilated; front wings usually fuscous or with fuscous rays, the marginal vein somewhat thick, oblong, very rarely much shorter or much longer than the stigmal, the postmarginal usually wanting; ovipositor not or scarcely exserted..... 23

Head as viewed from the side, with the frons not prominent; antennæ normal or at the most with the scape compressed; wings hyaline, rarely fuscous or subfuscous, with whitish transverse or hyaline bands, the marginal vein rarely punctiform, but rarely longer than the stigmal vein, the postmarginal vein most frequently developed, rarely wanting or shorter than the marginal or stigmal veins.

Marginal vein *not* short, punctiform but rarely longer than the stigmal, the postmarginal vein most frequently well developed, rarely somewhat shorter than the marginal or stigmal veins . 17

Marginal vein very short, punctiform, rarely longer than thick, the stigmal vein from 2½ to 3 times longer than the marginal, the postmarginal vein wanting, or short, only slightly developed, rarely well developed; scape slender or at most subclavate; body metallic.

Pedicel obconical, much stouter and longer than the first joint of funicle; sometimes as long as 1–2 united; frons rather narrow, the eyes as seen from in front somewhat convergent above; club of antennæ not especially large, shorter than the funicle.

Lateral ocelli close to or touching the eye margin; postmarginal vein not or only slightly developed.

Eyes bare; postmarginal vein *not* developed.

(57) *Ooencyrtus* Ashmead, new genus.

Eyes pubescent; postmarginal vein as long as marginal.

(60) *Ageniaspis* Dahlbom (part).

Lateral ocelli not close to the eye margin, from one and a half to twice their width from it; postmarginal vein somewhat developed ..... (58) *Psyllæphagus* Ashmead, new genus.

Pedicel short, scarcely longer than thick; frons moderate, the ocelli about their width from eye margin; club of antennæ large, the length of funicle or nearly; funicle joints short, submoniliform, the three or four terminal joints wider than long.

(59) *Coccidencyrtus* Ashmead, new genus.

17. Species metallic or submetallic 18

Species not metallic; head and thorax opaque or subopaque, alutaceous, or closely microscopically punctate or shagreened and pubescent.

Postmarginal vein present.

First joint of the funicle shorter than the pedicel, all the funicle joints being short; marginal vein punctiform. (60) *Aphycus* Mayr.

First joint of the funicle much longer than the pedicel, cylindrical, the following gradually shortening but the last is still a little longer than thick ..... (61) *Heterarthrellus* Howard.

Postmarginal vein wanting; joints of funicle increasing in width but not longer than wide ..... (62) *Astymachus* Howard.

18. Thorax *without* a scaly pubescence and *without* white lunulæ before the tegulæ 19

Thorax *with* a scaly pubescence and *with* white lunulæ before the tegulæ.

Scape more or less dilated beneath, especially toward apex, rarely simple, the flagellum ringed with white; wings hyaline, the stigmal and postmarginal veins subequal, longer than the marginal ..... (63) *Blastothrix* Mayr.

19. Scape normal, not expanded or dilated beneath, at most subclavate; wings hyaline 20

Scape dilated or expanded beneath, the club not especially enlarged, shorter than the funicle, the latter usually ringed with white, the first four joints of same longer than wide; front wings usually with fuscous bands or fuscous with hyaline bands or markings ..... (64) *Microterys* Thomson.

20. Thorax smooth, impunctate, or at the most microscopically reticulate, or with fine longitudinal striæ on the mesonotum 21

Thorax finely coriaceous, subopaque, *without* punctures scattered over the surface; frons punctured; postmarginal vein longer than the stigmal.

Scape subclavate, the funicle 6-jointed, the joints wider than long, the club not thicker than the funicle; front wings hyaline with an oblique hairless line from the marginal vein; stigmal and postmarginal veins longer than the marginal; scutellum with a delicate median grooved line at base; stigmal vein as long as the marginal and postmarginal veins united.

(65) *Holcencyrtus* Ashmead, new genus.

21. Mesonotum with fine longitudinal striæ.

Stigmal vein scarcely longer than the marginal, the postmarginal longer than the marginal and stigmal veins united; eyes pubescent; funicle joints 2–4 not longer than wide.

(66) *Ageniaspis* Dahlbom.

Mesonotum smooth, impunctate, or at the most microscopically reticulate.

Stigmal vein very short, *not* or scarcely so long as the marginal and the postmarginal veins united; axillæ meet at their inner basal angles or are separated 22

Stigmal vein much longer than the marginal, as long or longer than the marginal and postmarginal veins united; axillæ do not meet at their inner basal angle; club of antennæ *not* much enlarged, only about half as long as the funicle, the joints of the funicle cylindrical, much longer than wide, never moniliform; abdomen conic-ovate, usually a little longer than the head and thorax united.

(67) *Pseudencyrtus* Ashmead, new genus.

22. Stigmal vein not longer than the marginal and postmarginal veins united, usually distinctly shorter, the postmarginal vein very short or shorter than the stigmal.

Club of antennæ much enlarged, usually as long, longer, or nearly as long as the funicle, and obliquely truncate from beneath, the joints of the funicle, or at least the first three or four joints, moniliform, or not longer than thick, the others transverse, broader than long; abdomen ovate, rarely longer than the head and thorax united, most frequently the length of the thorax or a little longer.

(68) *Epiencyrtus* Ashmead, new genus.

Club of antennæ not much enlarged, nor obliquely truncate from beneath, fusiform, and less than half the length of the funicle, none of the funicle joints wider than long; abdomen short ovate, hardly as long as the thorax.

(69) *Syrphophagus* Ashmead, new genus.

Stigmal vein very short, scarcely so long as the marginal and postmarginal veins united, the former being not more than or hardly twice as long as thick, the postmarginal never well developed, although acuminate and longer than the short marginal; club of antennæ oblong, stouter, and a little more than half the length of the funicle, the first two or three joints of the funicle short or moniliform, the following usually a little longer than thick, or, at most, with only the last two joints a little wider than long; abdomen broadly oval and considerably shorter than the thorax; scutellum variable, subopaquely sculptured or polished, impunctate, the axillæ not quite meeting at their inner basal angles.....(70) *Aphidencyrtus* Ashmead, new genus.

23. Winged species 24

Wingless.

Scutellum triangular, acute at apex, not declivous, antennæ simple, the scrobes deep.....(71) *Choreia* Westwood.

24. Head with the face much inflexed, the scrobes deep, semicircular, the frons most frequently regularly punctate..... 25

Head always semiglobose, the face less distinctly inflexed, the scrobes, however, always forming a semicircle; antennæ simple or at least never much compressed nor very broad, subcylindrical; wings not fusco-radiate; scutellum with a clump of hairs at apex .....(72) *Cheiloneurus* Westwood.

25. Wings fuscous, usually with the extreme tips white or hyaline..... 27

Wings with fuscous rays 26

Wings hyaline, or at most with a discal cloud; antennæ short.

Eyes large, rounded, strongly converging above, and leaving a very narrow or linear vertex; antennæ very short, the club enormously enlarged, longer than the funicle and several times thicker, the joints of the funicle transverse.

(73) *Zaomma* Ashmead, new genus.

Eyes not unusually large, only slightly converging above, the vertex not especially narrow; club of antennæ not unusually enlarged and about the length of the funicle, the joints of the funicle transverse, the first two or three submoniliform.
(74) *Adelencyrtus* Ashmead, new genus.

Wings with leopard-like spots; antennæ very long and slender, longer than the body, the club not enlarged.
(75) *Callipteroma* Motschulsky.

26. Head oblong; antennæ strongly compressed, broad; occipital margin and scutellum normal.....(76) *Cerapterocerus* Westwood.

Head *not* oblong; antennæ neither strongly compressed nor broad; occipital margin medially and superiorly with two strong clavate hairs; scutellum at apex with one or two clumps of stiff, broad bristles or clavate hairs; marginal vein more than twice as long as thick.

Funicle 6-jointed, the joints wider than long, the club not especially large.
(77) *Habrolepis* Förster.

Funicle 4-jointed, the joints fully twice as long as thick, or a little longer, the club very large, fusiform, nearly as long as the funicle and much stouter.....(78) *Homalopoda* Howard.[1]

27. Marginal vein shorter than the stigmal or no longer..... 28

Marginal vein longer than the stigmal; facial impression *not* bounded by a distinct arched carina superiorly.

Head with a series of moderately large punctures; axillæ very narrow, transversely wedge-shaped, with their points just meeting at base of scutellum; scutellum *with* a tuft of bristles at tip.....(79) *Eusemion* Dahlbom.

Head smooth, shining, with very fine, sparse punctures; ocelli in an acute triangle; axillæ united at base of scutellum; scutellum *without* a tuft of bristles.....(80) *Atropates* Howard.

28. Facial impression and scrobes deep, bounded by a distinct arched carina superiorly.

Scutellum *with* a tuft of bristles; stigmal and postmarginal veins very long.....(81) *Chrysoplatycerus* Ashmead.

Scutellum *without* a tuft of bristles; marginal and postmarginal veins subequal, the stigmal a little the longer; eyes naked; ocelli in an acute triangle; funicle not longer than the first joint of the club.....(82) *Asteropæus* Howard.

Scutellum *without* a tuft of bristles; stigmal and postmarginal veins not long; eyes pubescent; joints of the funicle all short and rapidly widening from the narrow pedicel, the club longer than the funicle, obliquely truncate from beneath toward apex; tarsi short and somewhat thickened.
(83) *Anicetus* Howard.

Facial impression *not* bounded by an arched carina superiorly; scutellum normal; eyes pubescent; antennæ short, the scape somewhat broadly dilated toward apex; the flagellum strongly incrassated, scarcely longer than the scape, the very large club longer than the funicle, the joints of funicle annular;

[1] I am satisfied this is the genus Dr. Howard intended to name *Habrolepoidea*, and not the one which now bears the name, and through some clerical error the names were transposed. This resembles and has an affinity with *Habrolepis*, while the other has not a particle of resemblance or relationship. The name *Homalopoda* also fittingly describes the structural characteristics of the genus now bearing the name *Habrolepoidea*.

marginal vein punctiform, the stigmal and postmarginal veins very long, as in *Encyrtus* (Comys) sens. str.
(84) *Zarhopalus* Ashmead, new genus.

29. Antennæ 10-jointed, the funicle 5-jointed.
Scape linear, wholly received in the scrobes; marginal vein punctiform.
(85) *Metallon* Walker.
Antennæ 9-jointed, the funicle 4-jointed.....(86) *Cercobelus* Walker.
Antennæ 6-jointed, the funicle 3-jointed.....(87) *Coccobius* Ratzeburg.

30. Males.
Mandibles with the teeth shorter, less acute; labrum *not* conspicuous; frons punctate and frequently with a series of large, thimble-like punctures; wings often ornate, wanting or much abbreviated 34
Mandibles rather long, with acute teeth, the apical one usually larger and more acute than the other two; labrum conspicuous; frons very closely punctate or shagreened, the large punctures wanting; front wings *not* ornate, usually with a punctiform or very short marginal vein, the hind wings usually with a long costal cell, which extends to the hooklets; head rather narrow, as viewed from in front, somewhat long, subtriangular, the scrobes forming a triangle.
Postmarginal vein distinctly longer than the stigmal 33
Postmarginal vein wanting or hardly developed, the marginal vein very short or punctiform 31

31. Head, viewed from in front, not longer than wide, the cheeks not long..... 32
Head, viewed from in front, much longer than wide, the cheeks long.
Front wings *without* marginal cilia; antennæ very long and slender, the flagellar joints all very long, the sixth the shortest, but five times as long as wide.....(26) *Psilophrys* Mayr.
Front wings *with* marginal cilia.
Pedicel three or more times longer than thick at apex, the flagellum with long hairs.
Funicle joints about four times as long as thick, cylindrical; mesonotum and scutellum shagreened.
(27) *Parapsilophrys* Howard.
Funicle less than thrice as long as thick; mesonotum reticulate.
(28) *Liothorax* Mayr.
Pedicel *not* three times as long as thick, the flagellum clothed with long hairs.....(31) *Copidosoma* Ratzeburg.

32. Cheeks about half the length of the eyes; funiclar joints 1–5 triangularly toothed, with long hairs.....(32) *Prionomitus* Mayr.
Cheeks very short; eyes large, rounded, pubescent; pedicel thrice as long as thick .....(33) *Archinus* Howard.

33. Mesonotum lustrous, smooth, blue or metallic.
Pedicel about thrice as long as thick, the flagellum filiform or subfiliform, with short, sparse pubescence, the funicle joints from two and a half to three times as long as thick; the first very long, four or more times longer than thick; eyes pubescent; postmarginal vein very long.
(34) *Parencyrtus* Ashmead, new genus.

34. Abdomen with the dorsum flat or concave, not rigidly pubescent 35
Abdomen subglobose or subovate, clothed with a rigid white pubescence.
Pronotum large, conical; antennæ strongly compressed, broad; wings poorly developed or wanting, not extending to middle of abdomen. (Fully developed wings probably occur.)
(35) *Mira* Schellenberg.

Pronotum not large; antennæ simple, neither compressed nor broad.

Head, seen from in front, much longer than wide; marginal vein not short; antennæ long, the flagellum subclavate, clothed with a short, dense pubescence.

(36) *Sphæropisthus* Thomson.

Head, seen from in front, *not* longer than wide; marginal vein very short, the postmarginal vein longer than the stigmal; flagellum filiform, the joints nearly thrice as long as thick.

(37) *Chestomorpha* Ashmead, new genus.

35. Head not or less distinctly lenticular, opaque, minutely, closely punctate, shagreened, or smooth and shining, at the most with only a few large punctures 39

Head transversely broad, always lenticular, the scrobes short, the punctures large, thimble-like; hind wings with the costal cell usually extending to the hooklets.

Marginal vein rarely short, at least longer than thick, and usually much longer; mesonotum smooth, impunctate, or at most shagreened 37

Marginal vein very short, punctiform, not or scarcely longer than thick; mesonotum punctate.

Mesonotum with the punctuation unlike that of the head, the punctures less dense and the surface finely coriaceous; postmarginal and stigmal veins short, subequal 36

Mesonotum with the punctuation similar to that of the head; postmarginal vein very short or subobsolete (rarely long), the stigmal vein long.

Scape normal, *without* a leaf-like expansion beneath.

Punctures on head and thorax coarse and dense.

Mesonotum very short, only about half the length of the scutellum; postmarginal vein usually as long as the stigmal; flagellum long, with long sparse hairs, not arranged in half whorls ..... (39) *Chalcaspis* Howard.

Mesonotum at least as long as the scutellum or very nearly; postmarginal vein much shorter than the stigmal; flagellum with funicle joints subexcised at apex, with half whorls of long hairs ..... (40) *Bothriothorax* Ratzeburg.

Punctures on head and thorax smaller and less dense; mesonotum a little longer than the scutellum.

(41) *Aratus* Howard.

36. Vertex and face broad, finely shagreened, and sparsely punctate; scrobes deep semicircular.

Pedicel obconical, longer than thick at apex, the flagellum subclavate, the joints, after the first, wider than long.

(42) *Pentelicus* Howard.

Pedicel very minute, the flagellum filiform, pilose, the joints subequal, about two and one-half times as long as thick.

(43) *Blepyrus* Howard.

Vertex and face very narrow, or not broad.

Head with coarse thimble-like punctures, the thorax smooth, impunctate; flagellum short, thick, filiform, clothed with a dense short pubescence, the joints wider than long.

(38) *Aenasius* Walker.

Head smooth without coarse thimble-like punctures, at the most with some sparse punctures on the vertex; flagellum long, subclavate, not thick and only sparsely pubescent.

(45) *Eurythopalus* Howard.

37. Marginal vein rather long, rarely shorter than the stigmal 38
Marginal vein rarely more than twice as long as thick, head with rather sparse, scattered, umbilicate punctures, the scutellum a little longer than the mesonotum.
Head not wider than the thorax between the wings; flagellum not short, filiform, and clothed with rather short sparse hairs, the funicle joints longer than wide, the first a little the longest .....(46) *Hemencyrtus* Ashmead, new genus.
Head wider than the thorax between the wings; flagellum short, strongly clavate, as in the female; the club large and longer than the funicle, the joints of the latter minute annular.
(47) *Coccophoctonus* Ashmead, new genus.

38. Mesonotum as long as the scutellum or nearly, rarely somewhat shorter, the surface finely shagreened, at most with some feebly defined sparse punctures; marginal vein shorter than the stigmal, the latter not very short; flagellum filiform, pilose, the funicle joints about twice as long as thick; eyes bare.....(48) *Phænodiscus* Förster.
Mesonotum much shorter than the scutellum, finely delicately shagreened or rugulose especially anteriorly; marginal vein a little longer than the stigmal; flagellum subclavate, densely pubescent, the funicle joints 2–6 not longer than thick, if anything a little wider than long; eyes pubescent.
(49) *Rhytidothorax* Ashmead, new genus.

39. Antennæ inserted near the mouth border or far below the middle of the face 40
Antennæ inserted on or a little above the middle of the face.
Frons subconvex, somewhat coarsely and closely punctate; thorax rather coarsely shagreened or finely regulose; scape not extending beyond ocelli; front wings with the marginal, postmarginal and stigmal veins long, subequal.
(50) *Tanaoneura* Howard.
Frons highly convex, smooth and polished, as is also the thorax; scape long, extending far beyond the ocelli; front wings with the marginal, postmarginal, and stigmal veins rather short, the marginal thickened with a fuscous cloud or band beneath; flagellum with 6 long branches.
(51) *Hexacladia* Ashmead.

40. Antennæ with the funicle 2, 3, 4, or 5-jointed 57
Antennæ with the funicle 6-jointed (in a single case 2-jointed).
Metathorax bare, or with the lateral ridges superiorly alone pilose 44
Metathorax with the pleura and the lateral ridges always clothed with a dense silvery pubescence; body rather robust 41

41. Antennæ unlike those of the female, filiform, pilose, or with whorls of hairs, or the funicle joints dentate or subpeduncnlate, with whorls or fascicles of hairs 42
Antennæ similar to those of the female, filiform or at most subclavate, the club conical, strongly obliquely truncate from beneath, often white, the scape cylindrical, not at all dilated; front wings usually with a discoidal fuscous cloud or macula.
Marginal vein *not* punctiform, although short, the stigmal and postmarginal veins long, very much longer than the marginal.
(52) *Homalotylus* Mayr.
Marginal vein punctiform, the stigmal vein long, the postmarginal vein not developed or wanting.....(53) *Isodromus* Howard.

42. Marginal and postmarginal veins not very short, the former usually a little longer than the stigmal, rarely somewhat shorter.
Thorax without white lunulæ before the tegulæ 43
Thorax, with white lunulæ, or at least a dot, before the tegulæ
(54) *Cerchysius* Westwood.

43. Hind wings, with the costal cell short and narrow.
Antennæ long; the flagellum long, cylindrical, clothed with long, sparse hairs; the funicle joints long.
(55) *Sceptrophorus* Förster = *Trichomasthus* Thomson.
Hind wings with the costal cell broad and extending as far as the hooklets.
(56) *Echthroplexis* Förster.

44. Head with the frons prominent, the face inflexed; antennæ frequently compressed, dilated, broad; front wings usually with fuscous rays or fuscous with white tips, more rarely hyaline, apterous or subapterous; marginal vein usually somewhat thickened, oblong, very rarely much longer or much shorter than the stigmal, the postmarginal frequently wanting 51
Head, as seen from the side, with the frons not prominent; wings most frequently hyaline, although sometimes with transverse fuscous bands or fuscous with white bands.
Marginal vein not short, punctiform, but rarely longer than the stigmal, always more than twice longer than thick, the postmarginal most frequently well developed, rarely somewhat shorter than the marginal 45
Marginal vein very short, punctiform, rarely longer than thick, the stigmal from two and a half to three times or more longer than the marginal; the postmarginal wanting or very short, not well developed; scape slender or at most subclavate, never dilated; frons usually rather narrow, the eyes, as seen from in front, slightly converging above.
Flagellum with the hairs on the funicle joints not arranged in half whorls.
Lateral ocelli touching the eye margin; flagellum with long hairs.
Eyes bare; postmarginal vein not developed or so slightly developed as not to be considered.
(57) *Ooencyrtus* Ashmead, new genus.
Eyes pubescent; postmarginal vein as long as the marginal.
(66) *Ageniaspis* Dahlbom (part).
Lateral ocelli not close to the eye margin; postmarginal vein somewhat developed; flagellum filiform, with a short pubescence.
(58) *Psyllæphagus* Ashmead.
Flagellum with the hairs on the funicle joints arranged in half whorls.
(59) *Coccideneyrtus* Ashmead, new genus.

45. Species metallic or submetallic 46
Species *not* metallic; head and thorax opaque or subopaque, alutaceous, closely microscopically punctate or shagreened, and pubescent.
Postmarginal vein present.
Pedicel longer than the first joint of funicle; flagellum clothed with hairs, the funicle joints, except its first two or three, not or scarcely longer than thick .....(60) *Aphycus* Mayr.
Pedicel very short; flagellum elongate, the club only slightly enlarged, the funicle joints elongate, cylindrical, and clothed with sparse, long hairs.....(61) *Heterarthrellus* Howard.
Postmarginal vein wanting.

Pedicel as long as the first funicle joint; flagellum subclavate, the club not quite so long as funicle joints 4–6 united, first joint of funicle the longest, the following gradually shortening, clothed with a short, rather dense pubescence.

(62) *Astymachus* Howard.

46. Thorax *without* a scaly pubescence and *without* white lunulæ before the tegulæ. 47
Thorax *with* a scaly pubescence and *with* white lunulæ before the tegulæ.

Flagellum elongate, the funicle joints long, excised or subexcised at apex with whorls of long hairs .....(63) *Blastothrix* Mayr.

47. Scape normal, not expanded or dilated beneath, at the most subclavate; wings hyaline 48
Scape usually dilated or expanded beneath, or at least with a carina, rarely simple, unlike the female; wings fuscous or subfuscous, with transverse hyaline bands, rarely hyaline.

Thorax smooth but microscopically coriaceous, with sparse punctures scattered over the surface; frons with a series of punctures, especially on the orbits .....(64) *Microterys* Thomson.

48. Thorax finely coriaceous, subopaque, without punctures scattered over the surface; frons punctate; scutellum with a delicate impressed median line; wings pubescenct, with an oblique hairless line from base of stigmal vein; flagellum subfiliform, clothed with a short, dense pubescence, the funicle joints a little wider than long.

(65) *Holcencyrtus* Ashmead, new genus.

Thorax smooth, impunctate, or at the most microscopically reticulate, or with fine longitudinal striæ on the mesonotum.

Mesonotum smooth, impunctate, or at the most microscopically reticulate. 49
Mesonotum with fine longitudinal striæ.

Stigmal vein scarcely longer than the marginal, the postmarginal vein longer than the marginal and stigmal veins united; eyes pubescent .....(66) *Ageniaspis* Dahlbom.

49. Stigmal vein very short, *not* or scarcely so long as the marginal and postmarginal veins united; axillæ meet at their inner basal angles . 50
Stigmal vein much longer than the marginal, as long or longer than the marginal and postmarginal veins united; axillæ do not quite meet at their inner basal angles.

Antennæ with the scape rather short and stout, not reaching to the front ocelli, the flagellum elongate filiform, clothed with sparse moderately long hairs, the funicle joints about thrice as long as thick, or nearly.

(67) *Pseudencyrtus* Ashmead, new genus.

Antennæ with the scape long, slender, reaching to or beyond the front ocelli, the flagellum elongate, filiform, the funicle joints more than twice longer than wide, with long sparse hairs; scutellum shagreened or striate.

(64) *Microterys* Thomson (part).

50. Stigmal vein *not* longer than the marginal and postmarginal veins united, usually distinctly shorter, the postmarginal very short, or shorter than the stigmal...(68) *Epiencyrtus* Ashmead, new genus.

Antennæ with the scape short, not extending beyond the middle of the face, the flagellum filiform, sparsely pilose, the funicle joints about two and a half times as long as thick; lateral ocelli about or nearly twice their width from eye margin.

(69) *Syrphophagus* Ashmead, new genus.

Stigmal vein very short, scarcely so long as the marginal and postmarginal united, the former being not more than or hardly twice as

long as thick, the postmarginal never well developed, although acuminate and longer than the short marginal.

Flagellum filiform, pilose, the joints of funicle about twice as long as thick; lateral ocelli at least their width from eye margin.

(70) *Aphidencyrtus* Ashmead, new genus.

51. Scutellum neither triangular nor acute at apex 51

Scutellum triangular, acute at apex.

Antennæ simple, subfiliform, pubescent .....(71) *Choreia* Westwood.

52. Funicle 6-jointed 53

Funicle 2-jointed, the club unusually long and cylindrical (teste Mayr).

(77) *Habrolepis* Förster.

53. Head with vertex antero-posteriorly broad, the face much inflexed, the frons regularly punctate; antennæ with the scape and flagellum usually strongly compressed, broad; wings fuscous or with fuscous rays 54

Head always semiglobose, the face less distinctly inflexed, the scrobes always forming a semicircle; antennæ simple, filiform, the joints long, cylindrical, distinctly separated and hairy, rarely slightly compressed; wings usually fusco-radiate or partly fuscous, rarely entirely hyaline.

Scape elongate, extending to or beyond the middle ocellus, the flagellum very long, clothed with rather long hairs.

(72) *Cheiloneurus* Westwood=*Sterrhocoma* Förster, male.

54. Wings fuscous, with narrow white tips 55

Wings hyaline, the marginal vein rather long, stout, as long as the stigmal vein, the latter not short, the postmarginal not developed; antennæ long, filiform, the flagellum with sparse moderately long hairs; funicle joints 1–6 constricted at apex or subpedunculate, somewhat similar to the male in *Eurytoma* .....(76) *Cerapterocerus* Westwood.

55. Marginal vein shorter than the stigmal 56

Marginal vein longer than the stigmal.

Facial impression not bounded by a distinct carina superiorly.

(79) *Eusemion* Dahlbom.

56. Facial impression and scrobes deep, bounded by a high carina superiorly.

Scutellum with a tuft of bristles; stigmal and postmarginal veins very long.

(80) *Chrysoplatycerus* Ashmead.

Scutellum *without* a tuft of bristles; stigmal and postmarginal veins not long .....(83) *Anicetus* Howard.

Facial impression not bounded by a carina superiorly.

(84) *Zarhopalus* Ashmead, new genus.

57. Antennæ 10-jointed, with a 5-jointed funicle.....(85) *Metallon* Walker.

Antennæ 9-jointed, the funicle 4-jointed .....(86) *Cercobelus* Walker.

Antennæ 6-jointed, the funicle 3-jointed.....(87) *Coccobius* Ratzeburg.

Antennæ 5-jointed, the funicle 2-jointed, the club unusually long and cylindrical.....(77) *Habrolepis* Förster.

Tribe IV. ARRHENOPHAGINI.

This tribe is proposed for two genera differing decidedly from the other tribes in mandibular characters, as well as in general habitus. The mandibles are acutely pointed or conical, and edentate; the tarsi 4 or 5 jointed; while the marginal vein is wanting or punctiform, the postmarginal vein wanting, the stigmal vein sometimes present.

TABLE OF GENERA.

Tarsi 4-jointed 2
Tarsi 5-jointed.
Front wings with the marginal vein punctiform, the postmarginal wanting, the stigmal rather short and curved; female with 10-jointed antennæ, the funicle 5-jointed, joints 1–3 small, wider than long; ovipositor exserted. (88) *Rhopoideus* Howard.
2. Front wings with the marginal and stigmal veins wanting, the subcostal vein not quite attaining the costal edge and terminating in a stigma, female with 3-jointed, male with 9-jointed antennæ.....(89) *Arrhenophagus* Aurivillius.

Subfamily II. ENCYRTINÆ.

Tribe I. ECTROMINI.

1. CALOCERINUS Howard.

1892. *Calocerinus* Howard, Proc. U. S. Nat. Mus., XV, p. 269.

1. CALOCERINUS FLORIDANUS Ashmead.

(Type, *Tetracnemus floridanus* Ashmead.)

Tetracnemus floridanus Ashmead, Tr. Am. Ent. Soc., XVII, 1885, Proc., p. xviii, male.

Calocerinus floridanus Howard, Proc. U. S. Nat. Mus., XV, 1892, p. 368.

Type.—Cat. No. 4718, U.S.N.M. (Ashmead collection.)
Habitat.—Florida: Jacksonville.

2. TETRALOPHIDEA Ashmead, new genus.

(Type, *Tetralophidea bakeri* Ashmead.)

This genus comes nearest to *Calocerinus* Howard, but the head is not quite so large nor so broad proportionately; the lateral ocelli are more distant from the eye margin, being about three times as far from the eye margin as their diameter; the pronotum is shorter; the mesonotum and scutellum are less convex; the wings are clear hyaline, not fuscous with white bands, as in *Calocerinus*; while the abdomen is proportionately longer.

The genus is readily separated from *Calocerinus*, the only one with which it shows any affinity, by the hyaline wings and the position of the ocelli.

1. TETRALOPHIDEA BAKERI Ashmead, new species.

Male.—Length, 1.5 to nearly 2 mm. Head and thorax aeneous black, the mesopleura blue; mandibles dark rufous or ferruginous, bidentate; legs aeneous with all the tarsi brown-black or dark fuscous. Head and thorax above with a distinct metallic luster, and microscopically reticulate or shagreened, the face with some scattered punctures. Antennæ 11-jointed, inserted below the middle of the face, the flagellum with four long pilose branches, a branch on joints 1–4; pedicel obconical, scarcely longer than thick at apex, funicle 6-jointed, the first joint annular, the fourth elongate, more than twice longer than the three preceding, the

fifth and sixth also elongate, but shorter than the fourth; club fusiform, indistinctly 3-jointed. Mesonotum subdepressed in front of the scutellum; axillæ not quite meeting at base of scutellum; metathorax short, with the hind angles smooth, bare. Wings hyaline, the venation mostly dark-brown or piceous, the submarginal vein, except at apex, pale yellowish; marginal vein about thrice as long as the stigmal, the postmarginal short, not longer than the stigmal, the latter being short, subpetiolate and ending in a knob. Legs aeneous black, the hind coxæ metallic green, the tarsi brown-black or fuscous, the anterior and middle tarsi basally and the middle tibial spur, yellowish.

Types.—Cat. Nos. 5082–5085, U.S.N.M. (Carl F. Baker collection.)

Habitat.—Colorado.

3. MEROMYZOBIA Ashmead, new genus.

(Type, *Ericydnus maculipennis* Ashmead.)

Stature and general appearance of *Ericydnus* Walker, but readily distinguished from it and allied genera by its antennal characters, the funicle being only 4-jointed, with two small ring-joints. It is the only genus in the tribe *Ectromini* with two ring-joints, and includes wingless or subapterous forms, as well as those with wings fully developed.

Head transverse, viewed from in front rounded, the frons subconvex, finely shagreened or coriaceous, with a few minute punctures scattered over the surface. Mandibles bidentate. Antennæ 11-jointed—scape, pedicel, two ring-joints, a 4-jointed funicle, and a 3-jointed club. Pronotum conical, the hind margin obtusely triangularly emarginate; mesonotum smooth, a little wider than long; scutellum about two-thirds the length of the mesonotum, with the axillæ touching each other at their inner basal angles; metathorax short, about one-third the length of the scutellum, smooth. Winged form with the wings hyaline, but banded, or at least maculate with fuscous; the marginal vein is somewhat long, linear; the stigmal is always shorter than the marginal and issues obliquely at an angle of less than 30 degrees; the postmarginal vein is a little longer than the stigmal, but shorter than the marginal. Abdomen conic-ovate, and usually a little longer than the thorax.

The species in this genus, whose parasitism is known, destroy Dipterous larvæ belonging to the genus *Meromyza*. The following are the species of our fauna:

1. MEROMYZOBIA AMERICANA Ashmead.

Prionomastix americana Ashmead, Ent. Amer., IV, 1888, p. 16, male.—Dalla Torre Cat. Hym., V, 1898, p. 265.

Type.—Cat. No. 4719, U.S.N.M. (Ashmead collection.)

Habitat.—Florida.

2. MEROMYZOBIA BIFASCIATA Ashmead.

Homalotylus bifasciatus Ashmead, Bull. No. 1, Colo. Biol. Assoc., 1890, p. 28, female.—Dalla Torre Cat. Hym., V, 1898, p. 246.

Type.—Cat. No. 4720, U.S.N.M. (Ashmead collection.)
Habitat.—Colorado.

3. MEROMYZOBIA FLAVICINCTA Ashmead.

Choreia flavicincta ASHMEAD, Ent. Amer., IV, 1888, p. 17, female.—DALLA TORRE Cat. Hym., V, 1898, p. 248.

Type.—Cat. No. 4721, U.S.N.M. (Ashmead collection.)
Habitat.—Florida.

4. MEROMYZOBIA MACULIPENNIS Ashmead.

Ericydnus maculipennis ASHMEAD, Bull. Ohio Exper. Sta., I, 1893, p. 162, female.—DALLA TORRE, Cat. Hym., V, 1898, p. 249.

Type.—Cat. No. 4722, U.S.N.M. (Ashmead collection.)
Habitat.—Ohio.
Host.—Dipt.: *Meromyza americana* Fitch; *?Chlorops ingrata* Williston.

5. MEROMYZOBIA FLAVA Ashmead, new species.

Male.—Length, 1.6 mm. Brownish-yellow; the trochanters, base of hind tibiæ, tibial spurs and tarsi, except terminal joints, yellowish white; eyes purplish brown; flagellum brown; wings hyaline, the marginal and stigmal veins brown. Abdomen short oval.

Antennæ 9-jointed (scape, pedicel, 4 funicle joints and an indistinctly 3-jointed club); the flagellum is subcompressed, the joints of the funicle about thrice as long as wide or the fourth is somewhat shorter; the club is longer than the slender scape, 3-jointed, but the sutures separating the joints are made out with difficulty; the pedicel is very small, hardly longer than thick.

Type.—Cat. No. 4723, U.S.N.M. (Ashmead collection.)
Habitat.—District of Columbia.

6. MEROMYZOBIA UNIFASCIATA Ashmead, new species.

Female.—Length, 2 mm. Brownish-yellow; the middle lobe of scutellum, the metanotum, and the middle tibiæ, except distal ends, obfurcated; hind femora, their tibiæ, except basal two-thirds, which is white, and their tarsi, fuscous. Abdomen black, with the basal segment yellowish. Wings, hyaline, with a large discoidal fuscous cloud beneath the marginal and stigmal veins.

Type.—Cat. No. 4724, U.S N.M. (Ashmead collection.)
Habitat.—Mississippi: Utica.

4. CHRYSOPOPHAGUS Ashmead.

1894. *Chrysopophagus* ASHMEAD, Ins. Life, VII, p. 246.
(Type, *Chrysopophagus compressicornis* Ashmead.)

1. CHRYSOPOPHAGUS BANKSI Howard.

Chrysopophagus banksi HOWARD, Proc. U. S. Nat. Mus., XXI, 1898, p. 247, female.

Type.—Cat. No. 3851, U.S.N.M.
Habitat.—Texas: College Station; New Mexico: Mesilla Park.

2. CHRYSOPOPHAGUS COMPRESSICORNIS Ashmead.

Chrysopophagus compressicornis ASHMEAD, Ins. Life, VII, 1894, p. 246, female and male.—DALLA TORRE, Cat. Hym., V, 1898, p. 267.

Type.—Cat. No. 1465, U.S.N.M.
Habitat.—Mississippi: Utica.
Host.—Neurop.: *Chrysopa attenuata* Walker.

5. TINEOPHOCTONUS Ashmead, new genus.

(Type, *Phœnodiscus armatus* Ashmead.)

This genus also resembles *Ericydnus* Walker, but the abdomen is longer, more compressed, and terminates in a long, prominent ovipositor, while the venation of the front wings is different, the marginal vein being long, linear, while the stigmal and postmarginal veins are very short.

Two species belong here, *Phœnodiscus armatus* Ashmead, and *Leptomastix tineœvora* Ashmead, the latter being based upon a specimen that had the ovipositor broken off.

1. TINEOPHOCTONUS ARMATUS Ashmead.

Phœnodiscus armatus ASHMEAD, Ent. Amer., IV, 1888, p. 17, female.—DALLA TORRE, Cat. Hym., V, 1898, p. 229.

Type.—Cat. No. 4725, U.S.N.M. (Ashmead collection.)
Habitat.—Florida.

2. TINEOPHOCTONUS TINEÆVORA Ashmead.

Leptomastix tineœvora ASHMEAD, Tr. Am. Ent. Soc., XIV, 1887, p. 191, female; Ent. Amer., IV, 1888, p. 16, female.—DALLA TORRE, Cat. Hym., V, p. 253.

Type.—Cat. No. 4726, U.S.N.M. (Ashmead collection.)
Habitat.—Florida: Jacksonville.
Host.—Lepid.: Tineid sp. living in galls of *Andricus pattoni* Bassett.

6. ERICYDNUS Walker.

1837. *Ericydnus* WALKER, Ent. Mag., IV, p. 363.
1860. *Pezobius* FÖRSTER, Verh. d. naturh. Ver. pr. Rheinl., XVII, p. 129 (wingless form).

(Type, *Encyrtus longicornis* Dalman.)

1. ERICYDNUS ÆNEIVENTRIS Walker.

Encyrtus æneiventris WALKER, Ent. Mag., IV, 1837, p. 447, female.
Pezobius polychromus FÖRSTER, Verh. naturh. Ver. pr. Rheinl., XVII, 1860, p. 130, female.
Ericydnus æneiventris MAYR, Verh. Zool.-bot. Ges. Wien, XXV, 1875, pp. 764, 765, female.—DALLA TORRE, Cat. Hym., V, 1898, p. 249.

Habitat.—Europe.

2. ERICYDNUS CHRYSCUS Walker.

Pteromalus? chryscus WALKER, Monogr. Chalcid., II, 1839, p. 34, female.
Ericydnus chryscus WALKER, List Hym. Brit. Mus. Chalc., I, 1846, p. 53.—DALLA TORRE, Cat. Hym., V, 1898, p. 249.

Habitat.—Australia.

3. ERICYDNUS LATIUSCULUS Thomson.

Ericydnus latiusculus THOMSON, Hym. Skand., IV, 1875, p. 125, female and male.—DALLA TORRE, Cat. Hym., V, 1898, p. 249.

Habitat.—Europe: Sweden.

4. ERICYDNUS LONGICORNIS Dalman.

Encyrtus longicornis DALMAN, Svensk. Vet.-Akad. Handl., XLI, 1820, p. 165, male.
Encyrtus strigosus NEES, Hym. Ichn. Affin. Monogr., II, 1834, p. 227, female.—WALKER, Ent. Mag., IV, 1837, p. 364.
Encyrtus longicornis NEES, Hym. Ichn. Affin. Monogr., II, p. 251, male.
Encyrtus baleus WALKER, The Entomologist, 1841, pl. H. fig. 1, female.
Encyrtus longicornis RATZEBURG, Ichn. d. Forstins., I, 1844, p. 192, female.
Ericydnus amnestus WALKER, Ann. Mag. Nat. Hist. (2), V, 1850, p. 133, female.
Ericydnus strigosus WALKER, Notes on Chalcid., Pt. 5, 1872, p. 72, fig.; The Entomologist, VI, 1872, p. 113, fig.
Ericydnus longicornis MAYR, Verh. Zool.-bot. Ges. Wien, XXV, 1875, pp. 763, 764, female.—THOMSON, Hym. Skand., IV, 1875, p. 124, female and male.—DALLA TORRE, Cat. Hym., V, 1898, p. 249.

Habitat.—Europe.

5. ERICYDNUS MEGALARUS Walker.

Eulophus megalarus WALKER, Ent. Mag., V, 1838, p. 477, female.
Ericydnus megalarus WALKER, List Hym. Brit. Mus. Chalcid., I, 1846, p. 54.—DALLA TORRE, Cat. Hym., V, 1898, p. 249.

Habitat.—Australia

6. ERICYDNUS REINHARDII Mayr.

Ericydnus reinhardii MAYR, Verh. Zool.-bot. Ges. Wien, XXV, 1875, pp. 764, 765.—DALLA TORRE, Cat. Hym., V, 1898, p. 249.

Habitat.—Europe: Austria.

7. ERICYDNUS VENTRALIS Dalman.

Encyrtus longicornis var. *ventralis* DALMAN, Svensk. Vet.-Akad. Handl., XLI, 1820, p. 166.
Ericydnus paladatus WALKER, Ent. Mag., IV, 1837, p. 363, female and male.—BLANCHARD, Hist. nat. d. Ins., III, 1840, p. 276.—WESTWOOD, Intr. Mod. Class. Ins., II, 1840, Synop., p. 72.—SIX, Tijdschr. v. Entom., 1876, p. 134, female; pl. 6, fig. 1.
Ericydnus ventralis MAYR, Verh. Zool.-bot. Ges. Wien, XXV, 1875, pp. 764, 765, female and male.—THOMSON, Hym. Skand., IV, 1875, p. 125.—DALLA TORRE, Cat. Hym., V, 1898, p. 250.

Habitat.—Europe.
Host.—Rhynch.: *Pulvinaria vitis* Linnæus.

7. LEPTOMASTIX Förster.

1856. *Leptomastix* FÖRSTER, Hym. Stud., II, p. 34.

(Type, *Leptomastix histrio* Mayr.)

1. LEPTOMASTIX DACTYLOPII Howard.

Leptomastix dactylopii HOWARD, Bull. No. 5, U. S. Dept. Agric., Div. Ent., 1885, p. 36, female and male.—CRESSON, Syn. Hym., N. A., 1887, p. 239.—DALLA TORRE, Cat. Hym., V, 1898, p. 253.

Type.—Cat. No. 2649, U.S.N.M.

Habitat.—District of Columbia; West Indies; Grenada.

Host.—Rhynch.: *Dactylopius destructor* Comstock.

2. LEPTOMASTIX HISTRIO Mayr.

Leptomastix histrio MAYR, Verh. Zool.-Bot. Ges. Wien, XXV, 1875, p. 730, female and male.—DALLA TORRE, Cat. Hym., V, 1898, p. 253.

Habitat.—Europe.

8. DINOCARSIS Förster.

1856. *Dinocarsis* FÖRSTER, Hym. Stud., II, p. 33.
1857. *Euscapus* DAHLBOM, Öfvers. Svensk. Vet.-Akad. Förh., XIV, p. 292.

(Type, *Encyrtus hemipterus* Dahlbom.)

1. DINOCARSIS THYRIDOPTERYGIS Ashmead.

Dinocarsis thyridopterygis ASHMEAD, Can. Ent., XVIII, 1886, p. 97, female. CRESSON, Syn. Hym. N. A., p. 240.—DALLA TORRE, Cat. Hym., V, p. 248.

Type.—Cat. No. 4727, U.S.N.M. (Ashmead collection.)

Habitat.—Florida: Jacksonville.

Host.—Lepid.: *Thyridopteryx ephemeraeformis* Haworth.

9. ECTROMA Westwood.

1833. *Ectroma* WESTWOOD, Phil. Mag. (3), III, p. 344.
1834. *Sphenolepis* NEES, Ichn. Hym. Affin. Monogr., II, 1834, p. 256.
1856. *Aglyptus* FÖRSTER, Hym. Stud., II, p. 33.

(Type, *Eupelmus rufus* Dalman.)

1. ECTROMA AMERICANUM Howard.

Ectroma americanum HOWARD, Proc. U. S. Nat. Mus., XXI, 1898, p. 248, female.

Type.—Cat. No. 3852, U.S.N.M.

Habitat.—New Mexico: Mesilla.

2. ECTROMA DUNENSE Six.

Etroma dunense SIX, Tijdschr. v. Ent., XIX, 1876, p. 134, pl. VI, fig. 2.—DALLA TORRE, Cat. Hym., V, 1898, p. 238.

Habitat.—Europe: Bavaria.

3. ECTROMA MADERENSE Walker.

Ectroma maderense WALKER, Notes on Chalcid., Pt. 7, p. 116, female.—DALLA TORRE, Cat. Hym., V, 1898, p. 238.

Habitat.—Africa: Madeira.

4. ECTROMA PYGMÆUM Nees.

Sphenolepis pygmœa NEES, Ichn. Hym. affin. Monogr., II, 1834, p. 256, female.—DALLA TORRE, Cat. Hym., V, 1898, p. 249.

Habitat.—Europe.

5. ECTROMA REATE Walker.

Encyrtus reate WALKER, Ann. and Mag. Nat. Hist., XX, 1847, p. 22, male.—CRESSON, Syn. Hym. N. A., 1887, p 239.—DALLA TORRE, Cat. Hym., V, 1898, p. 262.

Habitat.—Florida.

6. ECTROMA RUFUM Dalman.

Eupelmus? rufus DALMAN, Svensk. Vet. Akad. Handl., XLI, 1820, p. 383, female.
? Eupelmus rufescens NEES, Hym. Ichn. affin. Monogr., II, 1834, p. 80.
? Ectroma rufescens NEES, Hym. Ichn. affin. Monogr., II, 1834, p. 420, male.
Encyrtus lindus WALKER, Ent. Mag., IV, 1837, p. 451, female.
Ectroma rufus WESTWOOD, Intrs. Mod. Class. Ins., II, 1840, Syn., p. 72, male.
Aglyptus lindus FÖRSTER, Hym. Stud., II, 1856, p. 36.
Dicelloceras rufescens SIX, Tijdschr. v. Ent., X, 1867, p. 221, pl. 10, fig. K.
? Ectroma rufescens WALKER, Notes on Chalc., Pt. 5, 1872, pp. 74, 78, fig.; The Entomologist, VI, 1872, p. 131, fig.
Ectroma rufa THOMSON, Hym. Skand., IV, 1875, p. 126.
Ectroma rufum MAYR, Verh. Zool.-bot. Ges., XXV, 1875, p. 767, female.—DALLA TORRE, Cat. Hym., V, 1898, p. 238.

Habitat.—Europe.

10. ANAGYRUS Howard.

1896. *Anagyrus* HOWARD, Proc. U. S. Nat. Mus., XVIII, p. 638.

(Type, *Anagyrus greenii* Howard.)

1. ANAGYRUS GREENII Howard.

Anagyrus greenii HOWARD, Proc. U. S. Nat. Mus., XVIII, 1896, p. 639, female and male.—DALLA TORRE, Cat. Hym., V, 1898, p. 266.

Type.—Cat. No. 3257, U.S.N.M.
Habitat.—Ceylon.
Host.—Rhynch.: *Maskellia zonata* Green.

2. ANAGYRUS PALLIDIPES Ashmead, new species.

Male.—Length, 1.8 mm. Black, with some sparse silvery hairs on thorax above and on metapleura; antennæ black but the club is wholly white and there is a white annulus at apex of the scape; the latter has a very broad leaf-like expansion beneath; legs, except the hind coxæ, brownish-yellow; wings hyaline, the venation brown.

Type.—Cat. No. 4728, U.S.N.M. (Ashmead collection.)
Habitat.—District of Columbia.

3. ANAGYRUS PULCHER Ashmead.

Dinocarsis pulcher ASHMEAD, Ent. Amer., IV, 1888, p. 17. female.—DALLA TORRE, Cat. Hym., V, 1898, p. 248.

Type.—Cat. No. 4729, U.S.N.M. (Ashmead collection.)
Habitat.—Florida.

4. ANAGYRUS PULCHRICORNIS Howard.

Cerchysius pulchricornis HOWARD, Journ. Linn. Soc. Lond. Zool., XXV, p. 87, female.—DALLA TORRE, Cat. Hym., V, 1898, p. 244.

Type in British Museum.

Habitat.—West Indies: St. Vincent.

5. ANAGYRUS TEREBRATUS Howard.

Cerchysius terebratus HOWARD, Journ. Linn. Soc. Lond. Zool., XXV, 1894, p. 87, female and male.—DALLA TORRE, Cat. Hym., V, 1898, p. 244.

Type in British Museum.

Habitat.—West Indies: St. Vincent.

11. ANUSIA Förster.

1856. *Anusia* FÖRSTER, Hym. Stud., II, p. 32.

(Type, *Ectroma fulvescens* Westwood.)

1. ANUSIA FULVESCENS Westwood.

Ectroma fulvescens WESTWOOD, Phil. Mag. (3), III, 1833, p. 344.

Anusia nasicornis FÖRSTER, Verh. naturh. Ver. pr. Rheinl., XVIII, 1860, p. 133, female.

Anusia austriaca FÖRSTER, Verh. naturh. Ver. Rheinl., XVIII, 1860, p. 133, female.

Anusia fulvescens MAYR, Verh. Zool.-bot. Ges. Wien, XXV, 1875, p. 769, female.

Habitat.—Europe.

2. ANUSIA HEYDENII Mayr.

Anusia heydenii MAYR, Verh. Zool.-bot. Ges. Wien, XXV, 1875, p. 770, female.—DALLA TORRE Cat. Hym., V, 1898, p. 237.

Habitat.—Europe.

3. ANUSIA NEOMEXICANA Ashmead, new species.

Female.—Length, 1.65 mm. Ferruginous, with metallic or violaceous reflections, and clothed with a silvery pubescence; scutellum croceous; mesopleura posteriorly golden, the metapleura clothed with a dense silvery pile; hind legs brown, the coxæ violaceous. Flagellum compressed fusiform, not longer than the large foliaceously dilated scape, black; all the funicle joints are wider than long. Scape and pedicel reddish-brown.

Type.—Cat. No. 4730, U.S.N.M. (Ashmead collection.)

Habitat.—New Mexico: Las Cruces.

Described from a single specimen taken by Prof. T. D. A. Cockerell.

12. HENICOPYGUS Ashmead, new genus.

(Type, *Henicopygus subapterus.*)

Allied to *Meromyzobia* and *Ericydnus*, but differs decidedly in the much larger, broader head, in having the lateral ocelli much farther away from the eye margin, the flagellum broader, strongly compressed,

the axillæ separated, not meeting at base of the scutellum, while the abdomen is strongly compressed, a little longer than the head and thorax united, with a prominent, exserted ovipositor and a large, prominent lanceolate hypopygium, which projects far beyond the tip of the abdomen. Wings much abbreviated, hardly developed.

1. HENICOPYGUS SUBAPTERUS Ashmead, new species.

Female.—Length, 2–2.5 mm.; to tip of ovipositor, about 3 mm. Ground color of head, thorax, and legs is ferruginous, but the head above the antennæ, including the vertex, and the thorax above are bronzed or metallic brown; the mesopleura superiorly show a decided violaceous tinge, while the abdomen is black above, blue-black beneath; the ovipositor black at apex, whitish on basal two-thirds.

The small joints, upon which the antennæ are inserted, are unusually long, well developed, black; scape brownish-yellow, the pedicel and flagellum black. Wings very short, scarcely developed, and not extending to the apex of the first abdominal segment, brown, but with a white transverse band near the middle.

Type.—Cat. No. 5083, U.S.N.M. (Carl F. Baker collection.)

Habitat.—Colorado.

13. BÆOCHARIS Mayr.

1875. *Bæocharis* MAYR, Verh, Zool.-bot. Ges. Wien, XV, p. 767.

(Type, *Bæocharis pascuorum* Mayr.)

1. BÆOCHARIS PASCUORUM Mayr.

Bæocharis pascuorum (FÖRSTER) MAYR, Verh. Zool.-bot. Ges. Wien, XXV, 1875, p. 768, female and male.—VOLLENHOVEN, Pinacogr., 1878, p. 55, pl. 35, fig. 9.—WACHTL, Wien. ent. Zeitg., I, 1882, p. 298.—DALLA TORRE, Cat. Hym., V, 1898, p. 239.

Habitat.—Europe.

The species *Bæocharis marlatti* Ashmead, is an Aphelinine and does not belong here.

14. STENOTERYS Thomson.

1875. *Stenoterys* THOMSON, Hym. Skand., IV, pp. 115, 128.

(Type, *Stenoterys orbitalis* Thomson.)

This genus is unknown to me in nature, and is included in my table from Thomson's description alone. It seems to come very close to *Leptomastix* Förster.

1. STENOTERYS ORBITALIS Thomson.

Stenoterys orbitalis THOMSON, Hym. Skand., IV, 1875, p. 129, female and male.—DALLA TORRE, Cat. Hym., V, 1898, p. 238.

Habitat.—Europe.

15. TETRACNEMOIDEA Howard.

1898. *Tetracnemoidea* HOWARD, Proc. U. S. Nat. Mus., XXI, p. 232.
(Type, *Tetracnemoidea australiensis* Howard.)

1. TETRACNEMOIDEA AUSTRALIENENSIS Howard.

Tetracnemoidea australiensis HOWARD, Proc. U. S. Nat. Mus., XXI, p. 232, female and male.

Type.—Cat. No. 5022, U.S.N.M.
Habitat.—Australia: Sidney.
Host.—Rhynch.: *Dactylopius* sp. on *Pittsporum.*

16. TETRACNEMUS Westwood.

1837. *Tetracnemus* WESTWOOD, Mag. Nat. Hist., I, p. 258.
(Type, *Tetracnemus diversicornis* Westwood.)

1. TETRACNEMUS DIVERSICORNIS Westwood.

Tetracnemus diversicornis WESTWOOD, Mag. Nat. Hist., I, 1837, p. 258, male, fig. 25.—WESTWOOD, Intro. Mod. Class. Ins., II, 1840, synop., p. 73.—HOWARD, Ins. Life, III, 1890, p. 149, fig. 21.—HOWARD, Proc. U. S. Nat. Mus., XV, 1892, p. 363.—DALLA TORRE, Cat. Hym., V, 1898, p. 230.

Habitat.—Europe: England, Germany (Ashmead).

17. HABROLEPOIDEA Howard.

1894. *Habrolepoidea* HOWARD, Journ. Linn. Soc. Lond. Zool., XXV, p. 89.
(Type, *Habrolepoidea glauca* Howard.)

1. HABROLEPOIDEA GLAUCA Howard.

Habrolepoidea glauca HOWARD, Journ. Linn. Soc. Lond Zool., XXV, p. 90, female.—DALLA TORRE, Cat. Hym., V, 1898, p. 240.

Type.—Cat. No. 2717, U.S.N.M.; also in British Museum.
Habitat.—West Indies: St. Vincent.

18. TETRALOPHIELLUS Ashmead, new genus.

(Type, *Tetralophiellus brevicollis.*)

This genus is allied to *Tetracladia* Howard, but may be easily separated by the longer marginal vein, which is about three times as long as the stigmal, by the axillæ, which meet at their inner basal angles, and by the much shorter pronotum, which is scarcely visible from above.

1. TETRALOPHIELLUS BREVICOLLIS Ashmead, new species.

Male.—Length, 1.2 mm. Bronzed green, the mesopleura bluish or purplish; legs brown-black, all tibiæ with a white annulus at base, the tips of anterior and middle tibiæ and all tarsi, except the last joint, whitish. The antennæ are black, with funicle joints 1–4 each, furnished with a long, hairy branch. Head shagreened, the mesonotum scaly-punctate, the scutellum smoother but with delicate reticulate lines. Wings hyaline, the veins brown.

Type.—Cat. No. 4731, U.S.N.M. (Ashmead collection.)
Habitat.—Florida: Jacksonville.

19. TETRACLADIA Howard.

1892. *Tetracladia* HOWARD, Proc. U. S. Nat. Mus., XV, p. 367.
(Type, *Tetracladia texana* Howard.)

1. TETRACLADIA GRACILIS Howard.

Tetracladia gracilis HOWARD, Proc. U. S. Nat. Mus., XV, 1892, p. 368, male.—DALLA TORRE, Cat. Hym., V, 1898, p. 230.

Type.—Cat. No. 1486, U.S.N.M. (Ashmead collection.)
Habitat.—Florida.

2. TETRACLADIA TEXANA Howard.

Tetracladia texana HOWARD, Proc. U. S. Nat. Mus., XV, 1892, p. 367, male.—DALLA TORRE, Cat. Hym., V, p. 230.

Type.—Cat. No. 1485, U.S.N.M.
Habitat.—Texas.

20. TETRACNEMOPSIS Ashmead, new genus.

(Type, *Tetracnemus westwoodii* Cockerell.)

Differs from *Tetracnemus* Westwood in having the marginal vein fully twice as long as thick, about half the length of the stigmal, the postmarginal vein developed, the pronotum transverse linear, the scutellum longer than the mesonotum, while the axillæ meet just in front of the scutellum.

The female, which was unknown to Cockerell, has the head, seen from in front, longer than wide, the eyes large, the face and forehead narrowed; the antennæ are 11-jointed, inserted close to the clypeus with a distinct carina between, the scape obclavate, the flagellum clavate, the club enlarged, ovate, thrice as thick as the funicle; while the hypopygium is prominent, plowshare shaped, and projects considerably beyond the tip of abdomen.

The pedicel and first four joints of funicle are white, the scape, last two joints of funicle and the club, dark brown.

1. TETRACNEMOPSIS WESTWOODII Cockerell.

Tetracnemus westwoodii COCKERELL, Can. Ent., XXX, 1898, p. 224, male.

Cotype (male).—Cat. No. 4847, U.S.N.M.
Type (female).—Cat. No. 4732, U.S.N.M.
Habitat.—Colorado: Fort Collins. (C. P. Gillette.)

21. PENTACNEMUS Howard.

1892. *Pentacnemus* HOWARD, Proc. U. S. Nat. Mus., XV, p. 366.

(Type, *Pentacnemus bucculatricis* Howard.)

1. PENTACNEMUS BUCCULATRICIS Howard.

Pentacnemus bucculatricis HOWARD, Proc. U. S. Nat. Mus., XV, 1892, p. 366.—DALLA TORRE, Cat. Hym., V, 1898, p. 230.

Type.—Cat. No. 1488, U.S.N.M.
Habitat.—Missouri.
Host.—Lepid.: *Bucculatrix thuiella* Packard.

22. HABROLEPOPTERYX Ashmead, new genus.

(Type, *Psilophrys pulchripennis* Ashmead.)

The colorational pattern of the front wings in this genus is similar to that in *Habrolepis* Förster, but otherwise there is not a particle of affinity between the two genera, since structurally they are widely separated.

The species was originally described in the genus *Psilophrys* on account of the long head. It has, however, no relation whatever with that genus, not even belonging to the same tribe.

The rather full structural characters given in my table render a fuller description here unnecessary, since no one could go astray in placing so characteristic a genus.

1. HABROLEPOPTERYX PULCHRIPENNIS Ashmead.

Psilophrys pulchripennis Ashmead, Ent. Amer., IV, 1888, p. 16, female.—Dalla Torre, Cat. Hym., V, 1898, p. 253.

Type.—Cat. No. 4733, U.S.N.M. (Ashmead collection.)
Habitat.—Florida: Jacksonville.

Tribe II. ENCYRTINI.

23. ENCYRTUS Latreille.

1809. *Encyrtus* Latreille, Gen. Crust. et Ins., IV, p. 31.
1856. *Eucomys* Förster, Hym. Stud., II, p. 32.
1856. *Comys* Förster, Hym. Stud., p. 144.
1898. *Eucomys* Dalla Torre, Cat. Hym., V, p. 239.

(Type, *Chrysis infidus* Rossi=*Comys scutellata* Swederus.)

1. ENCYRTUS ALBICOXA Ashmead.

Comys albicoxa Ashmead, Tr. Am. Ent. Soc., XII, 1885, Proc., p. xvi, female and male.—Cresson, Syn. Hym. N. A., 1887, p. 239.
Eucomys albicoxa Dalla Torre, Cat. Hym., V, 1898, p. 239.

Type.—Cat. No. 4734, U.S.N.M. (Ashmead collection.)
Habitat.—Florida: Jacksonville.
Host.—Rhynch.: *Dactylopius adonidum* Linnæus.

2. ENCYRTUS ALBITARSIS Zetterstedt.

Encyrtus albitarsis Zetterstedt, Ins. Lappon., I, 1838, p. 432, female.
Comys albitarsis Mayr, Verh. Zool.-bot. Ges. Wien, XXV, 1875, p. 741, female.—Vollenhoven, Pinacogr., 1879, p. 55, female; pl. xxxv, fig. 3.
Eucomys albitarsis Dalla Torre, Cat. Hym., V, 1898, p. 239.

Habitat.—Europe.
Host.—Rhynch.: *Lecanium* sp.

3. ENCYRTUS BICOLOR Howard.

Comys bicolor HOWARD, Rep. U. S. Dept. Agric., 1880-81, p. 362, female and male; pl. XXIII, fig. 3.—CRESSON, Syn. Hym. N. A., 1887, p. 239.—DALLA TORRE, Cat. Hym., V, 1898, p. 239.

Type.—Cat. No. 2606, U.S.N.M.

Habitat.—United States; Canada; West Indies (Grenada).

Host.—Rhynch.: *Lecanium hesperidum* Linnæus.

4. ENCYRTUS FUSCA Howard.

Comys fusca HOWARD, Rep. U. S. Dept. Agric., 1880-81, p. 363, female and male.—CRESSON, Syn. Hym. N. A., 1887, p. 239.—DALLA TORRE, Cat. Hym., V, 1898, p. 239.

Chiloneurus maculatipennis PROVANCHER, Add. Fn. Can. Hym., 1887, p. 208, female.—DALLA TORRE, Cat. Hym., V, 1898, p. 242.

Type.—Cat. No. 2607, U.S.N.M.

Habitat.—United States; Canada.

Host.—Rhynch.: *Lecanium* sp.

5. ENCYRTUS INFIDUS Rossi.

Chrysis infidus ROSSI, Fauna Etrusca, II, 1790, p. 80.

Chrysis? infida ILLIGER, Fauna Etrusca, 2d ed., II, 1807, p. 128.

Encyrtus infidus LATREILLE, Gen. Crus. and Ins., IV, 1809, p. 31.—SPINOLA, Ann. Mus. Hist. Nat., XVII, 1811, p. 149.

Cynipsillum infidum LAMARCK, Hist. Nat. Anim. s. Vertr., IV, 1817, p. 157.

Encyrtus infidus LEPELETIER, Encycl. Mith. Ins., X, 1825, p. 66.

Cynipsillum infidum LAMARCK, Encycl. Mith. Ins., 2d ed., IV, 1835, p. 368.

Encyrtus infidus BLANCHARD, Hist. Nat. Ins., III, 1840, p. 275.—DALLA TORRE, Cat. Hym., V, 1898, p. 259.

Pteromalus scutellatus SWEDERUS, Svensk. Vet.-Akad. Handl., XVI, 1895, p. 218.

Encyrtus scutellaris DALMAN, Svensk. Vet.-Akad. Handl., XLI, 1820, pp. 150, 370, pl. XXIII, figs. 57, 58.—CURTIS, Brit. Ent., IX, 1832, p. 395.—NEES, Hym. Ichn. Affin. Monog., II, 1834, p. 221.—WALKER, Ent. Mag., V, 1837, p. 104, female.—ZETTERSTEDT, Ins. Lappon, I, 1838, p. 432.—WESTWOOD, Intro. Mod. Class. Ins., 1840, Synop., p. 73.—RATZEBURG, Ichn. d. Forstins., I, 1844, p. 212.—KAWALL, Stettin. Ent. Zeitg., XVI, 1855, p. 231.—THOMSON, Hym. Skand., IV, 1875, p. 119, female and male.

Comys scutellata MAYR, Verh. Zool.-bot. Gesell. Wien, XXV, 1875, pp. 741, 742.

Eucomys scutellata DALLA TORRE, Cat. Hym., V, 1898, p. 240.

Habitat.—Europe; North America.

Host.—Rhynch.: *Lecanium aceris* Bouché, *L. coryli* Geoffroy.

In my collection are several varieties, or what I take to be varieties, of this species, as well as the typical form of *Encyrtus scutellatus* Swederus taken in various parts of the United States.

6. ENCYRTUS LECANIORUM Mayr.

Eucomys lecaniorum (KOLLAR) FÖRSTER, Hym. Stud., II, 1856, pp. 6-34 [s. descr.].

Comys lecaniorum MAYR, Verh. Zool.-bot. Ges. Wien, XXV, 1875, pp. 740, 741, female.

Eucomys lecaniorum DALLA TORRE, Cat. Hym., V, 1898, p. 239.

Habitat.—Europe; North America.

Host.—Rhynch.: *Lecanium* sp.

7. ENCYRTUS OBSCURA Dalman.

Encyrtus obscura DALMAN, Svensk. Vet.-Akad. Handl., XLI, 1820, p. 164, male.
Encyrtus scutellaris FONSCOLOMBE, Ann. Sc. Nat., XXVI, 1832, p. 304.
Encyrtus longicornis FONSCOLOMBE, Ann. Sc. Nat., XXVI, 1832, p. 305.
Encyrtus obscurus NEES, Hym. Ichn. Affin. Monogr., II, 1834, pp. 223, 434.
Encyrtus scutellaris NEES, Hym. Ichn. Affin. Monogr., II, 1834, p. 433.
Encyrtus obscurus WALKER, Ent. Mag., V, 1837, p. 105, male.
Eucomys obscurus FÖRSTER, Hym. Stud., II, 1856, p. 34.
Comys obscrura MAYR, Verh. Zool.-bot. Ges. Wien, XXV, 1875, pp. 741, 742, female and male.
Encyrtus obscura THOMSON, Hym. Skand., IV, 1875, p. 120, female and male.
Eucomys obscura DALLA TORRE, Cat. Hym., V, 1898, p. 239.

Habitat.—Europe.
Host.—Rhynch.: *Pulvinaria carpini* Linnæus.

8. ENCYRTUS SWEDERI Dalman.

Encyrtus swederi DALMAN, Svensk. Vet.-Akad. Handl., XLI, 1820, pp. 152, 370, female.
Encyrtus lunatus DALMAN, Svensk. Vet.-Akad. Handl., XLI, 1820, p. 156, female.
Encyrtus hirticornis DALMAN, Svensk. Vet.-Akad. Handl., XLI, 1820, p. 162.
Choreia vitis CURTIS, Guide, Arrange. Brit. Ins., 1829, p. 138.
Encyrtus vitis CURTIS, Brit. Ent., IX, 1832, p. 395, pl. CCCXCV.—HERRICH-SCHAEFFER, Faun. Ins. Germ., 1844, p. 184, pls. V, VI.
Encyrtus lunatus NEES, Hym. Ichn. Affin. Monogr., II, 1834, p. 203.—ZETTERSTEDT, Ins. Lappon, I, 1838, p. 432, female.
Encyrtus hirticornis NEES, Hym. Ichn. Affin. Monogr., II, 1834, p. 223.—BLANCHARD, Hist. Nat. Ins., III, 1840, p. 275.
Encyrtus swederi RATZEBURG, Ichn. d. Forstins., III, 1852, p. 190, female.—GOUREAU, Ann. Soc. Ent. France (4), III, 1863, Bull., p. iv.
Eucomys swederi FÖRSTER, Hym. Stud., II, 1856, p. 34.
Encyrtus swederi THOMSON, Hym. Skand., IV, 1875, p. 121, female and male.
Comys swederi MAYR, Verh. Zool.-bot. Ges. Wien, XXV, 1875, pp. 741, 742, female and male.—VALLENHOVEN, Pinacogr., 1879, p. 55, female and male; pl. XXXV, figs. 1, 2.
Eucomys swederi DALLA TORRE, Cat. Hym., V, 1898, p. 240.

Habitat.—Europe.
Host.—Rhynch.: *Pulvinaria vitis* Linnæus.

24. HOWARDIELLA Dalla Torre.

1897. *Howardia* DALLA TORRE, Wien. Ent. Zeitg., XVI, p. 86 (nec Targ-Tozg).
1898. *Howardiella* DALLA TORRE, Cat. Hym., V, p. 228.

(Type, *Bothriothorax peckhami* Ashmead.)

1. HOWARDIELLA PECKHAMI Ashmead.

Bothriothorax peckhami ASHMEAD, Tr. Am. Ent. Soc., XIII, 1886, p. 132, female and male.—CRESSON., Syn. Hym. N. A., 1887, p. 240.
Comys peckhami HOWARD, Proc. U. S. Nat. Mus., XVII, 1895, p. 611.
Howardia peckhami DALLA TORRE, Wien. Ent. Zeitg., XVI, 1897, p. 86.
Howardiella peckhami DALLA TORRE, Cat. Hym., V, p. 228.

Type.—Cat. No. 4735, U.S.N.M. (Ashmead collection.)
Habitat.—Wisconsin.

25. PRIONOMASTIX Mayr.

1875. *Prionomastix* MAYR, Verh. Zool.-bot. Gesell. Wien, XXV, p. 725.
1875. *Liocarus* THOMSON, Hym. Skand., IV, pp. 115, 121.

(Type, *Encyrtus morio* Dalman.)

1. PRIONOMASTIX MORIO Dalman.

Encyrtus morio DALMAN, Svensk. Vet.-Akad. Handl., XLI, 1820, p. 164, male.—NEES, Ichn. Affin. Monogr., II, 1834, p. 229, male.
Prionomastix morio MAYR, Verh. Zool.-bot. Ges. Wien, XXV, 1875, p. 726, male.
Liocarus morio THOMSON, Hym. Skand., IV, 1875, p. 122, male.
Prionomastix morio DALLA TORRE, Cat. Hym., V, 1898, p. 266.

Habitat.—Europe.

Tribe III. MIRINI.

26. PSILOPHRYS Mayr.

1875. *Psilophrys* MAYR, Verh. Zool.-bot. Gesell. Wien, XXV, p. 727.

(Type, *Encyrtus longicornis* Walker.)

1. PSILOPHRYS LONGICORNIS Walker.

Encyrtus longicornis WALKER, Ann. and Mag. Nat. Hist., XIX, 1847, p. 229, female.
Psilophrys longicornis MAYR, Verh. Zool.-bot. Ges. Wien, XXV, 1875, p. 728, female and male.—DALLA TORRE, Cat. Hym., V, 1898, p. 253.

Habitat.—Europe.
Host.—Rhynch.: *Lecanium* sp.

2. PSILOPHRYS ARMATA Ashmead.

Psilophrys armatus ASHMEAD, Ent. Am., IV, 1888, p. 16, female and male.
Psilophrys armata DALLA TORRE, Cat. Hym., V, 1898, p. 253.

Type.—Cat. No. 4736, U.S.N.M. (Ashmead collection.)
Habitat.—Florida; Colorado.

3. PSILOPHRYS PALLIDIPES Ashmead.

Psilophrys pallipes ASHMEAD, Bull. No. 3, Kans. Exp. Sta., 1888, Append., V, p. 1, female.

Type.—Cat. No. 4737, U.S.N.M. (Ashmead collection.)
Habitat.—Kansas: Manhattan.

27. PARAPSILOPHRYS Howard.

1898. *Parapsilophrys* HOWARD, Proc. U. S. Nat. Mus., XXI, p. 232.

(Type, *Parapsilophrys gelechiæ* Howard.)

1. PARAPSILOPHRYS GELECHIÆ Howard.

Parapsilophrys gelechiæ Howard, Proc. U. S. Nat. Mus., XXI, 1898, p. 232, female and male.

Type.—Cat. No. 5023, U.S.N.M.
Habitat.—Wyoming: Jetsam.
Host.—Lepid.: *Gelechia*, sp. on cottonwood.

28. LIOTHORAX Mayr.

1875. *Liothorax* MAYR, Verh. Zool.-bot. Ges. Wien, XXV, p. 728.

(Type, *Encyrtus glaphyra* Walker.)

1. LIOTHORAX GLAPHYRA Walker.

Encyrtus glaphyra WALKER, Ent. Mag., IV, 1837, p. 454, male.

Liothorax glaphyra MAYR, Verh. Zool.-bot. Ges. Wien, XXV, 1895, p. 729, female and male.—DALLA TORRE, Cat. Hym., V, 1898, p. 54.

Habitat.—Europe.

2. LIOTHORAX MELANOCERA Ashmead, new species.

Female.—Length, 1.6 mm. Head, thorax, except above, and the mesopleura and abdomon æneous black; mesopleura bluish; mesonotum and scutellum metallic green or cuperous, recticulates; head anteriorly and on cheeks metallic; antennæ long black; the scape long and slender, the pedicel fully thrice as long as thick, obconical, flagelium subclavate, but slender, gently thickening toward club. Wings hyaline. Ovipositor slender, exserted fully one-half the length of abdomen. Legs vary from an æneous black to a metallic brown-black, with the knees and the anterior and middle tarsi pale yellowish.

Type.—Cat. No. 4738, U.S.N.M. (Ashmead collection.)

Habitat.—District of Columbia.

29. LITOMASTIX Thomson.

1875. *Litomastix* THOMSON, Hym. Skand., IV, p. 171.

(Type, *Encyrtus chalconotus* Dalman.)

1. LITOMASTIX ANNELLUS Thomson.

Litomastix annellus THOMSON, Hym. Skand., IV, 1875, p. 181, female.—DALLA TORRE, Cat. Hym., V, 1898, p. 244.

Habitat.—Europe: Sweden.

2. LITOMASTIX AURICOLLIS Thomson.

Litomastix auricollis THOMSON, Hym. Skand., IV, 1875, p. 175, female and male.—DALLA TORRE, Cat. Hym., V, 1898, p. 245.

Habitat.—Europe: Sweden.

3. LITOMASTIX CHALCONOTUS Dalman.

Encyrtus chalconotus DALMAN, Svensk. Vet. -Akad. Handl., XLI, 1820, p. 169, pl. VIII, fig. 61.—NEES, Hym. Ichn. Affin. Monog., II, 1834, pp. 232, 434.

Encyrtus serriconis DALMAN, Hym. Ichn. Affin. Menog., II, 1820, p. 360, male.—NEES, Hym. Ichn. Affin. Menog., II, 1834, p. 244.—WALKER, Ent. Mag., IV, 1837, p. 26, male.

Encyrtus mitreus WALKER, Ent. Mag., IV, 1839, p. 35, female.

Copidosoma chalconotus MAYR, Verh. Zool.-bot. Ges. Wien, XXV, 1875, pp. 734, 735, 739.

Litomastix chalconotus THOMSON, Hym. Skand., IV, 1875, p. 173, female and male.—DALLA TORRE, Cat. Hym., V, 1898, p. 245.

Habitat.—Europe.

Host.—Lepid.: *Depressaria nervosa* Haworth, *Eupithecia succenturiata* Linnæus, *E. pimpinellata* Hübner, *E. oblongata* Thunburg, *E. lariciata* Freyer, *Geometra galiaria* Hübner, *G. rubidaria* Fabricius, *G. sinuaria* Hübner, and *Tortrix* sp.

4. LITOMASTIX DIVERSICORNIS Howard.

Copidosoma diversicornis Howard, Journ. Linn. Soc. Lond. Zool., XXV, 1894, p. 92, female.—Dalla Torre, Cat. Hym., V, 1898, p. 243.

Type.—Cat. No. 2719, U.S.N.M.; also in British Museum.

Habitat.—West Indies: St. Vincent.

5. LITOMASTIX FILICORNIS Dalman.

Encyrtus filicornis Dalman, Svensk. Vet.-Akad. Handl., XLI, 1820, p. 351, female.—Nees, Hym. Ichn. Affin. Monog., II, 1834, p. 241, female.

Encyrtus didius Walker, Ent. Mag., IV, 1837, p. 452, female.

Copidosoma? filicornis Förster, Hym. Stud., II, 1856, p. 38.

Copidosoma filicorne Mayr, Verh. Zool.-bot. Ges. Wien, XXV, 1875, pp. 734, 735, 737, female and male.

Litomastix filicornis Thomson, Hym. Skand., IV, 1875, p. 180, female and male.—Dalla Torre, Cat. Hym., V, 1898, p. 245.

Habitat.—Europe.

Host.—Lepid.: *Lita alsinella* Zeller.

6. LITOMASTIX FLAGELLARIS Dalman.

Encyrtus flagellaris Dalman, Svensk. Vet.-Akad. Handl., XLI, 1820, p. 350, female.—Nees, Hym. Ichn. Affin. Monogr., II, 1834, p. 240, female.

Encyrtus anceus Walker, Ent. Mag., IV, 1837, p. 452.

Encyrtus tegularis Ratzeburg, Ichn. d. Forstins., III, 1852, p. 190.

Copidosoma flagellaris Förster, Hym. Stud., II, 1856, p. 38.

Copidosoma? anceus Förster, Hym. Stud., II, 1856, p. 38.

Copidosoma flagellare Mayr, Verh. Zool.-bot. Ges. Wien, XXV, 1875, pp. 734, 737.—Wachtl, Wien. Ent. Zeit., I, 1882, p. 297, female.

Litomastix flagellaris Thomson, Hym. Skand., IV, 1875, p. 179, female and male.—Dalla Torre, Cat. Hym., V, 1898, p. 245.

Habitat.—Europe.

Host.—Lepid.: *Cerostoma radiatella* Donovan.

7. LITOMASTIX FUSCISQUAMA Thomson.

Litomastix fuscisquama Thomson, Hym. Skand., IV, 1875, p. 177, female and male.—Dalla Torre, Cat. Hym., V, 1898, p. 245.

Habitat.—Europe: Sweden.

8. LITOMASTIX GENALIS Thomson.

Litomastix genalis Thomson, Hym. Skand., IV, 1875, p. 178, female and male.—Dalla Torre, Cat. Hym., IV, 1898, p. 245.

Habitat.—Europe: Sweden.

9. LITOMASTIX LATIFRONS Thomson.

Litomastix latifrons Thomson, Hym. Skand., IV, 1875, p. 175, female and male.—Dalla Torre, Cat. Hym., V, 1898, p. 245.

Habitat.—Europe: Sweden.

10. LITOMASTIX PHALAENARUM Thomson.

Litomastix phalaenarum THOMSON, Hym. Skand., IV, 1875, p. 175, female and male.—DALLA TORRE, Cat. Hym., V, 1898, p. 245.

Habitat.—Europe: Sweden.

11. LITOMASTIX STYLATA Thomson.

Litomastix stylata THOMSON, Hym. Skand., IV, 1875, p. 180, male.—DALLA TORRE, Cat. Hym., V, 1898, p. 245.

Habitat.—Europe: Sweden.

12. LITOMASTIX TRIANGULARIS Thomson.

Litomastix triangularis THOMSON, Hym. Skand., IV, 1875, p. 177, female and male.—DALLA TORRE, Cat. Hym., V, 1898, p. 246.

Habitat.—Europe: Sweden.

13. LITOMASTIX TRUNCATULA Thomson.

Litomastix truncatula THOMSON, Hym. Skand., IV, 1875, p. 173, female and male.—DALLA TORRE, Cat. Hym., V, 1898, p. 246.

Habitat.—Europe: Sweden.

14. LITOMASTIX UNGULARIS Thomson.

Litomastix ungularis THOMSON, Hym. Skand., IV, 1875, p. 176, female.—DALLA TORRE, Cat. Hym., V, 1898, p. 246.

Habitat.—Europe: Sweden.

30. BERECYNTUS Howard.

1898. *Berecyntus* HOWARD, Proc. U. S. Nat. Mus., XXI, p. 238.

(Type, *Berecyntus bakeri* Howard.)

1. BERECYNTUS BAKERI Howard.

Berecyntus bakeri HOWARD, Proc. U. S. Nat. Mus., XXI, 1898, p. 238, female.

Type.—Cat. No. 5030, U.S.N.M.

Habitat.—Colorado.

2. BERECYNTUS FLORIDANUS Ashmead, new species.

Female.—Length, 0.08 mm. Head and thorax above metallic or bronzy green, the thorax on sides and beneath dark blue-black, the head above more or less purplish, legs black or brown-black, the knees, tips of tibiæ, and tarsi, except terminal joint, honey-yellow, the middle tibial spur and middle tarsi whitish. Antennæ brown-black, its pedicel at tip piceous; flagellum clavate, sparsely hairy, not longer than the scape; the funicle joints all short, wider than long, and gradually widening to the club, the latter rather large half the length of the funicle. Wings hyaline, the veins blackish, the marginal vein a little longer than thick, the stigmal vein scarcely longer but much slenderer, the postmarginal vein wanting or only slightly developed.

Type.—Cat. No. 4850, U.S.N.M. (Ashmead collection.)

Habitat.—Florida: Biscayne Bay. Mrs. Annie T. Slosson.

31. COPIDOSOMA Ratzeburg.

1844. *Copidosoma* RATZEBURG, Ichn. d. Forstins., I, p. 157.

(Type, *Copidosoma boucheanum* Ratzeburg.)

1. COPIDOSOMA CELAENÆ Howard.

Copidosoma celaenæ HOWARD, Bull. No. 5, U. S. Dept. Agric., Div. Ent., 1885, p. 11, female and male.—CRESSON, Syn. Hym. N. A., 1887, p. 239.—DALLA TORRE, Cat. Hym., V, 1898, p. 242.

Type.—Cat. No. 2630, U.S.N.M.

Habitat.—Missouri; Ohio.

Host.—Lepid.: *Celaena renigera.*

2. COPIDOSOMA GELECHIÆ Howard.

Copidosoma gelechiæ HOWARD, Bull. No. 5, U. S. Dept. Agric., Div. Ent., 1885, p. 10, female and male.—CRESSON, Syn. Hym. N. A., 1887, p. 239.—DALLA TORRE, Cat. Hym., V, 1898, p. 243.

Type.—Cat. No. 2628, U.S.N.M.

Habitat.—District of Columbia.

Host.—Lepid.: *Gelechia gallæ-solidaginis* Riley.

3. COPIDOSOMA INTERMEDIUM Howard.

Copidosoma intermedium HOWARD, Bull. No. 5, U. S. Dept. Agric., Div. Ent., 1885, p. 12, female and male.—CRESSON, Syn. Hym. N. A., 1887, p. 239.—DALLA TORRE, Cat. Hym., V, 1898, p. 243.

Type.—Cat. No. 2631, U.S.N.M.

Habitat.—New Jersey; Missouri.

Host.—Lepid.: *Gelechia gallæ-asterella* Kellicott.

4. COPIDOSOMA PYRALIDIS Ashmead.

Encyrtus pyralidis ASHMEAD, Ent. Amer., IV, 1888, p. 15, female.—DALLA TORRE, Cat. Hym., V, 1898, p. 262.

Copidosoma variegatum HOWARD, Ins. Life, I, 1888, p. 197, female.—DALLA TORRE, Cat. Hym., V, 1898, p. 243.

Type.—Cat. No. 1478, U.S.N.M. (*variegatum* Howard).

Type.—Cat. No. 4739, U.S.N.M. (*pyralidis* Ashmead). (Ashmead collection.)

Habitat.—Maryland; District of Columbia.

Host.—Lepid.: *Anarsia lineatella* Zeller.

5. COPIDOSOMA TRUNCATELLUM Dalman.

Encyrtus truncatellum DALMAN, Svensk. Vet.-Akad. Handl., XLI, 1820, p. 168.

Cynips agrotis FONSCOLOMBE, Sun. Sc. Nat., XXVI, 1832, p. 295.

Encyrtus truncatellus NEES, Hym. Ichn. Affin. Monogr., II, 1834, p. 232.

Encyrtus atheas WALKER, Ent. Mag., V, 1837, p. 37, female.

Encyrtus truncatellus WALKER, Ent. Mag., p. 38.—RATZEBURG, Ichn. d. Forstins., I, 1844, p. 213; III, 1852, p. 190.

Copidosoma truncatellum MAYR, Verh. Zool.-bot. Gesell. Wien, XXV, pp. 734, 739, female.—FITCH, Trans. Ent. Soc. Lond., 1881, Proc., p. xxi.—RILEY, Rep. U. S. Entom. Com., 1883, p. 131, pl. XI, fig. 4.

(?) *Litomastix truncatellus* THOMSON, Hym. Skand., IV, 1875, p. 174, female and male.—DALLA TORRE, Cat. Hym., V, 1898, p. 246.

Habitat.—Europe; North America.

Host.—Lepid.: *Zeuzera aesculi* Linnæus, *Thera variata* Schiff, *Agrotis fumosa* Hübner, *Hadena polyodon* Linnæus, *Leucania albipuncta* Fabricius, *Plusia concha* Fabricius, *P. deaurata* Esper, *P. moneta* Fabricius, *P. festucæ* Linnæus, *P. jota* Linnæus, *Catocala electa* Borkhausen, *Eupithecia absynthiata* Clerck.

6. COPIDOSOMA TURNI Packard.

Encyrtus turni PACKARD, Proc. Bost. Soc. Nat. Hist., XXI, 1881, p. 32, female and male.—CRESSON, Syn. Hym. N. A., 1857, p. 239.

Copidosoma turni HOWARD, Scudders' Butterflies, East. U. S., 1889, p. 1888, female and male; pl. LXXXIX, fig. 5.—DALLA TORRE, Cat. Hym., V, p. 243.

Habitat.—New Hampshire.

Host.—Lepid.: *Papilio turnus* Linnæus, *Jasoniades glaucus* Linnæus.

7. COPIDOSOMA VAGUM Howard.

Copidosoma vagum HOWARD, Bull. No. 5, U. S. Dept. Agric., Div. Ent., 1885, p. 11, female and male.—CRESSON, Syn. Hym. N. A., 1887, p. 239.—DALLA TORRE, Cat. Hym.,V, 1898, p. 243.

Type.—Cat. No. 2629, U.S.N.M.

Habitat.—Missouri.

Host.—Lepid.: *Gelechia pseudacaciella* Chambers.

32. PRIONOMITUS Mayr.

1875. *Prionomitus* MAYR, Verh. Zool.-bot. Ges. Wien, XXV, p. 701.

(Type, *Encyrtus mitratus* Dalman.)

1. PRIONOMITUS MITRATUS Dalman.

Encyrtus mitratus DALMAN, Svensk. Vet.-Akad. Handl., XLI, 1820, p. 352, female.

Encyrtus chlorinus DALMAN, Svensk. Vet.-Akad. Handl., XLI, 1820, p. 361, male.

Encyrtus mitratus NEES, Ichn. affin. Monogr., II, 1834, p. 242.

Encyrtus chlorinus NEES, Ichn. affin. Monogr., II, 1834, p. 248.

Encyrtus mitratus MAYR, Verh. Zool.-bot. Ges. Wien, XXV, 1875, pp. 710, 721, female.

Prionomitus chlorinus MAYR, Verh. Zool.-bot. Ges. Wien, XXV, 1875, p. 701, male.

Microterys mitratus THOMSON, Hym. Skand., IV, 1875, p. 162, female and male.—DALLA TORRE, Cat. Hym., V, 1898, p. 235.

Habitat.—Europe.

2. PRIONOMITUS TILIARIS Dalman.

Encyrtus tiliaris DALMAN, Svensk. Vet.-Akad. Handl., XLI, 1820, p. 171.—NEES, Hym. affin. Monogr., II, 1834, p. 235.

Encyrtus coniferæ WALKER, Ent. Mag., IV, 1837, p. 461, female and male.

Encyrtus liliaris MAYR, Verh. Zool.-bot. Ges. Wien, XXV, 1875, pp. 711, 722, female.

Microterys tiliaris THOMSON, Hym. Skand., IV, 1875, p. 163.—DALLA TORRE, Cat. Hym., V, 1898, p. 236.

Habitat.—Europe; North America.

33. ARCHINUS Howard.

1896. *Archinus* HOWARD, Journ. Linn. Soc. Lond., XXVI, p. 155.

(Type, *Archinus occupatus* Howard.)

1. ARCHINUS OCCUPATUS Howard.

Archinus occupatus HOWARD, Journ. Linn. Soc. Lond. Zool., XXVI, 1896, p. 155, female.

Type in British Museum.

Habitat.—West Indies: Grenada.

34. PARENCYRTUS Ashmead, new genus.

(Type, *Parencyrtus brasiliensis* Ashmead.)

Allied to *Epiencyrtus* (*Encyrtus* Mayr and others), but the outer tooth of the mandibles is long, acute; the eyes large, oval, and very hairy; the flagellum long, pilose, the pedicel being fully three times as long as thick, subcylindrical, the first joint of the funicle very long, longer than the pedicel; the marginal vein is as long or almost as long as the stigmal, while the postmarginal vein is much longer than the marginal.

1. PARENCYRTUS BRASILIENSIS Ashmead, new species.

Female.—Length, 1.6 mm.; to tip of wings, 2 mm. Blue; mesopleura and coxæ æneous black; scutellum and ridge of the metapleura with a strong metallic tinge; abdomen æneous; scape, club of antennæ, and legs, brownish yellow; the pedicel and funicle brown; the extreme base of anterior and middle femora blackish or dusky; wings subfuscous.

The head has a few sparse punctures on the forehead and a row along the inner margin of the eyes. The antennæ are inserted rather close to the mouth border and widely apart, with a prominent ridge between. The mesonotum is smooth impunctured, as long as the scutellum. The latter, except the axillæ, being shagreened, strongly metallic, and contrasts greatly with the smooth, blue surface of the mesonotum. Metanotum very short, the pleura bare, bronzed green. Abdomen subtriangular, depressed, shorter than the thorax.

Habitat.—Brazil: Chapada. September. (H. H. Smith collection.)

35. MIRA Schellenberg.

1803. *Mira* SCHELLENBERG, Genres des mouch. Dipt., p. 68.
1809. *Encyrtus* LATREILLE (part), Gen. Crus. et Ins., IV, p. 31.
1855. *Dicellocerus* MENZEL, Stettin. Ent. Zeitg., XVI, p. 270.
1856. *Euryscapus* FÖRSTER, Hym. Stud., II, p. 32.
1857. *Lonchocerus* DAHLBOM, Öfvers. Svensk. Vet.-Akad. Förh., XIV, p. 293.

(Type, *Mira macrocera* Schellenberg.)

1. MIRA MACROCERA Schellenberg.

Mira macrocera SCHELLENBERG, Genres des mouch. Dipt., 1803, pp. 68, 69.
Mira mucora SCHELLENBERG, Genres des mouch. Dipt., pl. XIV.
Encyrtus macrocera LATREILLE, Gen. Crus. et Ins., IV, 1809, p. 31.

Encyrtus platycerus DALMAN, Svensk. Vet.-Akad. Handl., XLI, 1820, p. 566.—NEES, Ichn. affin. Monogr., II, 1834, p. 254.
Dicellocerus vibrans MENZEL, Stettin. Ent. Zeitg., XVI, 1855, pp. 270–274, pl. I.
Euryscapus platycerus FÖRSTER, Hym. Stud., II, 1856, p. 35.
Encyrtus vibrans RUTHE, Stettin. Ent. Zeitg., XVII, 1856, p. 46.
Mira macrocera FÖRSTER, Verh. d. naturh. Ver. pr. Rheinl., XVII, 1860, p. 135, female and male.
Lonchocerus platycerus THOMSON, Hym. Skand., IV, 1875, p. 130, female.
Mira macrocera MAYR, Verh. Zool.-bot. Ges. Wien, XXV, 1875, p. 771, female.—DALLA TORRE, Cat. Hym., V, 1898, p. 237.

Habitat.—Europe.

2. MIRA SALTATOR Lindeman.

Euryscapus saltator LINDEMAN, Bull. Soc. Natural. Moscou (2), I, 1887, p. 190, female and male.
Mira saltator DALLA TORRE, Cat. Hym., V, 1898, p. 238.

Habitat.—Europe: Russia.

36. SPHÆROPISTHUS Thomson.

1875. *Sphæropisthus* THOMSON, Hym. Skand., IV, pp. 116, 131.

(Type, *Sphæropisthus pascuorum* Thomson.)

1. SPHÆROPISTHUS PASCUORUM Thomson.

Sphæropisthus pascuorum THOMSON, Hym. Skand., IV, 1875, p. 132, female and male.—DALLA TORRE, Cat. Hym., V, 1898, p. 238.

Habitat.—Europe: Sweden.

2. SPHÆROPISTHUS ANNULICORNIS Ashmead, new species.

Male.—Length, 1.6 mm. Head and thorax above aeneous green; scutellum orange-red; prothorax at sides and beneath, mesopleura, pectus and legs, ferruginous; abdomen aeneous black, with rigid hairs especially toward apex; antennæ long, the scape long, slender, subclavate, with the pedicel pale ferruginous; flagellum subclavate, gradually thickened toward apex, subcompressed, clothed with a short dense pubescence, black, with joints 4, 5, and 6 snow white. Head punctate, as seen from in front elongate, about twice as long as wide, as seen from above semiglobose, the eyes slightly convergent above, the vertex narrower than the face anteriorly; hind ocelli rather close together, the front ocellus being more than twice as far from the hind ocelli than the space between them. Metapleura clothed with a rather dense silvery pubescence. Wings hyaline, with a discal cloud beneath the marginal vein and an acuate band just before the apex.

Type.—Cat. No. 4848, U.S.N.M. (Ashmead collection.)

Habitat.—Florida: Jacksonville.

3. SPHÆROPISTHUS AURICEPS Ashmead, new species.

Female.—Length, 1.3 mm. Ground color pale ferruginous, the head on vertex and anteriorly to scrobes gold-green, mesonotum and scutellum green with a bluish sheen; legs ferruginous, the middle tibiæ

dark fuscous, their tarsi white; wings hyaline with a large fuscous cloud beneath the marginal vein; abdomen yellowish at basal third, aeneous black beyond and ending in a slender ovipositor which is about one-half the length of the abdomen. (Antennæ broken off.)

Type.—Cat. No. 4849, U.S.N.M. (Ashmead collection.)

Habitat.—Florida: Fort George Island.

37. CHESTOMORPHA Ashmead, new genus.

(Type, *Chestomorpha biformis* Ashmead.)

Head and thorax similar to *Aphycus*, the frons broad, convex, the ocelli arranged in a triangle, the lateral ocelli as far from the eye margin as to the front ocellus. Eyes oval, bare, a little longer than the malar space. Mandibles tridentate. Scutellum much longer than the pronotum, the latter short, abrupt anteriorly. Front wings in male clear hyaline, in female with a substigmal blotch or fascia; the marginal vein is very short, the stigmal vein fully twice as long as the marginal or longer, while the postmarginal is well developed, considerably longer than the stigmal. Antennæ 11-jointed, the flagellum in female subclavate, the funicle joints, or at least joints 3 to 6, wider than long; in male the flagellum is filiform, stout, the joints nearly thrice as long as thick.

1. CHESTOMORPHA BIFORMIS Ashmead, new species.

Female.—Length, 1.8 mm. Ferruginous; eyes, ocelli, flagellum, metanotum more or less, a large spot on dorsum of abdomen, and the middle and hind tarsi, black. Wings hyaline, the front pair with a fuscous discoidal blotch or band beneath the marginal and stigmal veins.

The male differs from the female in being much more robust and almost entirely black; scape brown; front legs with apices of their femora, tibiæ and tarsi, honey-yellow; middle tibial spurs and first joint of tarsi, white; tegulæ, pale. Wings hyaline, without a discoidal blotch, the marginal and stigmal veins brown.

Type.—Cat. No. 4740, U.S.N.M. (Ashmead collection.)

Habitat.—New Mexico: Las Cruces. (T. D. A. Cockerell.)

38. ÆNASIUS Walker.

1846. *Ænasius* WALKER, Ann. and Mag. Nat. Hist., XVII, p. 180.

(Type, *Ænasius hyettus* Walker.)

1. ÆNASIUS HYETTUS Walker.

Encyrtus (*Ænasius*) *hyettus* WALKER, Ann. and Mag. Nat. Hist., XVII, 1846, p. 181, female.

Ænasius hyettus HOWARD, Journ. Linn. Soc. Lond. Zool., XXV, 1894, p. 89, female and male.—DALLA TORRE, Cat. Hym., V, 1898, p. 229.

Habitat.—West Indies: Grenada, St. Vincent.

2. ÆNASIUS CHAPADÆ Ashmead, new species.

Female.—Length, 1 mm. Robust, short and broad, very little longer than wide. Head blue, thorax above blue-black, beneath æneous black; abdomen metallic æneous; scape within and at tip, and the funicle pale brown, rest of scape and the club brown-black; legs dark brown, the tarsi light brown or yellowish; wings subfuscous.

The head is covered with a close, thimble-like punctuation, clear to the scrobes, which are short; the eyes are large, long-oval, and pubescent; the scape has the characteristic leaf-like expansion beneath; the funicle is short, the joints, except possibly the first, which is small and moniliform, are wider than long and increase in width to the club, the latter being very large and as long as the funicle and very much thicker. The thorax is similar to that in *A. hyettus* Walker, except that mesonotum has the thimble-like punctuation similar to that of the head, only less distinctly impressed; the scutellum is large, about twice as long as the mesonotum, with the punctuation almost obsolete.

Habitat.—Brazil: Chapada. (H. H. Smith collection.)

39. CHALCASPIS Howard.

1895. *Chalcaspis* HOWARD, Proc. U. S. Nat. Mus., XVII, p. 606.

(Type, *Chalcaspis pergandei* Howard.)

1. CHALCASPIS PERGANDEI Howard.

Chalcaspis pergandei HOWARD, Proc. U. S. Nat. Mus., XVII, 1895, p. 605.—DALLA TORRE, Cat. Hym., V, 1898, p. 227.

Type.—Cat. No. 2692, U.S.N.M.

Habitat.—District of Columbia.

40. BOTHRIOTHORAX Ratzeburg.

1844. *Bothriothorax* RATZEBURG, Ichn. d. Forstins., I, p. 209.
1856. *Sceptrophorus* FÖRSTER (part), Hym. Stud., II, p. 34, male.
1857. *Trimorphocerus* DAHLBOM, Öfvers. Svensk. Vet.-Akad. Förh., XIV, p. 292.

(Type, *Encyrtus clavicornis* Dalman.)

1. BOTHRIOTHORAX CALIFORNICUS Howard.

Bothriothorax californicus HOWARD, Proc. U. S. Nat. Mus., XVII, 1895, p. 609, female.—DALLA TORRE, Cat. Hym., V, 1898, p. 227.

Type.—Cat. No. 2694, U.S.N.M.

Habitat.—California.

Host.—Dipt.: *Catabomba pyrastri* Linnæus.

2. BOTHRIOTHORAX INSULARIS Howard.

Bothriothorax insularis HOWARD, Journ. Linn. Soc. Lond. Zool., XXVI, 1896, p. 147, female and male.—DALLA TORRE, Cat. Hym., V, 1898, p. 228.

Type in British Museum.

Habitat.—West Indies: Grenada.

3. BOTHRIOTHORAX MACROGLENES Ashmead.

Bothriothorax macroglenes ASHMEAD, Bull. No. 3, Kans. Exp. Sta., 1888, App., p. v.

Type in Kansas State Agricultural College.

Habitat.—Kansas: Riley County.

4. BOTHRIOTHORAX NIGRIPES Howard.

Bothriothorax nigripes HOWARD, Proc. U. S. Nat. Mus., XVII, 1895, p. 610, female.—DALLA TORRE, Cat. Hym., V, 1898, p. 228.

Type.—Cat. No. 2695, U.S.N.M.

Habitat.—California; New Mexico.

5. BOTHRIOTHORAX NOVEBORACENSIS Howard.

Bothriothorax noveboracensis HOWARD, Proc. U. S. Nat. Mus., XVII, 1895, p. 609, female.—DALLA TORRE, Cat. Hym., V, 1898, p. 228.

Type.—Cat. No. 2693, U.S.N.M.

Habitat.—New York; New Hampshire.

6. BOTHRIOTHORAX PECULIARIS Howard.

Bothriothorax peculiaris HOWARD, Bull. No. 5, U. S. Dept. Agric., Div. Ent., 1885, p. 20, female and male.—CRESSON, Syn. Hym. N. A., 1887, p. 240.—HOWARD, Proc. U. S. Nat. Mus., XVII, 1895, p. 608.—DALLA TORRE, Cat. Hym., V, 1898, p. 228.

Type.—Cat. No. 2646, U.S.N.M.

Habitat.—Virginia.

Host.—Dipt.: Syrphid larva.

7. BOTHRIOTHORAX PLANIFRONS Howard.

Bothriothorax planifrons HOWARD, Proc. U. S. Nat. Mus., XVII, 1895, p. 611, female.—DALLA TORRE, Cat. Hym., V, 1898, p. 228.

Type.—Cat. No. 2697, U.S.N.M.

Habitat.—California.

8. BOTHRIOTHORAX ROTUNDIFORMIS Howard.

Bothriothorax rotundiformis HOWARD, Proc. U. S. Nat. Mus., XVII, 1895, p. 610, female.—DALLA TORRE, Cat. Hym., V, 1898, p. 228.

Type.—Cat. No. 2696, U.S.N.M.

Habitat—California.

9. BOTHRIOTHORAX VIRGINIENSIS Howard.

Bothriothorax virginiensis HOWARD, Bull. No. 5, U. S. Dept. Agric., Div. Ent., 1885, p. 20, female.—CRESSON, Syn. Hym. N. A., 1887, p. 240.—HOWARD, Proc. U. S. Nat. Mus., XVII, 1895, p. 608, female.—DALLA TORRE, Cat. Hym., V, 1898, p. 228.

Type.—Cat. No. 2645, U.S.N.M.

Habitat.—Virginia.

41. ARATUS Howard.

1896. *Aratus* HOWARD, Journ. Linn. Soc. Lond. Zool., XXVI, p. 155.

(Type, *Aratus scutellatus* Howard.)

1. ARATUS SCUTELLATUS Howard.

Aratus scutellatus HOWARD, Journ. Linn. Soc. Lond. Zool., XXVI, 1896, p. 639, female and male.—DALLA TORRE, Cat. Hym., V, 1898, p. 266.

Type.—Cat. No. 3257, U.S.N.M.
Habitat.—West Indies: Grenada.

42. PENTELICUS Howard.

1895. *Pentelicus* HOWARD, Proc. U. S. Nat. Mus., XVII, p. 611.

(Type, *Pentelicus aldrichii* Howard.)

1. PENTELICUS ALDRICHII Howard.

Pentelicus aldrichii HOWARD, Proc. U. S. Nat. Mus., XVII, 1895, p. 612, female.—DALLA TORRE, Cat. Hym., V, 1898, p. 227.

Type.—Cat. No. 2698, U.S.N.M.
Habitat.—Dakota.

43. BLEPYRUS Howard.

1898. *Blepyrus* HOWARD, Proc. U. S. Nat. Mus., XXI, p. 234.

(Type, *Blepyrus mexicanus* Howard.)

1. BLEPYRUS MEXICANUS Howard.

Blepyrus mexicanus HOWARD, Proc. U. S. Nat. Mus., XXI, 1898, p. 234, female and male.

Type.—Cat. No. 5024, U.S.N.M.
Habitat.—Mexico: Monterey.
Host.—Rhynch.: *Pseudococcus yuccæ* Coquillett.

2. BLEPYRUS MARSDENI Howard.

Blepyrus marsdeni HOWARD, Proc. U. S. Nat. Mus., XXI, 1898, p. 234, female.

Type.—Cat. No. 5025, U.S.N.M.
Habitat.—Hawaiian Islands: Honolulu.

3. BLEPYRUS TEXANUS Howard.

Blepyrus texanus HOWARD, Proc. U. S. Nat. Mus., XXI, 1898, p. 235, female.

Type.—Cat. No. 5026, U.S.N.M.
Habitat.—Texas: Brownsville.
Host.—Rhynch.: *Dactylopius virgatus* Cockerell.

44. HEMÆNASIUS Ashmead, new genus.

(Type, *Hemænasius confusus* Ashmead.)

Aspect of *Ænasius* Walker and *Euryrhopalus* Howard, but quite distinct from both in sculpture and in following characters: From *Ænasius* it differs in punctuation, in the much longer scape and flagellum, the former being only slightly dilated, the longer mesonotum and in venation; from *Euryrhopalus* in the broader vertex, antennal characters, and in the quite different venation, brought out in my table.

1. HEMÆNASIUS CONFUSUS Ashmead, new species.

Female.—Length, 1 mm. Robust, black, the head anteriorly from the front ocellus blue; flagellum brown-black, the scape at base and apex yellowish; funicle joints 4 and 6 whitish; tips of tibiæ and tarsi, except last joint, honey-yellow; wings hyaline, dusky or fuliginous at base only, the marginal vein punctiform, the postmarginal vein developed but slender, about two-thirds the length of the sigmal; all veins brown. The head on vertex has some small scattered punctures but anteriorly it is perfectly smooth and polished; the thorax is almost smooth, but with a strong lens one can detect some delicate transverse striæ and a few microscopic punctures; abdomen short, broadly oval, smooth and shining.

Type.—Cat. No. 4851, U.S.N.M. (Ashmead collection.)

Habitat.—District of Columbia: Washington.

45. EURYRHOPALUS Howard.

1898. *Euryrhopalus* HOWARD, Proc. U. S. Nat. Mus., XXI, p. 237.

(Type, *Euryrhopalus schwarzi* Howard.)

1. EURYRHOPALUS SCHWARZI Howard.

Euryrhopalus schwarzi HOWARD, Proc. U. S. Nat. Mus., XXI, 1898, p. 237, female.

Type.—Cat. No. 5029, U.S.N.M.

Habitat.—Florida: Biscayne Bay.

46. HEMENCYRTUS Ashmead, new genus.

(Type, *Hemencyrtus herbertii* Ashmead.)

Stature and general appearance of *Encyrtus cecidomyiæ* Howard, but quite different in sculpture and in venational and antennal characteris tics. The head is scarcely as wide as the thorax between the wings, lenticular, shagreened, but with sparse, distinct, umbilicate punctures on the forehead. The antennæ are 11-jointed, filiform or nearly, and clothed with short, sparse hairs, the joints of the funicle all being a little longer than wide; the club is rather short, scarcely as long as the pedicel and first joint of funicle united, the pedicel being obconical and hardly twice as long as thick.

The pronotum is distinct, not short, about two-thirds the length of the mesonotum, the latter being twice as wide as long and somewhat shorter than the scutellum. The front wings have a short marginal vein which is only about twice as long as thick, or a little longer; the stigmal vein is nearly twice as long as the marginal, while the postmarginal vein is very much longer than the stigmal. Abdomen in female conically pointed, somewhat longer than the head and thorax united, with the ovipositor exserted, the sheaths being very broad.

1. HEMENCYRTUS HERBERTII Ashmead, new species.

Female.—Length, 2.8 mm. Dark blue; collar, scutellum toward apex, metapleura, and abdomen aeneous black; antennæ, except three or four apical joints, and the legs, except the coxæ, brownish-yellow. Head with sparse but distinct thimble-like punctures on forehead and along the inner orbits; the scrobes form a distinct semicircular depression. The mesonotum is smooth apparently, but with a strong lens one can detect a vaguely defined or indistinctly impressed thimble-like punctuation. Wings subhyaline; tegulæ piceous, the subcostal vein yellowish, while the marginal, stigmal, and postmarginal veins are brown. Abdomen a little longer than the head and thorax united, depressed or concave above, carinate beneath; the ovipositor exserted to nearly one-third its length, with very broad, compressed sheaths.

Habitat.—Brazil: Chapada. (Herbert H. Smith collection.)

47. COCCOPHOCTONUS Ashmead, new genus.

(Type, *Coccophoctonus dactylopii* Ashmead.)

Form very broad and robust, resembling somewhat the genus *Phœnodiscus* Förster. The head is lenticular, wider than the thorax, with very large oblong-oval eyes, the frons in consequence being rather narrow but still with the thimble-like punctuation. The antennæ are very short, the flagellum being scarcely longer than the slender scape, the club very large and distinctly longer than the short funicle, the joints of the latter being very small, transverse or annular. The pronotum is short; the mesonotum fully twice as wide as long, shorter than the scutellum and smooth or very indistinctly punctate. The wings, unlike those in *Phœnodiscus*, are hyaline, the marginal vein being scarcely three times as long as thick, the stigmal vein longer than the marginal, while the postmarginal vein is fully as long as the marginal and stigmal veins united. The abdomen in outline is triangular, broadly sessile, depressed, and much shorter than the thorax.

The male resembles the female, but is much smaller, narrower, less robust, with the head smaller and not broader than the thorax; otherwise in antennal and venational characters it agrees with the female.

1. COCCOPHOCTONUS DACTYLOPII Ashmead, new species.

Female.—Length, 1.4 mm. Robust, blue-black, the abdomen aeneous; scape pale yellowish; all tibiæ and tarsi, apical third of middle tibiæ,

and the apical half, or a little more, of the hind femora, honey-yellow. The middle tibiæ are sometimes dusky toward base. Frons with a rather close thimble-like punctuation; mesonotum nearly smooth, but with a sparsely, vaguely defined punctuation; scutellum shagreened.

Male.—Length, 0.9 mm. Differs from female in being much smaller, narrower, and less robust; the legs are brown-black, with tips of femora and the tibiæ and tarsi honey-yellow, while the anterior and middle tibiæ are more or less dusky or fuscous basally.

Type.—Cat. No. 5081, U.S.N.M.

Habitat.—Australia.

Host.—Rhynch.: *Dactylopius* sp.

Described from 11 specimens, bred from a Coccid, *Dactylopius* sp., September, 1894, by Albert Koebele.

48. PHÆNODISCUS Förster.

1856. *Phænodiscus* FÖRSTER, Hym. Stud., II, p. 144.
1856. *Discodes* FÖRSTER, Hym. Stud., II, p. 32.

(Type, *Encyrtus aneus* Dalman.)

1. PHÆNODISCUS ARIZONENSIS Howard.

Phænodiscus arizonensis HOWARD, Proc. U. S. Nat. Mus,, XXI, 1898, p. 248, female.

Type.—Cat. No. 3853, U.S.N.M.

Habitat.—Arizona: Chiricahua Mountains; Colorado (Gillette); New Mexico (Cockerell).

2. PHÆNODISCUS CONFORMIS Howard.

Encyrtus conformis HOWARD, Journ. Linn. Soc. Lond. Zool., XXVI, 1896, p. 152, female and male.—DALLA TORRE, Cat. Hym., V, 1898, p. 256.

Type.—Cat. No. 4852, U.S.N.M.; also in British Museum.

Habitat.—West Indies: Grenada.

3. PHÆNODISCUS UNICOLOR Ashmead.

Aphycus unicolor ASHMEAD, Ent. Amer., IV, 1898, p. 15, female.—DALLA TORRE, Cat. Hym., V, 1898, p. 252.

Female.—Length, 1.2 mm. Uniformly pale ferruginous, the tarsi yellowish, the funicle joints 4, 5, and 6 snow white, the club black, wings somewhat abbreviated, brownish. The head has the coarse, characteristic thimble-like punctuation, while the mesonotum and scutellum are smooth, impunctate.

Type.—Cat. No. 4741, U.S.N.M. (Ashmead collection.)

Habitat.—Florida: Jacksonville.

Allied to *P. arizonensis* Howard, but smaller, paler, and readily distinguished by the color of the coxæ and the abbreviated wings.

49. RHYTIDOTHORAX Ashmead, new genus.

(Type, *Rhytidothorax marlatti* Ashmead.)

Allied to *Phœnodiscus* Förster, but much less robust and with the following structural differences: The wings are hyaline, the marginal vein being longer than the stigmal, while the costal cell in the hind wings is long and narrow. The head is scarcely as wide as the thorax; eyes pubescent; antennæ rather long; the flagellum subclavate, not ringed with white; the funicle joints 2–6 transverse, the pedicel obconical, three times as long as thick, or longer than the first joint of the funicle. The head has the usual thimble-like punctuation, but the mesonotum is shagreened or rugulose, especially anteriorly, while the scutellum is more distinctly, although somewhat finely, shagreened.

1. RHYTIDOTHORAX MARLATTI Ashmead, new species.

Female.—Length, 1.65 mm. Black; scutellum and abdomen æneous; scape, the apical half of femora and all tibiæ and tarsi honey-yellow.

Type.—Cat. No. 4742, U.S.N.M. (Ashmead collection.)

Habitat.— Kansas: Riley County.

This interesting species was received many years ago from Mr. C. L. Marlatt.

50. TANAONEURA Howard.

1896. *Tanaoneura* HOWARD, Journ. Linn. Soc. Lond. Zool., XXVI, p. 146.

(Type, *Tanaoneura ashmeadii* Howard.)

1. TANAONEURA ASHMEADII Howard.

Tanaoneura ashmeadii HOWARD, Journ. Linn. Soc. Lond. Zool., XXVI, 1896, p. 147, female.—DALLA TORRE, Cat. Hym., V, p. 230.

Type in British Museum.

Habitat.—West Indies: Grenada.

51. HEXACLADIA Ashmead.

1891. *Hexacladia* ASHMEAD, Ins. Life, III, p. 456.

(Type, *Hexacladia smithii* Ashmead.)

1. HEXACLADIA SMITHII Ashmead.

Hexacladia smithii ASHMEAD, Ins. Life, III, 1891, p. 456, female and male.—DALLA TORRE, Cat. Hym., V, p. 230.

Type.—Cat. No. 4743, U.S.N.M. (Ashmead collection); also H. H. Smith collection.

Habitat.—South America.

52. HOMALOTYLUS Mayr.

1875. *Homalotylus* MAYR, Verh. Zool.-bot. Ges. Wien, XXV, p. 752.
1875. *Nobrimus* THOMSON, Hym. Skand., IV, pp. 116, 137.

(Type, *Encyrtus flaminius* Dalman.)

1. HOMALOTYLUS LACHNI Ashmead.

Homalotylus lachni Ashmead, Tr. Am. Ent. Soc., XIII, 1886, p. 132, female.—Cresson, Syn. Hym. N. A., 1887, p. 240.—Dalla Torre, Cat. Hym., V, 1898, p. 247.

Type.—Cat. No. 4744, U.S.N.M. (Ashmead collection.)

Habitat.—Florida: Jacksonville.

Host.—Rhynch.: *Lachnus australis* Ashmead. (?)

2. HOMALOTYLUS SIMILIS Ashmead.

Homalotylus similis Ashmead, Tr. Am. Ent. Soc., XIV, 1887, p. 190, female.—Dalla Torre, Cat. Hym., V, 1898, p. 247.

Type.—Cat. No. 4745, U.S.N.M. (Ashmead collection.)

Habitat.—Florida.

3. HOMALOTYLUS TERMINALIS Say.

Serlion terminalis Say, Maclur. Lyc. Phil., II, 1828, p. 80; Le Conte's ed. Say's Works, I, 1859, p. 383.

Scelio terminalis Cresson, Syn. Hym. N. A., 1887, p. 248.—Dalla Torre, Cat. Hym., V, 1898, p. 496.

Eutelus scymnæ Shimer, Tr. Am. Ent. Soc., II, 1869, p. 385.—Cresson, Syn. Hym. N. A., p. 242.—Dalla Torre, Cat. Hym., V, 1898, p. 93.

Homalotylus obscurus Howard, Bull. No. 5, U. S. Dept. Agric., Div. Ent., 1885, p. 22, female.—Hubbard, Orange Ins., 1886, p. 74, fig. 35.—Howard, Ins. Life, IV, 1891, p. 192, fig. 17.—Dalla Torre, Cat. Hym., V, 1898, p. 247.

Homalotylus terminalis Ashmead, Proc. Ent. Soc. Wash., IV, 1898, p. 149.

Type.—Cat. No. 2648, U.S.N.M. (Howard's *obscurus*.)

Habitat.—North America.

Host.—Coleop.: *Scymnus* sp., *Cycloneda sanguinea* Linnæus, *Coccinella 9-notata* Herbst, *Psyllobora 20-maculata* Say, *Mysia pullata* Say, *Hippodamia convergens* Guerin.

53. ISODROMUS Howard.

1886. *Isodromus* Howard, Rep. U. S. Dept. Agric., p. 488.

(Type, *Isodromus iceryæ* Howard.)

1. ISODROMUS CHRYSOPÆ Ashmead.

Aphycus chrysopæ Ashmead, Ent. Amer., IV, 1888, p. 15, female.—Dalla Torre, Cat. Hym., V, 1898, p. 251.

Type.—Cat. No. 4746, U.S.N.M. (Ashmead collection.)

Habitat.—Florida: Jacksonville; and District of Columbia.

Host.—Neurop.: *Chrysopa* sp.

2. ISODROMUS ICERYÆ Howard.

Isodromus iceryæ Howard, Rep. U. S. Dept. Agric., 1886, p. 488, female.—Cresson, Syn. Hym. N. A., 1887, p. 312, pl. III, fig. 1.—Dalla Torre, Cat. Hym., V, 1898, p. 267.

Type.—Cat. No. 1491, U.S.N.M.

Habitat.—California.

Host.—Neurop.: *Chrysopa* sp. (not *Icerya purchasi*, as recorded).

3. ISODROMUS NIGER Ashmead, new species.

Female.—Length, 2 mm. Robust, black; the scape and flagellum *beneath* are brownish; the prothoracic scale margined with white; the tegulæ white at base; the front legs and the middle femora and tarsi, except the basal joint, honey-yellow; middle tibiæ and the hind legs, except the tarsi, brown-black; hind tarsi, basal joint of middle tarsi, and the tibial spurs, white. Wings clear hyaline.

Type.—Cat. No. 4747, U.S.N.M. (Ashmead collection.)

Habitat.—District of Columbia. Captured while ovipositing in an *immature* Chrysopid larva.

4. ISODROMUS ATRIVENTRIS Ashmead, new species.

Female.—Length, 2 mm. Ferruginous; the hind tibiæ and tarsi, the last four joints of the middle tarsi, and the flagellum are brown or fuscous; the disk of mesonotum is obfuscated; the metanotum and the abdomen are black; the tegulæ at base white, while the metapleura are clothed with a silvery pubescence. Front wings hyaline, with a large discoidal cloud beneath, and inclosing the stigmal vein.

Type.—Cat. No. 4748, U.S.N.M. (Ashmead collection.)

Habitat.—Canada: Ottawa. (W. H. Harrington.)

5. ISODROMUS PUNCTICEPS Howard.

Encyrtus puncticeps HOWARD, Bull. No. 5, U. S. Dept. Agric., Div. Ent., 1885, p. 14.—CRESSON, Syn. Hym. N. A., 1887, p. 239.—DALLA TORRE, Cat. Hym., V, 1898, p. 262.

Type.—Cat. No. 2635, U.S.N.M.

Habitat.—Virginia.

54. CERCHYSIUS Westwood.

1832. *Cerchysius* WESTWOOD, Phil. Mag. (3), I, p. 128.

1884. *Aseirba* CAMERON, Biol. Centr.-Am. Hym., I, p. 127 (teste Howard).

(Type, *Encyrtus subplanus* Dalman.)

1. CERCHYSIUS CAUDATA Cameron.

Aseirba caudata CAMERON, Biol. Centr.-Am. Hym., I, 1889, p. 127, female, pl. VI, fig. 13.

Cerchysius caudata HOWARD, Journ. Linn. Soc. Lond. Zool., XXV, 1894, p. 87.

Aseirba caudata DALLA TORRE, Cat. Hym., V, 1898, p. 244.

Habitat.—Guatemala.

2. CERCHYSIUS ELASMOCERI Ashmead, new species.

Female.—Length, 1.6 mm.; to tip of ovipositor, 2 mm. Robust, black with a faint bluish tinge, smooth impunctate except the frons, which is faintly shagreened. Antennæ black, the flagellum subfiliform, only slightly thickened toward apex, very little more than twice the length of the scape; funicle joints cylindrical, more than thrice longer than thick; pedicel obconical, shorter than the first funicle joint, with a

rufous tinge at apex. Mandibles rufo-piceous, 3-dentate. Thorax with a sparse pubescence, the metapleura with a silvery-white pubescence; the lunate mark before tegulæ wanting; scutellum finely, feebly shagreened; metathorax very short, polished. Legs ferruginous, the coxæ black, the femora brownish or obfuscated, excepting toward tips, the middle and hind tibiæ at base also obfuscated. Wings hyaline, the venation pale brownish, the stigmal vein oblique, about as long as the marginal and postmarginal veins united. Abdomen conico-ovate, as long as the head and thorax united, ending in a broadly compressed ovipositor which is longer than half the length of the abdomen.

Type.—Cat. No. 4749, U.S.N.M.

Habitat.—Virginia and District of Columbia.

Host.—Coleop.: *Elasmocerus terminatus* Say. Bred by Frank H. Chittenden.

3. CERCHYSIUS FLACCUS Walker.

Eucyrtus (Cerchysius) flaccus Walker, Ann. and Mag. Nat. Hist., XX, 1847, p. 21, female.—Cresson, Syn. Hym. N. A., 1887, p. 2.

Cerchysius flaccus Dalla Torre, Cat. Hym., V, 1898, p. 244.

Habitat.—Florida.

4. CERCHYSIUS HUBBARDII Ashmead, new species.

Female.—Length, 2.6 mm. Blue; head on vertex and the mesonotum metallic blue-green, the basal abdominal segments laterally blue-green; scape honey-yellow, the pedicel and the flagellum brown-black; legs, except coxæ, the base of anterior femora, and the basal two-thirds of hind femora pale ferruginous or brownish-yellow; sheaths of ovipositor very broad, testaceous. Wings hyaline, the tegulæ brown-black, the venation testaceous.

Type.—Cat. No. 5080, U.S.N.M.

Habitat.—California: Salton.

Bred by E. A. Schwarz from a beetle, *Vrelleta hubbardi* Schwarz manuscript, infesting the stems of *Alleuroffia occidentalis*, collected at Salton, California, by H. G. Hubbard, in March, 1897.

5. CERCHYSIUS (?) ICERYÆ Howard.

Cerchysius iceryæ Howard, Ins. Life, IV, 1892, p. 379, female.

Type.—Cat. No. 1490, U.S.N.M.

Habitat.—West Indies: Jamaica.

Host.—Rhynch.: *Icerya rosæ* Riley and Howard. This may not be a *Cerchysius* sens. str.

6. CERCHYSIUS PALLIDIPES Provancher.

Copidosoma pallipes Provancher, Add. Fn. du Can. Hym., 1887, p. 205.—Cresson, Syn. Hym., 1887, p. 239.—Dalla Torre, Cat. Hym., V, 1898, p. 243.

Habitat.—Canada: Ottawa. (W. H. Harrington.)

55. SCEPTROPHORUS Förster.

1856. *Sceptrophorus* FÖRSTER, Hym. Stud., II, p. 34.
1875. *Trichomasthus* THOMSON, Hym. Skand., IV, p. 142.

(Type, *Sceptrophorus sceptriger* Förster.)

1. SCEPTROPHORUS HYALINIPENNIS Howard.

Psilophrys hyalinipennis HOWARD, Bull. No. 5, U. S. Dept. Agric., Div. Ent., 1885, p. 21, female.—CRESSON, Syn. Hym., 1887, p. 239.—DALLA TORRE, Cat. Hym., V, 1898.

Type.—Cat. No. 2647, U.S.N.M.
Habitat.—District of Columbia.

2. SCEPTROPHORUS CONVEXUS Howard.

Encyrtus convexus HOWARD, Journ. Linn. Soc. Lond. Zool., XXVI, 1896, p. 153, male.—DALLA TORRE, Cat. Hym., V, 1898, p. 257.

Type in British Museum.
Habitat.—West Indies: Grenada.

3. SCEPTROPHORUS SOLUS Howard.

Encyrtus solus HOWARD, Bull. No. 5, U. S. Dept. Agric., Div. Ent., 1885, p. 15, female.—CRESSON, Syn. Hym. N. A., 1887, p. 239.—DALLA TORRE, Cat. Hym., V, 1898, p. 263.

Type.—Cat. No. 2637, U.S.N.M.
Habitat.—Florida.
Host.—Rhynch.: *Trioza magnoliæ* Ashmead.

56. ECHTHROPLEXIS Förster.

1856. *Echthroplexis* FÖRSTER, Hym. Stud., II, p. 33.
1875. *Cœnocercus* THOMSON, Hym. Skand., IV, p. 145.

(Type, *Cœnocercus puncticollis* Thomson.)

1. ECHTHROPLEXIS PUNCTICOLLIS Thomson.

Cœnocercus puncticollis THOMSON, Hym. Skand., IV, 1875, p. 145, female.—DALLA TORRE, Cat. Hym., V, 1898, p. 229.

Habitat.—Europe.

2. ECHTHROPLEXIS HIRTUS Howard.

Encyrtus hirtus HOWARD, Journ. Linn. Soc. Lond. Zool., XXV, 1894, p. 95.—DALLA TORRE, Cat. Hym., V, 1898, p. 259.

Habitat.—West Indies: St. Vincent.

57. OOENCYRTUS Ashmead, new genus.

(Type, *Encyrtus clisiocampæ* Ashmead.)

This genus is proposed for certain species described under the genus *Encyrtus* (sens. lat.), bred from the eggs of different insects, since they can be no longer retained in that genus as now restricted.

It is at once distinguished by the very minute, short, usually punctiform marginal vein, which is *not* or scarcely longer than thick, and the non-developed or extremely short post marginal vein, similar to *Copidosoma* Ratzeburg.

Its other characters, however, are quite different from that genus, the face being short, the antennal characters and punctuation being characteristic. It comes closest to *Prionomastix* Mayr, but its cephalic and antennal peculiarities, made use of in my table, readily separate it from this and allied genera.

Judging from their hosts, the European species *Encyrtus notodontæ*, *E. tardus* Ratzeburg (= *E. ovulorum* Forscolomb) and *E. embryophagus* Hartig, probably belong here.

Our species are are as follows:

1. OOENCYRTUS ANASÆ Ashmead.

Encyrtus anasæ ASHMEAD, Bull. No. 14, U. S. Dept. Agric., Div. Ent., 1887, p. 23, female.—CRESSON, Syn. Hym. N. A., p. 312.—DALLA TORRE, Cat. Hym., V, 1898, p. 254.

Type.—Cat. No. 2853, U.S.N.M.

Habitat.—Florida.

Host.—Rhynch.: Eggs *Anasa tristis* De Geer.

2. OOENCYRTUS CLISIOCAMPÆ Ashmead.

Encyrtus clisiocampæ ASHMEAD, Bull. Ohio Exp. Sta., I, 1893, p. 163, female and male.—DALLA TORRE, Cat. Hym., V, 1898, p. 256.

Type.—Cat. No. 4750, U.S.N.M. (Ashmead collection.)

Habitat.—Ohio.

Host.—Lepid.: Eggs *Clisiocampa disstria* Hübner.

3. OOENCYRTUS GARGARIS Walker.

Encyrtus gargaris WALKER, Ann. Mag. Nat. Hist., XII, 1843, p. 47, male.—DALLA TORRE, Cat. Hym., V, 1898, p. 259.

Habitat.—West Indies: St. Vincent.

4. OOENCYRTUS JOHNSONI Howard.

Encyrtus johnsoni HOWARD, Can. Ent., XXX, 1899, p. 18.

Type.—Cat. No. 1424, U.S.N.M.

Habitat.—Maryland.

Host.—Rhynch.: Eggs *Murgantia histrionica* Hahn.

58. PSYLLÆPHAGUS Ashmead, new genus.

(Type, *Encyrtus pachypsyllæ* Howard.)

This genus comes closest to *Ooencyrtus*, but is at once distinguished by the broader vertex, the position of the lateral ocelli, and the distinct but short postmarginal vein, as pointed out in my table.

The species belonging to it seem to confine their attacks to nymphs in the Homopterous family Psyllidæ.

The following are the known species in North America:

1. PSYLLÆPHAGUS PACHYPSYLLÆ Howard.

Encyrtus pachypsyllæ HOWARD, Bull. No. 5, U. S. Dept. Agric., Div. Ent., 1885, p. 15, female and male.—CRESSON, Syn. Hym. N. A., 1887, p. 239.—DALLA TORRE, Cat. Hym., V, 1898, p. 262.

Type.—Cat. No. 2638, U.S.N.M.

Habitat.—Maryland.

Host.—Rhynch.: *Pachypsylla c.-gemma* Riley.

2. PSYLLÆPHAGUS TRIOZIPHAGUS Howard.

Encyrtus trioziphagus HOWARD, Bull. No. 5, U. S. Dept. Agric., Div. Ent., 1885, p. 14, female and male.—CRESSON, Syn. Hym. N. A., 1887, p. 239.—DALLA TORRE, Cat. Hym., V, 1898, p. 265.

Type.—Cat. No. 2636, U.S.N.M.

Habitat.—District of Columbia.

Host.—Rhynch.: *Trioza diospyri* Ashmead.

59. COCCIDENCYRTUS Ashmead, new genus.

(Type, *Encyrtus ensifer* Howard.)

Comes nearest to *Ooencyrtus* and *Psyllæphagus*, but easily separated by the longer or distinct postmarginal vein, and by the differences in the antennæ, the club in female being much longer than in those two genera, the pedicel shorter, and the funicle joints smaller, submoniliform. In the male the flagellum is much longer, ending in a distinct club, the funicle joints about twice as long as thick, subnodose above and with half whorls of long hairs. The head is transverse, as wide as the thorax, with a vertex of moderate width, not narrow, the ocelli triangularly arranged, the lateral ocelli not lying close to the eye margin—at least their width, or a little more, from it. Abdomen short, triangular, as viewed from above, with the ovipositor subexserted, the sheath projecting somewhat beyond the top of abdomen.

1. COCCIDENCYRTUS ENSIFER Howard.

Encyrtus ensifer HOWARD, Bull. No. 5, U. S. Dept. Agric., 1885, p. 13, female and male.—CRESSON, Syn. Hym. N. A., 1887, p. 239.—DALLA TORRE, Cat. Hym., V, 1898, p. 257.

Type.—Cat. No. 2633, U.S.N.M.

Habitat.—Florida.

Host.—Rhynch.: *Aspidiotus corticalis* Riley manuscript.

60. APHYCUS Mayr.

1875. *Aphycus* MAYR, Verh. Zool.-bot. Ges. Wien, XXV, p. 695.

1875. *Microterys* THOMSON (part), Hym. Skand., IV, p. 155 [sec. *ee*, p. 168].

(Type, *Encyrtus apicalis* Dalman.)

An excellent table by Dr. Howard for distinguishing the females of all the described species in this genus has been published.[1] The known species are as follows:

[1] Proceedings of the U. S. National Museum, XXI, 1899, p. 240.

1. APHYCUS AMŒNUS Howard.

Aphycus amœnus Howard, Journ. Linn. Soc. Lond. Zool., XXVI, 1896, p. 150, male.—Dalla Torre, Cat. Hym., V, p. 251.

Type in British Museum.
Habitat.—West Indies: Grenada.

2. APHYCUS ANNULIPES Ashmead.

Coccophagus annulipes Ashmead, Can. Ent., XIV, 1882, p. 37, female.
Aphycus annulipes Howard, Bull. No. 5, U. S. Dept. Agric., Div. Ent., 1885, p. 19.—Cresson, Syn. Hym. N. A., 1887, p. 238.—Dalla Torre, Cat. Hym., V, 1898, p. 251.—Howard, Proc. U. S. Nat. Mus., XXI, p. 241.

Type.—Cat. No. 4751, U.S.N.M. (Ashmead collection.)
Habitat.—Florida: Jacksonville.
Host.—Rhynch.: *Lecanium* sp. on oak.

3. APHYCUS APICALIS Dalman.

Encyrtus apicalis Dalman, Svensk. Vet.-Akad. Handl., XLI, 1820, p. 153, female.—Nees, Ichn. affin. Monogr., II, 1834, p. 220.—Walker, Ent. Mag , V, 1837, p. 110, female.—Ratzeburg, Ichn. d. Forstins., II, 1848, p. 145.
Aphycus apicalis Mayr, Verh. Zool.-bot. Ges. Wien, XXV, 1875, pp. 695, 696, female.—Dalla Torre, Cat. Hym., V, 1898, p. 251.—Howard, Proc. U. S. Nat. Mus., XXI, 1898, p. 241.
Microterys apicalis Thomson, Hym. Skand., IV, 1875, p. 153.—Dalla Torre, Cat. Hym., V, 1898, p. 233.

Habitat.—Europe and North America.
Host.—Rhynch.: *Pulvinaria carpini* Linnæus.

4. APHYCUS ANGELICUS Howard.

Aphycus angelicus Howard, Proc. U. S. Nat. Mus., XXI, 1898, pp. 241, 245.

Type.—Cat. No. 5044, U.S.N.M.
Habitat.—California: Los Angeles.
Host.—Rhynch.: *Dactylopius* sp. on passion flower.

5. APHYCUS AUSTRALIENSIS Howard.

Aphycus australiensis Howard, Proc. U. S. Nat. Mus., XXI, 1898, pp. 241, 245, female.

Type.—Cat. No. 5045, U.S.N.M.
Habitat.—Australia: Victoria, Melbourne.
Host.—Rhynch.: *Dactylopius* sp. on eucalyptus.

6. APHYCUS ALBERTI Howard.

Aphycus alberti Howard, Proc. U. S. Nat. Mus., XXI, pp. 241, 247, female and male.

Type.—Cat. No. 5051, U.S.N.M.
Habitat.—New South Wales: Sydney.
Host.—Rhynch.: *Lecanium hesperidum* Linnæus.

7. APHYCUS BRUNNEUS Howard.

Aphycus brunneus HOWARD, Bull. No. 5, U. S. Dept. Agric., Div. Ent., 1885, p. 17, female.—CRESSON, Syn. Hym. N. A., 1887, p. 238.—DALLA TORRE, Cat. Hym., V, 1898, p. 25.—HOWARD, Proc. U. S. Nat. Mus., XXI, p. 241.

Type.—Cat. No. 2642, U.S.N.M.
Habitat.—New York; New Jersey.
Host.—Rhynch.: *Diaspis roscæ* Bouché.

8. APHYCUS CALIFORNICUS Howard.

Aphycus californicus HOWARD, Proc. U. S. Nat. Mus., XXI, 1898, pp. 241, 245, female.

Type.—Cat. No. 5043, U.S.N.M.
Habitat.—California: Alameda.
Host.—Rhynch.: *Lecanium* sp. on *Adenostoma fasciculatum.*

9. APHYCUS CEROPLASTIS Howard.

Aphycus ceroplastis HOWARD, Bull. No. 5, U. S. Dept. Agric., Div. Ent., 1885, p. 18, female and male.—CRESSON, Syn. Hym. N. A., 1887, p. 238.—DALLA TORRE, Cat. Hym., V, 1898, p. 241.—HOWARD, Proc. U. S. Nat. Mus., XXI, 1898, p. 241.

Type.—Cat. No. 2643, U.S.N.M.
Habitat.—New Mexico.
Host.—Rhynch.: *Ceroplastes artemisiæ* Riley.

10. APHYCUS COCKERELLI Howard.

Aphycus cockerelli HOWARD, Proc. U. S. Nat. Mus., XXI, 1898, pp. 240, 243, female.

Type.—Cat. No. 5038, U.S.N.M.
Habitat.—New Mexico: Las Cruces.
Host.—Rhynch.: *Lecanium* sp. on osage orange.

11. APHYCUS COQUILLETTI Howard.

Aphycus coquilletti HOWARD, Proc. U. S. Nat. Mus., XXI, 1898, pp. 241, 244.

Type.—Cat. No. 5041, U.S.N.M.
Habitat.—California: Los Angeles.

12. APHYCUS DACTYLOPII Howard.

Aphycus dactylopii HOWARD, Proc. U. S. Nat. Mus., XXI, 1898, pp. 240, 242.

Type.—Cat. No. 5036, U.S.N.M.
Habitat.—China: Hongkong.
Host.—Rhynch.: *Dactylopius vastator* Maskell.

13. APHYCUS ERUPTOR Howard.

Aphycus eruptor HOWARD, Rep. U. S. Dept. Agric., 1880-81, p. 364, pl. XXIII, fig. 5, female and male.—CRESSON, Syn. Hym. N. A., 1887, p. 238.—DALLA TORRE, Cat. Hym., V, 1898, p. 251.—HOWARD, Proc. U. S. Nat. Mus., XXI, 1898, p. 241.

Type.—Cat. No. 2609, U.S.N.M.
Habitat.—Florida.
Host.—Rhynch.: *Lecanium* sp.

14. APHYCUS FLAVICEPS Howard.

Aphycus flaviceps HOWARD, Proc. U. S. Nat. Mus., XXI, 1898, pp. 241, 246, female.

Type.—Cat. No. 5049, U.S.N.M.

Habitat.—Illinois: Champaign.

Host.—Rhynch.: *Lecanium* sp.

15. APHYCUS FLAVUS Howard.

Aphycus flavus HOWARD, Rep. U. S. Dept. Agric., 1880–81, p. 19, female.—CRESSON, Syn. Hym. N. A., 1887, p. 228.—DALLA TORRE, Cat. Hym., V, 1898, p. 251.—HOWARD, Proc. U. S. Nat. Mus., XXI, 1898, p. 241.

Type.—Cat. No. 2610, U.S.N.M.

Habitat.—Florida; West Indies: Grenada.

Host.—Rhynch.: *Mytilaspis citricola* Packard.

16. APHYCUS FUSCIPENNIS Howard.

Aphycus fuscipennis HOWARD, Proc. U. S. Nat. Mus., XXI, 1898, pp. 240, 241.

Type.—Cat. No. 5033, U.S.N.M.

Habitat.—California: Sonoma County.

Host.—Rhynch.: *Lecanium* sp. on *Arctostaphylos pungens.*

17. APHYCUS HEDERACEUS Westwood.

Encyrtus hederaceus WESTWOOD, Phil. Mag. (3), X, 1837, p. 441.—WALKER, Ent. Mag., V, 1837, p. 107, female.

Encyrtus fulvifrons WALKER, Ent. Mag., V, 1837, p. 109, female.

Aphycus hederaceus MAYR, Verh. Zool.-bot. Ges. Wien, XXV, 1875, pp. 695, 696, female.—DALLA TORRE, Cat. Hym., V, 1898, p. 251.—HOWARD, Proc. U. S. Nat. Mus., XXI, 1898, p. 241.

Habitat.—Europe.

Host.—Rhynch.: *Lecanium phalaridis.*

18. APHYCUS IMMACULATUS Howard.

Aphycus immaculatus HOWARD, Ins. Life, VI, 1894, p. 236, fig. 1, male.—DALLA TORRE, Cat. Hym., V, p. 251.

Type.—Cat. No. 1474, U.S.N.M.

Habitat.—California.

Host.—Rhynch.: *Aspidiotus aurantii* Maskell.

19. APHYCUS JOHNSONI Howard.

Aphycus johnsoni HOWARD, Proc. U. S. Nat. Mus., XXI, 1898, pp. 241, 244, female.

Type.—Cat. No. 5040, U.S.N.M.

Habitat.—Illinois: Champaign.

Host.—Rhynch.: *Lecanium* sp. on elm.

20. APHYCUS LECANII Howard.

Aphycus lecanii HOWARD, Proc. U. S. Nat. Mus., XXI, 1898, pp. 240–242, female and male.

Type.—Cat. No. 5034, U.S.N.M.

Habitat.—California: Alameda and Los Angeles counties.

Host.—Rhynch.: *Lecanium* sp. on *Pinus insignis*, *Lecanium* sp. on *Heteromeles arbutifolia*, and a *Lecanium* sp. on *Quercus agrifolia.*

21. APHYCUS LICHTENSIÆ Howard.

Aphycus lichtensiæ HOWARD, Proc. U. S. Nat. Mus., XVIII, 1896, p. 640, female.—DALLA TORRE, Cat. Hym., V, 1898, p. 251.—HOWARD, Proc. U. S. Nat. Mus., XXI, 1898, p. 240.

Type.—Cat. No. 3259, U.S.N.M.
Habitat.—Ceylon.
Host.—Rhynch.: *Lichtensia koebelei* Maskell.

22. APHYCUS LOUNSBURYI Howard.

Aphycus lounsburyi HOWARD, Proc. U. S. Nat. Mus., XXI, 1898, pp. 241, 244, female.

Type.—Cat. No. 5042, U.S.N.M.
Habitat.—South Africa: Cape Town.
Host.—Rhynch.: *Lecanium oleæ* Bernard.

23. APHYCUS MACULIPES Howard.

Aphycus maculipes HOWARD, Bull. No. 5, U. S. Dept. Agric., Div. Ent., 1885, p. 18, female and male.—CRESSON, Syn. Hym. N. A., 1887, p. 238.—DALLA TORRE, Cat. Hym., V, 1898, p. 252.—HOWARD, Proc. U. S. Nat. Mus., XXI, 1898, p. 241.

Type.—Cat. No. 2644, U.S.N.M.
Habitat.—South Carolina.
Host.—Rhynch.: *Lecanium* sp. on water oak.

24. APHYCUS MEXICANUS Howard.

Aphycus mexicanus HOWARD, Proc. U. S. Nat. Mus., XXI, 1898, pp. 241, 247, female.

Type.—Cat. No. 5050, U.S.N.M.
Habitat.—Louisiana: Baton Rouge; Mexico: City of Mexico.
Host.—Rhynch.: *Ceroplastes cerripediformis* Comstock and *Ceroplastes* sp.

25. APHYCUS NIGRITUS Howard.

Aphycus nigritus HOWARD, Proc. U. S. Nat. Mus., XXI, 1898, pp. 241, 243.

Type.—Cat. No. 5039, U.S.N.M.
Habitat.—California: Los Angeles.
Host.—Rhynch.: *Dactylopius* sp. on *Artemisia.*

26. APHYCUS OAXACÆ Howard.

Aphycus oaxacæ HOWARD, Proc. U. S. Nat. Mus., XXI, 1898, pp. 241, 246, female.

Type.—Cat. No. 5047, U.S.N.M.
Habitat.—Mexico: Oaxaca.

27. APHYCUS OREGONENSIS Howard.

Aphycus oregonensis HOWARD, Proc. U. S. Nat Mus., XXI, 1898, pp. 241, 246, female.

Type.—Cat. No. 5048, U.S.N.M.
Habitat.—Oregon: Aumsville, Marion County.
Host—Rhynch.: *Pulvinaria* sp. on Oregon flowering currant.

28. APHYCUS PULCHELLUS Howard.

Aphycus pulchellus HOWARD, Proc. U. S. Nat. Mus., XXI, 1898, pp. 241, 242, female.

Type.—Cat. No. 5035, U.S.N.M.
Habitat.—New York: Ithaca.
Host.—Rhynch.: *Kermes* sp. on oak, *Quercus tinctoria.*

29. APHYCUS PUNCTIPES Dalman.

Encyrtus punctipes DALMAN, Svensk. Vet.-Akad. Handl., XLI, 1820, pp. 30, 370, pl. VIII, fig. 60.—NEES, Hym. Ichn. affin. Monogr., II, 1834, p. 201.—WALKER, Ent. Mag., V, 1837, p. 108, female and male.—STEPHENS, Illustr. Brit. Ent. Suppl., 1846, p. 9, pl. XLVI, fig. 4.—RATZEBURG, Ichn. d. Forstins., II, 1848, p. 146, female and male; III, 1852, p. 189, pl. III, fig. 14.—VOLLENHOVEN, Pinacogr., 1879, p. 55, pl. XXXV, fig. 7.

Aphycus punctipes MAYR, Verh. Zool.-bot. Ges. Wien, XXV, 1875, pp. 696, 697, female and male.—DALLA TORRE, Cat. Hym., V, 1898, p. 252.—HOWARD, Proc. U. S. Nat. Mus., XXI, 1898, p. 240, female.

Microterys punctipes THOMSON, Hym. Skand., IV, 1875, p. 168, female and male.—DALLA TORRE, Cat. Hym., V, 1898, p. 238.

Habitat.—Europe; North America.
Host.—Rhynch.: *Pulvinaria vitis* Linnæus.

30. APHYCUS PULVINARIÆ Howard.

Aphycus pulvinariæ HOWARD, Rep. U. S. Dept. Agric., 1880–81, p. 18, female and male.—CRESSON, Syn. Hym. N. A., 1887, p. 238.

Type.—Cat. No. 2611, U.S.N.M.
Habitat.—Iowa.
Host.—Rhynch.: *Pulvinaria* sp.

31. APHYCUS TEXANUS Howard.

Aphycus texanus HOWARD, Proc. U. S. Nat. Mus., XXI, 1898, pp. 241, 245, female.

Type.—Cat. No. 5046, U.S.N.M.
Habitat.—Texas: Brownsville.
Host.—Rhynch.: *Dactylopius virgatus* Cockerell.

32. APHYCUS TOWNSENDI Howard.

Aphycus townsendi HOWARD, Proc. U. S. Nat. Mus., XXI, 1898, pp. 240, 243, female.

Type.—Cat. No. 5037, U.S.N.M.
Habitat.—New Mexico: Mesilla Park.
Host.—Rhynch.: *Phenacoccus* sp. on cotton.

61. HETERARTHRELLUS Howard.

1898. *Heterarthrellus* HOWARD, Proc. U. S. Nat. Mus., XXI, p. 239.

(Type, *Heterarthrellus australiensis* Howard.)

1. HETERARTHRELLUS AUSTRALIENSIS Howard.

Heterarthrellus australiensis HOWARD, Proc. U. S. Nat. Mus., XXI, 1898, p. 239, female and male.

Type.—Cat. No. 5032, U.S.N.M.

Habitat.—New South Wales: Parametta.

Host.—Coleop.: *Scymnus flavifrons* Blackburn; *Rhizobius debilis* Blackburn.

62. ASTYMACHUS Howard.

1898. *Astymachus* HOWARD, Proc. U. S. Nat. Mus., XXI, p. 238.

(Type, *Astymachus japonicus* Howard.)

1. ASTYMACHUS JAPONICUS Howard.

Astymachus japonicus HOWARD, Proc. U. S. Nat. Mus., XXI, 1898, p. 239.

Type.—Cat. No. 5031, U.S.N.M.

Habitat.—Japan: Gifu.

Host.—Rhynch.: Lecanium-like coccid on *Bambusa*.

63. BLASTOTHRIX Mayr.

1875. *Blastothrix* MAYR, Verh. Zool.-bot. Ges. Wien, XXV, p. 697.

1875. *Microterys* THOMSON (part), Hym. Skand., IV, p. 155 [Sec. A, p. 155].

(Type, *Encrytus sericeus* Dalman.)

1. BLASTOTHRIX ADJUTABILIS Howard.

Blastothrix adjutabilis HOWARD, Rep. U. S. Dept. Agric., 1880–81, p. 365, female; pl XXIII, fig. 6.—CRESSON, Syn. Hym. N. A., 1887, p. 239.—DALLA TORRE, Cat. Hym., V, 1898, p. 252.

Type.—Cat. No. 2612, U.S.N.M.

Habitat.—Florida; Virginia.

Host.—Rhynch.: *Lecanium* sp.

2. BLASTOTHRIX INCERTA Howard.

Blastothrix incerta HOWARD, Rep. U. S. Dept. Agric., 1880–81, p. 366, male.—CRESSON, Syn. Hym. N. A., 1887, p. 239.—DALLA TORRE, Cat. Hym., V, 1898, p. 252.

Type.—Cat. No. 2613, U.S.N.M.

Habitat.—Florida.

Host.—*Lecanium* sp.

3. BLASTOTHRIX INSOLITA Howard.

Blastothrix insolita HOWARD, Journ. Linn. Soc. Lond. Zool., XXVI, 1896, p. 150, female.—DALLA TORRE, Cat. Hym., V, 1898, p. 252.

Type in British Museum.

Habitat.—West Indies: Grenada.

4. BLASTOTHRIX SERICEA Dalman.

Encrytus sericeus DALMAN, Svensk. Vet.-Akad. Handl., XLI, 1820, p. 357, female.

Encrytus sericeus DALMAN, Svensk. Vet.-Akad. Handl., XLI, 1820, p. 363, male.

Encrytus sericeus NEES, Hym. Ichn. Affin. Monogr., II, 1834, p. 217, female.

Encyrtus sericans NEES, Ichn. Affin. Monogr., II, p. 247, male.

Encyrtus sericeus WALKER, Ent. Mag., V, 1837, p. 72, female and male.—RATZEBURG, Ichn. d. Forstins., III, 1852, p. 189, female.

Encyrtus sericans RATZEBURG, Ichn. d. Forstins., III, p. 193, male.

Microterys sericeus THOMSON, Hym. Skand., IV, 1875, p. 156, female and male.

Blastothrix sericeus MAYR, Verh. Zool.-bot. Ges. Wien, XXV, 1875, pp. 698–700, female and male.—WACHTL, Wien. Ent. Zeitg., I, 1882, p. 296.—DALLA TORRE, Nat. Hym., IV, p. 253.

Blastothrix longipennis HOWARD, Rep. U. S. Dept. Agric., 1880–81, p. 366, female.—CRESSON, Syn. Hym. N. A., 1887, p. 239.—DALLA TORRE, Cat. Hym., V, 1898, p. 252.

Type.—Cat. No. 2614, U.S.N.M. (*longipennis* Howard).

Habitat.—Europe; North America.

Hosts.—Rhynch.: *Pulvinaria vitis* Linnæus; *Lecanium æsculi* Kollar.

A common and widely distributed species.

5. BLASTOTHRIX YUCCÆ Coquillett.

Blastothrix yuccæ COQUILLETT, West Am. Scient., VII, 1890, p. 44.—DALLA TORRE, Cat. Hym., V, 1898, p. 253.

Type.—Cat. No. 1476, U.S.N.M.

Habitat.—California.

Host.—Rhynch.: *Pseudococcus yuccæ* Coquillett.

64. MICROTERYS Thomson.

1875. *Microterys* THOMSON (part), Hym. Skand., IV, p. 155 [Sec. B, p. 157].

(Type, *Encyrtus sylvius* Dalman.)

1. MICROTERYS CHALCOSTOMUS Dalman.

Encyrtus chalcostomus DALMAN, Svensk. Vet.-Akad. Handl., XLI, 1820, p. 342, female.—NEES, Hym. Ichn. Affin. Monogr., II, 1834, p. 207.

? Encyrtus æstivus DALMAN, Svensk. Vet.-Akad. Handl., XLI, p. 365, male.—NEES, Hym. Ichn. Affin. Monogr., II, p. 250.

Encyrtus chalcostomus MAYR, Verh. Zool.-bot. Ges. Wien, XXV, 1875, pp. 706, 719, female.

Microterys chalcostomus THOMSON, Hym. Skand., IV, 1875, p. 159.—DALLA TORRE, Cat. Hym., V, 1898, p. 234.

Habitat.—Europe.

Host.—Rhynch.: *Lecanium æsculi* Kollar, *L. quercus* Linnæus.

2. MICROTERYS CINCTICORNIS Ashmead, new species.

This species probably represents a variety of the European *M. tessellatus* Dalman. It agrees with it in stature and in wing markings, except that the triangular white marginal spots are connected so as to form an additional band, while the head and thorax at sides, too, are quite differently colored. The head, the pronotum, except above, the sides of the thorax, and the legs, are brownish-yellow, while the mesonotum is metallic blue.

Type.—Cat. No. 4769, U.S.N.M. (Ashmead collection.)

Habitat.—New Hampshire: Mount Washington. (Mrs. A. T. Slosson.)

3. MICROTERYS CYANOCEPHALUS Dalman.

Encyrtus cyanocephalus DALMAN, Svensk. Vet.-Akad Handl., XLI, 1820, p. 344, female.—NEES, Hym. Ichn. Affin. Monogr., II, 1834, p. 211.—MAYR, Verh. Zool.-bot. Ges. Wien, XXV, 1875, pp. 709, 714, 720, female and male.

Microterys cyanocephalus THOMSON, Hym. Skand., IV, 1875, p. 159.—DALLA TORRE, Cat. Hym., V, 1898, p. 234.

Habitat.—Europe.

Host.—Rhynch.: *Pulvinaria carpini* Linnæus.

4. MICROTERYS FASCIPENNIS Dalman.

Encyrtus fascipennis DALMAN, Svensk. Vet.-Akad. Handl., XLI, 1820, p. 354, female.—NEES, Hym. Ichn. Affin. Monogr., II, 1834, p. 243.—MAYR, Verh. Zool.-bot. Ges. Wien, XXV, 1875, pp. 709, 721.

Microterys fascipennis THOMSON, Hym. Skand., IV, 1875, p. 161, female.—DALLA TORRE, Cat. Hym., V, 1898, p. 234.

Habitat.—Europe.

Host.—Rhynch.: *Lecanium racemosum* Ratzeburg, *Physokermes abietis* Modeer.

5. MICROTERYS FLAVUS Howard.

Encyrtus flavus HOWARD, Rep. U. S. Dept. Agric., 1880–81, p. 367, female and male, pls. 236-238.—CRESSON, Syn. Hym. N. A., 1887, p. 239.—DALLA TORRE, Cat. Hym., V, 1898, p. 258.

Type.—Cat. No. 2615, U.S.N.M.

Habitat —California.

Host.—Rhynch.: *Lecanium hesperidum* Linnæus, *L. piperis* Green.

6. MICROTERYS GASTRON Walker.

Encyrtus gastron WALKER, Ann. and Mag. Nat. Hist., XX, 1847, p. 21, female.—DALLA TORRE, Cat. Hym., V, 1898, p. 259.

Habitat.—Florida.

7. MICROTERYS INTERPUNCTUS Dalman.

Encyrtus interpunctus DALMAN, Svensk. Vet.-Akad. Handl., XLI, 1820, p. 157, female.—NEES, Hym. Ichn. Affin. Monogr., II, 1834, p. 209.—MAYR, Verh. Zool.-bot. Ges. Wien, 1875, pp. 708, 720.

Microterys interpunctus THOMSON, Hym. Skand., IV, 1875, p. 160.—DALLA TORRE, Cat. Hym., V, 1898, p. 234.

Habitat.—Europe; North America.

8. MICROTERYS IMBRASUS Walker.

Encyrtus imbrasus WALKER, Ann. and Mag. Nat. Hist., XX, 1847, p. 23.—CRESSON, Syn. Hym. N. A., 1887, p. 239.—DALLA TORRE, Cat. Hym., V, 1898, p. 259.

Habitat.—North America.

9. MICROTERYS LICHTENSIÆ Howard.

Encyrtus lichtensiæ HOWARD, Proc. U. S. Nat. Mus., XVIII, 1896, p. 63?, female.—DALLA TORRE, Cat. Hym., V, 1898, p. 620.

Type.—Cat. No. 3252, U.S.N.M.
Habitat.—Ceylon.
Host.—Rhynch.: *Lichtensia koebelei* Maskell.

10. MICROTERYS LUNATUS Dalman.

Encyrtus lunatus DALMAN, Svensk. Vet.-Akad. Handl., XLI, 1820, p. 156, female.
(?) *Encyrtus aestivus* NEES, Hym. Ichn. Affin. Monogr., II, 1834, p. 250, male; Hym. Ichn. Affin. Monogr., II, 1834, p. 250.
Encyrtus cedrenus WALKER, Ent. Mag., V, 1837, p. 112, female.
Encyrtus lunatus ZETTERSTEDT, Ins. Lappon., I, 1838, p. 431.
Encyrtus cleone WALKER, Ann. and Mag. Nat. Hist., XIV, 1844, p. 407, female.
Encyrtus lunatus MAYR, Vehr. Zool.-bot. Ges. Wien, XXV, 1875, pp. 706, 715, 719, female.—VOLLENHOVEN, Pinacogr., 1879, p. 55, pl. XXXV, fig. 8.
Microterys lunatus THOMSON, Hym. Skand., IV, 1875, p. 161, female and male.—DALLA TORRE, Cat. Hym., V, 1898, p. 255.

Habitat.—Europe; North America.

11. MICROTERYS MARGINATUS Ashmead, new species.

Female.—Length, 1.5 mm. Ferruginous; the mesonotum and the scutellum with a brownish metallic tinge; abdomen aeneous black; joints 3–6 of funicle white; club black; wings dark fuscous with the extreme apical margins white.

Type.—Cat. No. 4770, U.S.N.M. (Ashmead collection.)
Habitat.—New Mexico.

Described from specimen received some years ago from Prof. T. D. A. Cockerell.

12. MICROTERYS MONTINUS Packard.

Encyrtus montinus PACKARD, Proc. Bost. Soc. Nat. Hist., XXI, 1881, p. 31, female.—CRESSON, Syn. Hym. N. A., 1887, p. 239.—HOWARD, Proc. Wash. Ent. Soc., I, 1888, p. 91; in Scudder's Butterflies, East U. S., 1889, p. 1887, female; pl. LXXXIX, fig. 4.—DALLA TORRE, Cat. Hym., V, 1898, p. 261.

Type in Museum of Comparative Zoology, Cambridge, Massachusetts.
Habitat.—New Hampshire.
Host.—Lepid.: *Chionobas semidea* Say.

13. MICROTERYS SUBCUPRATUS Dalman.

Encyrtus subcupratus DALMAN, Svensk. Vet.-Akad. Handl., XLI, 1820, p. 346, female.—NEES, Hym. Ichn. Affin. Monogr., II, 1834, p. 215, female.—WALKER, Ent. Mag., IV, 1837, p. 460, female and male.
Microterys subcupratus THOMSON, Hym. Skand., IV, 1875, p. 161, female.—DALLA TORRE, Cat. Hym., V, 1898, p. 235.

Habitat.—Europe.

14. MICROTERYS SUBLESTUS Howard.

Encyrtus sublestus Howard, Bull. No. 5, U. S. Dept. Agric., Div. Ent., 1885, p. 12, male.—Cresson, Syn. Hym. N. A., 1887, p. 239.—Dalla Torre, Cat. Hym., V, 1898, p. 264.

Type.—Cat. No. 2632, U.S.N.M.
Habitat.—Florida.
Host.—Rhynch.: *Lecanium* sp.

15. MICROTERYS SYLVIUS Dalman.

——— ——— Frisch, Beschr. Ins. Teutschl., IX, 1730, p. 38, pl. III, fig. 22.
Encyrtus sylvius Dalman, Svensk. Vet.-Akad. Handl., XLI, 1820, p. 154, female.
Encyrtus zephyrinus Dalman, Svensk. Vet.-Akad. Handl., XLI, p. 167, male.
Encyrtus sylvius Nees, Hym. Ichn. Affin. Monogr., II, 1834, p. 205.
Encyrtus zephyrinus Nees, Ichn. Affin. Monogr., II, p. 245.
Encyrtus sylvius Walker, Ent. Mag., V, 1837, p. 103, female.—Ratzeburg, Ichn. d. Forstins., I, 1844, p. 214.
Encyrtus zephyrinus Ratzeburg, Ichn. d. Forstins., I, p. 214.
Encyrtus sylvius Mayr, Verh. Zool.-bot. Ges. Wien, XXV, pp. 706, 714, 719, female and male.
Microterys sylvius Thomson, Hym. Skand., IV, p. 157.—Dalla Torre, Cat. Hym., V, p. 235.

Habitat.—Europe; North America; Canada.
Hosts.—Rhynch.: *Palvinaria betulæ* Linnæus, *Lecanium pruni*, *L. coryli* Linnæus, *L. æsculi* Kollar.

16. MICROTERYS TACHARDIÆ Howard.

Encyrtus tachardiæ Howard, Proc. U. S. Nat. Mus., XVIII, 1896, p. 637, male.—Dalla Torre, Cat. Hym., V, 1898, p. 264.

Type.—Cat. No. 3253, U.S.N.M.
Habitat.—Ceylon.
Host.—Rhynch.: *Tachardia albizziæ* Green.

17. MICROTERYS TESSELLATUS Dalman.

Encyrtus tessellatus Dalman, Svensk. Vet.-Akad. Handl., XLI, 1820, p. 342, female.—Nees, Hym. Ichn. affin. Monogr., II, 1834, p. 209.—Walker, Ent. Mag., V, 1837, p. 55, female.—Mayr, Verh. Zool.-bot. Ges. Wien, XXV, 1875, p. 708, 720, female.
Microterys tessellatus Thomson, Hym. Skand., IV, 1898, p. 160, female.—Dalla Torre, Cat. Hym., V, 1898, p. 236.

Habitat.—Europe.

18. (?) MICROTERYS BOLUS Walker.

Encyrtus bolus Walker, Ann. and Mag. Nat. Hist., XIV, 1844, p. 17, female.—Cresson, Syn. Hym. N. A., 1887, p. 239.—Dalla Torre, Cat. Hym., V, 1898, p. 256.

Habitat.—Hudson Bay.
Host.—Rhynch.: Coccid on willows.

19. (?) MICROTERYS DUBIUS Howard.

Encyrtus dubius Howard, Ins. Life, I, 1880, p. 270, fig. 66, male.
Encyrtus dubiosus Dalla Torre, Cat. Hym., V, 1898, p. 257.

Type.—Cat. No. 2704, U.S.N.M.
Habitat.—California.
Host.—Rhynch.: *Icerya purchasi* Maskell.

20. MICROTERYS FUSCICORNIS Howard.

Encyrtus fuscicornis Howard, Bull. No. 5, U. S. Dept. Agric., Div. Ent., 1885, p. 13, female.—Cresson, Syn. Hym. N. A., 1887, p. 239.—Dalla Torre, Cat. Hym., V, 1898, p. 258.

Type.—Cat. No. 2634, U.S.N.M.
Habitat.—Maryland.

65. HOLCENCYRTUS Ashmead, new genus.

(Type, *Aphycus niger* Ashmead.)

Resembles both *Aphycus* and *Blastothrix*. The front wings have a hairless oblique line, extending from base of stigmal vein to the hind margin as in *Aphycus*, but the venation is quite different: The marginal vein is distinct, *not* punctiform, although shorter than the stigmal vein; the postmarginal vein is long, well developed, and a little longer than the marginal and stigmal veins united. The antennæ are subclavate, the scape only slightly thickened towards tip, and not at all dilated beneath, as in *Aphycus* and *Blastothrix*, while all the joints of the funicle, in the male, are wider than long, neither subdentate, nor with half whorls of hairs, as in *Blastothrix*. The body, at the most, is clothed with a fine, sparse pubescence; the head and thorax are subopaque, finely coriaceous; the frons broad; the ocelli arranged in a triangle, the lateral far from the eye margin; scrobes distinct; scutellum a little longer than the mesonotum, with a delicate grooved line at the basal half; metathorax very short, abrupt; abdomen small, oval, depressed, scarcely two-thirds the length of the thorax.

1. HOLCENCYRTUS NIGER Ashmead.

Aphycus niger Ashmead, Ent. Amer., IV, 1888, p. 15, male.—Dalla Torre, Cat. Hym., V, 1898, p. 252.

Type.—Cat. No. 4752, U.S.N.M. (Ashmead collection.)
Habitat.—Florida: Jacksonville.

66. AGENIASPIS Dahlbom.

1857. *Ageniaspis* Dahlbom, Öfvers. Svensk. Vet.-Akad. Förh., XIV, p. 297.
1875. *Holcothorax* Mayr, Verh. Zool.-bot. Ges. Wien, XXV, p. 69.

(Type, *Encyrtus fuscicollis* Dalman.)

1. AGENIASPIS ATRICOLLIS Dalman.

Encyrtus atricollis Dalman, Svensk. Vet.-Akad. Handl., XLI, 1820, p. 358, female.—Nees, Hym., Ichn. affin. Monogr., II. 1834, p. 237, female.

Ichneumon (*Encyrtus*) *atricollis* RATZEBURG, Ichn. d. Forstins., 1844, p. 29, pl. VIII, fig. 13.

Encyrtus atricollis RATZEBURG, Ichn. d. Forstins., I, 1844, p. 213, female and male; II, 1848, p. 146, pl. VIII, fig. 13; III, 1852, p. 190.

Holcothorax atricollis MAYR, Verh. Zool.-bot. Ges. Wien, XXV, 1875, pp. 693, 694, female.

Ageniaspis atricollis THOMSON, Hym. Skand., IV, 1875, p. 182, female and male.—DALLA TORRE, Cat. Hym., V, 1998, p. 250.

Habitat.—Europe.

Host.—Lepid.: *Tinea evonymella* Linnæus. *T. padella* Linnæus.

2. AGENIASPIS FUSCICOLLIS Dalman.

Encyrtus fuscicollis DALMAN, Svensk. Vet.-Akad. Handl., XLI, 1820, p. 359, female and male.

Pteromalus cyanocephalus BOUCHÉ, Naturg. d. Ins., 1834, p. 167.

Encyrtus fuscicollis NEES, Hym. Ichn. affin. Monogr., II, 1834, p. 236; Hym. Ichn. affin. Monogr., II, p. 434.—WALKER, Ent. Mag., V, 1838, p. 420, female and male.

Encyrtus cyanocephalus WALKER, Ent. Mag., VI, p. 421.—GOUREAU, Ann. Soc. Ent. France (2), V, 1847, p. 244.

Holcothorax fuscicollis MAYR, Verh. Zool.-bot. Ges. Wien, XXV, 1875, p. 693, female and male.

Ageniaspis fuscicollis THOMSON, Hym. Skand., IV, 1875, p. 82, female.

Encyrtus fuscicollis BUGNION, Rec. Zool. Suisse, V, 1890, p. 435; types 20 to 22.

Ageniaspis fuscicollis DALLA TORRE, Cat. Hym., V, 1898, p. 250.—MARCHAL, Compt. rend. Soc. Biol., July 22, 1899.

Habitat.—Europe.

Host.—Lepid.: *Hyponomeuta evonymella* Linnæus, and *H. cognatella* Treitsche and *H. padella* Linnaeus.

3. AGENIASPIS NEPTICULÆ Mayr.

Holcothorax nepticulæ MAYR, Verh. Zool.-bot. Ges. Wien, XXV, 1895, pp. 692, 693, female.

Ageniaspis nepticulæ DALLA TORRE, Cat. Hym., V, 1898, p. 250.

Habitat.—Europe.

Host.—Lepid.: *Nepticula splendidissimella* Herrich-Schaeffer.

4. AGENIASPIS TESTACEIPES Ratzeburg.

Encyrtus testaceipes RATZEBURG, Ichn. d. Forstins., II, 1848, p. 148, pl. III, fig. 5.

Holcothorax testaceipes MAYR, Verh. Zool.-bot. Ges. Wien, XXV, 1875, pp. 692, 693, female and male.

Ageniaspis testaceipes DALLA TORRE, Cat. Hym., V, 198, p. 250.

Habitat.—Europe.

Host.—Lepid.: *Lithocolletis quercifoliella* Zeller, *L. cramerella* Fabricius, *L. complanella* Hübner, *L. populifoliella* Treitsche, and *L. alniella* Zeller.

5. AGENIASPIS BUCCULATRICIS Howard.

Encyrtus buculatricis HOWARD, in Lintner's First Ann. Rep. N. Y., 1882, p. 160, fig. 43.—CRESSON, Syn. Hym. N. A., 1887, p. 239.—DALLA TORRE, Cat. Hym., V, 1898, p. 256.

Type.—Cat. No. 4768, U.S.N.M.

Habitat.—New York.

Host.—Lepid.: *Bucculatrix pomifoliella* Clemens.

67. PSEUDENCYRTUS Ashmead, new genus.

(Type, *Encyrtus cecidomyiæ* Howard.)

To this genus belong several species placed by writers in *Encyrtus* (sens. lat.). It is founded upon *Encyrtus cecidomyiæ* Howard, and to it belongs also the European species *Encyrtus clavellatus* Dalman.

The species are strongly metallic and live parasitically in the Dipterous larvæ belonging to the family Cecidomyidæ.

The thorax is smooth, impunctate, or at most with a delicate, microscopically reticulate punctuation; the stigmal vein is rather long, oblique, and usually a little longer than the marginal and postmarginal veins united; the axillæ do not quite meet at their inner basal angles; the antennæ are moderately long, subclavate, the 3-jointed club not much enlarged, only about half the length of the funicle or less, and not much thicker than the terminal joint of the funicle; the funicle 6-jointed, subcylindrical, the joints all longer than wide, never moniliform, while the abdomen in female, in outline, is conic-ovate, depressed above and usually somewhat longer than the head and thorax united, or at least as long, the ovipositor always slightly exserted.

1. PSEUDENCYRTUS CECIDOMYIÆ Howard.

Encyrtus cecidomyiæ Howard, Bull. No. 5, U. S. Dept. Agric., Div. Ent., 1885, p. 16, female and male.—Cresson, Syn. Hym. N. A., 1887, p. 239.—Dalla Torre, Cat. Hym., V, 1898, p. 256.

Type.—Cat. No. 2639, U.S.N.M.

Habitat.—Virginia; New York.

Host.—Dipt.: *Cecidomyia salicis-siliqua* Walsh.

2. PSEUDENCYRTUS NITIDUS Howard.

Encyrtus nitidus Howard, Journ. Linn. Soc. Lond. Zool., XXV, 1894, p. 94, female.—Dalla Torre, Cat. Hym., V, 1898, p. 261.

Type.—Cat. No. 2722, U.S.N.M.; also in British Museum.

Habitat.—West Indies: St. Vincent.

3. PSEUDENCYRTUS ROTUNDIFORMIS Howard.

Encyrtus rotundiformis Howard, Journ. Linn. Soc. Lond. Zool., XXVI, 1896, p. 154, female.—Dalla Torre, Cat. Hym., V, 1898, p. 263.

Type.—Cat. No. 4852, U.S.N.M.; also in British Museum.

Habitat.—West Indies: Grenada.

To this genus also probably belong the European species *Microterys barbarus* Dalman, and *M. brevicornis* Dalman.

68. EPIENCYRTUS Ashmead, new genus.

(Type, *Encyrtus thyreodontis* Ashmead.)

This genus represents part of a group to which European writers have applied the generic term *Encyrtus* Dalman. The types of the genus are *Encyrtus thyreodontis* Ashmead and *Enc. melanaeis* Dalman.

It comprises a group which appears to be hyperparasitic on Ichneumon flies belonging to the subfamily *Ophioninæ;* at least such appears to be the case with two of the North American species, and I should not be surprised to find all the species, falling in the genus, hyperparasitic.

The stigmal vein is never longer than the marginal and postmarginal united, most frequently distinctly shorter; the axillæ usually meet at their inner basal angle; the antennæ are rather short, the club much enlarged, as long, longer, or nearly as long as the funicle, and from two to three or more times wider than the last joint of the funicle; the funicle is 6-jointed, short, the joints transverse wider than long, or at least the 3 or 4 terminal joints, or the first 3 or 4 joints are moniliform, while the abdomen is ovate or pointed ovate, but not longer than the head and thorax united, usually somewhat shorter, the ovipositor not or only slightly extending beyond the tip of the abdomen.

1. EPIENCYRTUS ARTACEÆ Howard.

Encyrtus artaceæ HOWARD, Rep. U. S. Dept. Agric., 1880–81, p. 252, female and male.—CRESSON, Syn. Hym. N. A., 1887, p. 239.—DALLA TORRE, Cat. Hym., V, 1898, p. 255.

Type.—Cat. No. 1469, U.S.N.M.

Habitat.—Florida.

Host.—Lepid.: *Artace punctistriga* Walker, affected by an Ophionid.

2. EPIENCYRTUS THYREODONTIS Ashmead.

Encyrtus thyreodontis ASHMEAD, Proc. Wash. Ent. Soc., IV, 1898, p. 156, female and male.

Type.—Cat. No. 4753, U.S.N.M. (Ashmead collection.)

Habitat.—Massachusetts: Cambridge.

Host.—Hymen.: *Thyreodon morio* Fabricius.

3. EPIENCYRTUS MELANACIS Dalman.

Encyrtus melanacis DALMAN, Svensk. Vet.-Akad. Handl., XLI, 1820, p. 345, female.—NEES, Ichn. Affin. Monogr., II, 1834, p. 213, female.—MAYR, Verh. Zool.-bot. Ges. Wien, XXV, 1875, p. 701, female.

Microterys melanacis THOMSON, Hym. Skand., IV, 1875, p. 167, female and male.—DALLA TORRE, Cat. Hym., V, 1898, p. 285.

Habitat.—Europe.

4. EPIENCYRTUS SORDIDUS Howard.

Encyrtus sordidus HOWARD, Journ. Linn. Soc. Lond., Zool., XXVI, 1896, p. 153. female.—DALLA TORRE, Cat. Hym., V, 1898, p. 263.

Habitat.—West Indies: Grenada.

69. SYRPHOPHAGUS Ashmead, new genus.

(Type, *Encyrtus mesograptæ* Ashmead.)

In wing venation this genus comes nearest to *Epiencyrtus*, but is easily separated, in the female sex, by the marked difference in the antennæ brought out in my table.

1. (?) SYRPHOPHAGUS FLAVICLAVUS Howard.

Encyrtus flaviclavus HOWARD, Journ. Linn. Soc. Lond., Zool., XXV, 1896, female.—DALLA TORRE, Cat. Hym., V, 1898, p. 258.

Habitat.—West Indies: St. Vincent.

2. SYRPHOPHAGUS MESOGRAPTÆ Ashmead.

Encyrtus mesograptæ ASHMEAD, Tr. Am. Ent. Soc., XXIII, 1896, p. 232, female and male.—DALLA TORRE, Cat. Hym., V, 1898, p. 261.

Type.—Cat. No. 4754, U.S.N.M. (Ashmead collection.)
Habitat.—Florida.
Host.—Dipt.: *Mesograpta polita* Say.

3. SYRPHOPHAGUS QUADRIMACULATÆ Ashmead.

Pteromalus 4-maculatæ ASHMEAD (part), Tr. Am. Ent. Soc., XIV, 1887, p. 191.

Type.—Cat. No. 4755, U.S.N.M. (Ashmead collection.)
Habitat.—Florida.
Host.—Dipt.: *Syrphus ribesii* Linnæus.

4. SYRPHOPHAGUS MODERATUS Howard.

Encyrtus moderatus HOWARD, Journ. Linn. Soc. Lond., Zool., XXVI, 1896, p. 152, female.—DALLA TORRE, Cat. Hym., V, 1898, p. 261.

Type.—Cat. No. 4756, U.S.N.M.; also in British Museum.
Habitat.—West Indies: Grenada.

5. SYRPHOPHAGUS SUBMETALLICUS Howard.

Encyrtus submetallicus HOWARD, Journ. Linn. Soc. Lond., Zool., XXVI, 1896, p. 157, female.—DALLA TORRE, Cat. Hym., V, p. 264.

Type.—Cat. No. 4757, U.S.N.M.; also in British Museum.
Habitat.—West Indies: Grenada.

6. SYRPHOPHAGUS VECTIUS Walker.

Encyrtus vectius WALKER, Ann. and Mag. N. Hist., XX, 1847, p. 21, male.—CRESSON, Syn. Hym. N. A., 1887, p. 239.—DALLA TORRE, Cat. Hym., V, 1898, p. 265.

Habitat.—Florida.

70. APHIDENCYRTUS Ashmead, new genus.

(Type, *Encyrtus aphidiphagus* Ashmead.)

The characters used in my table of genera readily separate this genus from *Pseudencyrtus* and *Epiencyrtus*, the only genera, except possibly *Ooencyrtus*, with which it could be confused. Its resemblance to the last-mentioned genus, lies only in venational characteristics, since the marginal vein is also short, nearly punctiform; the other characters mentioned may, however, be depended upon to distinguish it.

All of the species falling in this genus, known to me, are parasitic on Homopterous insects belonging to the family Aphididæ. It is also prob-

able, judging from the host, that the European *Encyrtus aphidivorus* Mayr (= *E. athaas* Girard), a species I have not seen, belongs here.

The North American species are:

1. APHIDENCYRTUS APHIDIPHAGUS Ashmead.

Encyrtus aphidiphagus Ashmead, Bull. No. 14, U. S. Dept. Agric., Div. Ent., 1887, p. 14, female.—Cresson, Syn. Hym. N. A., 1887, p. 312.—Dalla Torre, Cat. Hym., V, p. 255.

Type.—Cat. Nos. 2846, female, 4758, male, U. S. N. M. (Ashmead collection.)

Habitat.—Florida: Jacksonville.

Host.—Rhynch.: *Aphis brassicæ* Linnæus.

2. APHIDENCYRTUS LACHNI Ashmead.

Encyrtus lachni Ashmead, Tr. Am. Ent. Soc., XII, 1885, Proc., p. xvi, female.—Cresson, Syn. Hym. N. A., 1887, p. 239.—Dalla Torre, Cat. Hym., V, p. 260.

Type.—Cat. No. 4759, U.S.N.M. (Ashmead collection.)

Habitat.—Florida.

Host.—Rhynch.: *Lachnus australis* Ashmead.

3. APHIDENCYRTUS MEGOURÆ Ashmead.

Encyrtus megouræ Ashmead, Bull. No. 14, U. S. Dept. Agric., Div. Ent., 1887, p. 19, female and male.—Cresson, Syn. Hym. N. A., 1887, p. 312.—Dalla Torre, Cat. Hym., V, p. 260.

Type.—Cat. No. 2851, U.S.N.M. (Ashmead collection.)

Habitat.—Florida: Jacksonville.

Host.—Rhynch.: *Megoura solani* Thomas.

4. APHIDENCYRTUS ROSÆ Ashmead.

Blastothrix rosæ Ashmead, Tr. Am. Ent. Soc., XIII, 1886, p. 130, female.—Cresson, Syn. Hym. N. A., 1887, p. 239.—Dalla Torre, Cat. Hym., V, 1898, p. 253.

Type.—Cat. No. 4760, U.S.N.M. (Ashmead collection.)

Habitat.—Florida.

Host.—Rhynch.: *Siphonophora rosæ* var. *floridæ* Ashmead.

5. APHIDENCYRTUS SCHIZONEURÆ Ashmead.

Encyrtus schizoneuræ Ashmead, Tr. Am. Ent. Soc., XII, 1885, Proc., p. xvi, female and male.—Cresson, Syn. Hym. N. A., 1887, p. 239.—Dalla Torre, Cat. Hym., V, p. 263.

Type.—Cat. No. 4761, U.S.N.M. (Ashmead collection.)

Habitat.—Florida: Jacksonville.

Host.—Rhynch.: *Schizoneura aquatica* Ashmead.

6. APHIDENCYRTUS SIPHONOPHORÆ Ashmead.

Encyrtus siphonophoræ Ashmead, Tr. Am. Ent. Soc., XII, 1886, p. 131, female.—Cresson, Syn. Hym. N. A., 1887, p. 239.—Dalla Torre, Cat. Hym., V, 1898, p. 263.

Type.—Cat. No. 4761, U.S.N.M. (Ashmead collection.)

Habitat.—Florida: Jacksonville.

Host.—Rhynch.: *Siphonophora citrifolii* Ashmead.

7. APHIDENCYRTUS WEBSTERI Howard.

Encyrtus websteri Howard, Ins. Life, II, 1890, p. 247, female and male; fig. 14, male.—Dalla Torre, Cat. Hym., V, 1898, p. 265.

Type.—Cat. No. 1483, U.S.N.M.
Habitat.—Indiana.
Host.—Rhynch.: *Siphonophora avenæ* Fabricius.

71. CHOREIA Westwood.

1833. *Choreia* Westwood, Mag. Nat. Hist., VI, p. 122.
1871. *Choria* Vollenhoven, Schets. Tab. 7.

(Type, *Encyrtus ineptus* Dalman.)

Dalla Torre[1] has placed as a synonym of this genus *Crantor* Haliday.[2] Haliday's brief description applies, however, to a wingless form of an *Aphelinus*, and not to this genus.

72. CHEILONEURUS Westwood.

1833. *Cheiloneurus* Westwood, Phil. Mag. (3), III, p. 343.
1856. *Chiloneurus* Förster, Hym. Stud., II, p. 32.
1856. *Sterrhocoma* Förster, Hym. Stud., II, p. 37, female.

(Type, *Cheiloneurus formosus* Westwood.)

1. CHEILONEURUS ALBICORNIS Howard.

Chiloneurus albicornis Howard, Rep. U. S. Dept. Agric., 1880, p. 363, pl. 1, fig. 4, female; Bull. No. 5, U. S. Dept. Agric., 1885, p. 16, female.—Cresson, Syn. Hym. N. A., 1887, p. 240.—Dalla Torre, Cat. Hym., V, p. 241.

Type.—Cat. No. 2608, U.S.N.M.
Habitat.—Washington.
Host.—Rhynch.: *Lecanium* sp.

2. CHEILONEURUS CUPREICOLLIS Ashmead.

Chiloneurus cupreicollis Ashmead, Tr. Am. Ent. Soc., XIII, 1886, p. 131, female.—Cresson, Syn. Hym. N. A., 1887, p. 240.—Dalla Torre, Cat. Hym., V, p. 241.

Type.—Cat. No. 4762, U.S.N.M. (Ashmead collection.)
Habitat.—Florida: Jacksonville.

3. CHEILONEURUS DACTYLOPII Howard.

Chiloneurus dactylopii Howard, Bull. No. 5, U. S. Dept. Agric., 1885, p. 17, female and male.—Cresson, Syn. Hym. N. A., 1887, p. 240.—Dalla Torre, Cat. Hym., V, p. 241.

Type.—Cat. No. 2641, U.S.N.M.
Habitat.—Washington.
Host.—Rhynch.: *Dactylopius destructor* Comstock.

[1] Cat. Hym., V, p. 248. [2] Ent. Mag., I, p. 268.

4. CHEILONEURUS DIASPIDINARUM Howard.

Chiloneurus diaspidinarum HOWARD, Ins. Life, VII, 1894, p. 256, female.—DALLA TORRE, Cat. Hym., V, p. 241.

Type.—Cat. No. 1489, U.S.N.M.
Habitat.—South Carolina: Liberty County.
Host.—Rhynch.: *Mytilaspis pomorum* Bouché.

5. CHEILONEURUS DUBIUS Howard.

Chiloneurus dubius HOWARD, Bull. No. 5, U. S. Dept. Agric., 1885, p. 17, male.—CRESSON, Syn. Hym. N. A., 1887, p. 240.—DALLA TORRE, Cat. Hym., V, p. 241.

Type.—Cat. No. 2640, U.S.N.M.
Habitat.—Wisconsin.
Host.—Rhynch.: *Lecanium* sp.

6. CHEILONEURUS FUNICULUS Howard.

Chiloneurus funiculus HOWARD, Journ. Linn. Soc. Lond., Zool., XXVI, p. 148, female.—DALLA TORRE, Cat. Hym., V, p. 242.

Type in British Museum.
Habitat.—West Indies: Grenada.

7. CHEILONEURUS NIGRESCENS Howard.

Chiloneurus nigrescens HOWARD, Journ. Linn. Soc. Lond., Zool., XXVI, p. 148, female.—DALLA TORRE, Cat. Hym., V, p. 242.

Type in British Museum.
Habitat.—West Indies: Grenada.

73. ZAOMMA Ashmead, new genus.

(Type, *Encyrtus argentipes* Howard.)

This genus may be at once recognized by the very large rounded eyes, which converge above and leave a very narrow linear vertex; by the very short antennæ which have the club enormously enlarged, longer than the funicle and many times thicker, the joints of the funicle being transverse; and by the clear hyaline wings.

1. ZAOMMA ARGENTIPES Howard.

Encyrtus argentipes HOWARD, Journ. Linn. Soc. Lond., XXV, 1894, p. 95, female.—DALLA TORRE, Cat. Hym., V, p. 255.

Type.—Cat. No. 2723, U.S.N.M.; British Museum.
Habitat.—West Indies: St. Vincent.

74. ADELENCYRTUS Ashmead, new genus.

(Type, *Encyrtus chionaspidis* Howard.)

Comes nearest to *Zaomma* Ashmead. Head in female viewed from in front wider than long with the scrobes deep, semicircular. Antennæ short, the flagellum clavate, the club enlarged, but not enormously so,

as in *Zaomma*, only about twice as broad as the funicle, but as long or nearly; funicle joints transverse, the first two or three smaller than the others, submoniliform; pedicel rather large; scape short, subclavate or slightly thickened toward apex. Wings hyaline, but with the venation quite different from that of *Zaomma*, the postmarginal and stigmal veins being much shorter than in that genus.

The male, or what I take to be the male, has the flagellum filiform, tapering off at tip, with the joints a little longer than thick, and clothed with a very short, fine pubescence.

1. ADELENCYRTUS CHIONASPIDIS Howard.

Encyrtus chionaspidis HOWARD, Proc. U. S. Nat. Mus., XVIII, 1896, p. 637, female.—DALLA TORRE, Cat. Hym., V, 1898, p. 256.

Type.—Cat. No. 3253, U.S.N.M.
Habitat.—Ceylon.
Host.—Rhynch.: *Chionaspis graminis* Green.

2. ADELENCYRTUS PLANCHONIÆ Howard.

Encyrtus planchoniæ HOWARD, Proc. U. S. Nat. Mus., XVIII, 1896, p. 637, female.—DALLA TORRE, Cat. Hym., V, 1898, p. 262.

Type.—Cat. No. 3253, U.S.N.M.
Habitat.—Ceylon.
Host.—Rhynch.: *Planchonia delicata* Green.

3. ADELENCYRTUS SOLIDUS Howard.

Encyrtus solidus HOWARD, Proc. U. S. Nat. Mus., XVIII, 1896, p. 638, male.—DALLA TORRE, Cat. Hym., V, 1898, p. 263.

Type.—Cat. No. 3256, U.S.N.M.
Habitat.—Ceylon.
Host.—Rhynch.: *Eriococcus rhodomyrti* Green.

75. CALLIPTEROMA Motschulsky.

1863. *Callipteroma* MOTSCHULSKY, Bull. Soc. Natur. Moscow, XXXVI (2), p. 35.
1898. *Calliopteroma* DALLA TORRE, Cat. Hym., IV, p. 307.

(Type, *Callipteroma 5-guttata* Motschulsky.)

1. CALLIPTEROMA QUINQUEGUTTATA Motschulsky.

Callipteroma 5-guttata MOTSCHULSKY, Bull. Soc. Natur. Moscow, XXXVI, 1863, p. 36, pl. II, fig. 5.
Calliopteroma 5-guttata, DALLA TORRE, Cat. Hym., IV, p. 307.

Habitat.—Ceylon.

2. CALLIPTEROMA SEXGUTATA Motschulsky.

Callipteroma sexguttata MOTSCHULSKY, Bull. Soc. Natur. Moscow, XXXVI, 1863, p. 37.
Calliopteroma sexguttata DALLA TORRE, Cat. Hym., IV, p. 307.

Habitat.—Ceylon.

3. CALLIPTEROMA TESTACEA Motschulsky.

Callipteroma testacea MOTSCHULSKY, Bull. Soc. Natur. Moscow, XXXVI, 1863, p. 37.
Calliopteroma testacea DALLA TORRE, Cat. Hym., IV, p. 307.

Habitat.—Ceylon.

76. CERAPTEROCERUS Westwood.

1833. *Cerapterocerus* WESTWOOD, Mag. Nat. Hist., VI, p. 495.
1848. *Telegraphus* RATZEBURG, Ichn. d. Forstins., II, p. 153.

(Type, *Cerapterocerus mirabilis* Westwood.)

1. CERAPTEROCERUS FLORIDANUS Ashmead.

Cerapterocerus floridanus ASHMEAD, Tr. Am. Ent. Soc., XIV, 1887, p. 190.—DALLA TORRE, Cat. Hym., V, p. 236.

Type.—Cat. No. 1472, U.S.N.M. (Ashmead collection.)
Habitat.—Florida: Jacksonville.

2. CERAPTROCERUS LATEVITTATUS Costa.

Ceraptrocerus latevittatus COSTA, Atti accad. sc. Napoli, IX, 1882, p. 38.—DALLA TORRE, Cat. Hym., V, 1898, p. 236.

Habitat.—Europe: Sardinia.

3. CERAPTROCERUS MIRABILIS Westwood.

Ceraptrocerus mirabilis WESTWOOD, Mag. Nat. Hist., VI, 1833, p. 495 (part).—WALKER, Ent. Mag., V, 1837, p. 114.—WESTWOOD, Intro., II, 1840, Synop., p. 73.
Encyrtus mirabilicornis FÖRSTER, Beitr. Monogr. Pteromal., 1841, p. 45.
Telegraphus mirabilicornis RATZEBURG, Ichn. d. Forstins., II, 1848, pp. 152, 153; BOIE, Stettin entom. Zeitg., II, 1857, p. 194.
Ceraptrocerus mirabilis REINHARD, Berlin, entom. Zeitschr., II, 1858, p. 12.—WALKER, Notes on Chalcid., Pt. 7, 1872, p. 73; Entomologist, VI, 1872, p. 131, fig.—THOMSON, Hym. Skand., IV, 1875, p. 151.—MAYR, Verh. Zool.-bot. Ges. Wien, XXV, 1876, p. 748.—VOLLENHOVEN, Pinacogr., 1879, p. 55; pl. XXXV, figs. 4, 5.—DALLA TORRE, Cat. Hym., V, 1898, p. 236.

Habitat.—Europe: England; Germany; Austria; Sweden.

4. CERAPTROCERUS PILICORNIS Thomson.

Ceraptrocerus mirabilis WESTWOOD, Mag. Nat. Hist., VI, 1833, p. 495 (part).
Ceraptrocerus pilicornis THOMSON, Hym. Skand., IV, 1875, p. 152, female.

Habitat.—Europe: Sweden.

77. HABROLEPIS Förster.

1856. *Habrolepis* FÖRSTER, Hym. Stud., II, p. 34.

(Type, *Encyrtus dalmani* Westwood.)

1. HABROLEPIS DALMANI Westwood.

Encyrtus dalmani WESTWOOD, Phil. Mag. (3), X, 1837, p. 440.
Encyrtus nubilipennis (CURTIS) WALKER, Ent. Mag., V, 1837, p. 113, female.
Habrolepis nubilipennis FÖRSTER, Hym. Stud., II, 1856, p. 38.
Encyrtus nubilipennis SIX, Tjidschr. v. Ent., X, 1867, p. 221, pl. x, fig. *h*.

Habrolepis dalmani MAYR, Verh. Zool.-bot. Gesell. Wien, XXV, 1875, p. 751.—WACHTL, Wien. Ent. Zeitg., I, 1882, p. 298.—DALLA TORRE, Cat. Hym., V, 1898, p. 232.

Habitat.—Europe; North America; Asia.

Host.—Rhynch.: *Asterodiaspis quercicola* Bouché.

2. HABROLEPIS CYANEA Ashmead.

Comys cyanea ASHMEAD, Ent. Amer., IV, 1888, p. 17, female.—DALLA TORRE, Cat. Hym., V, 1898, p. 239.

Type.—Cat. No. 4763, U.S.N.M. (Ashmead collection.)

Habitat.—Florida: Jacksonville.

3. HABROLEPIS ZETTERSTEDII Westwood.

Encyrtus zetterstedii WESTWOOD, Phil. Mag. (3), X, 1837, p. 440.—WALKER, Ent. Mag., V, 1837, p. 113, female.

Encyrtus dendripennis RATZEBURG, Ichn. d. Forstins., III, 1852, p. 189, female.

Encyrtus zetterstedii REINHARD, Berl. Ent. Zeitschr., II, 1858, p. 19.

Habrolepis zetterstedii MAYR, Verh. Zool.-bot. Gesell. Wien, XXV, 1875, p. 752, female.—THOMSON, Hym. Scand., IV, 1875, p. 153, female and male.

Habitat.—Europe; North America.

Host.—Rhynch.: *Aspidiotus tiliæ* Signoret.

78. HOMALOPODA Howard.

1894. *Homalopoda* HOWARD, Journ. Linn. Soc. Lond., Zool., XXV, p. 90.

(Type, *Homalopoda cristata* Howard.)

1. HOMALOPODA CRISTATA Howard.

Homalopoda cristata HOWARD, Journ. Linn. Soc. Lond., Zool., XXV, 1894, p. 91, female.—DALLA TORRE, Cat. Hym., V, p. 240.

Type.—Cat. No. 2718, U.S.N.M.

Habitat.—West Indies: St. Vincent.

Host.—Rhynch.: *Aspidiotus secretus* Cockerell.

79. EUSEMION Dahlbom.

1857. *Eusemion* DAHLBOM, Öfvers. Svensk. Vet.-Akad. Förh., XIV, p. 293.

(Type, *Encyrtus corniger* Haliday.)

1. EUSEMION LONGIPENNIS Ashmead.

Mira longipennis ASHMEAD, Ent. Amer., IV, 1888, p. 17, female.—DALLA TORRE, Cat. Hym., V, p. 237.

Type.—Cat. No. 4764, U.S.N.M. (Ashmead collection.)

Habitat.—Florida: Jacksonville.

Host.—Rhynch.: *Lecanium* sp. on oak.

80. ATROPATES Howard.

1898. *Atropates* HOWARD, Proc. U. S. Nat. Mus., XXI, p. 236.

(Type, *Atropates collinsi* Howard.)

1. ATROPATES COLLINSI Howard.

Atropates collinsi HOWARD, Proc. U. S. Nat. Mus., XXI, 1898, p. 236, female and male.

Type.—Cat. No. 5028, U.S.N.M.

Habitat.—New York: Brooklyn, Roslyn.

Host.—Rhynch.: *Pulvinaria innumerabilis* Rathvon.

81. CHRYSOPLATYCERUS Ashmead.

1888. *Rileya* HOWARD, Can. Ent., XX, p. 148 (*nec* Ashmead).

1889. *Chrysoplatycerus* ASHMEAD, Can. Ent., XXI, p. 38.

(Type, *Rileya splendens* Howard.)

1. CHRYSOPLATYCERUS SPLENDENS Howard.

Rileya splendens (HOWARD) SMITH, Ent. Amer., 1888, p. 80 [notice of species].

Rileya splendens HOWARD, Can. Ent., XX, 1888, pp. 191–194, female, fig.—ASHMEAD, Can. Ent., XX, 1888, p. 229; XXI, 1889, p. 13.

Chrysoplatycerus splendens ASHMEAD, Can. Ent., XXI, 1889, p. 38.—DALLA TORRE, Cat. Hym., V, 1898, p. 266.

Type.—Cat. No. 1492, U.S.N.M.

Habitat.—California.

Host.—Rhynch.: *Dactylopius* sp.

2. CHRYSOPLATYCERUS HOWARDII Ashmead, new species.

Female.—Length, 1–6 mm. Ferruginous; the broadly dilated scape *above* and the broad, compressed flagellum brown-black or dark fuscous; abdomen blue-black, with an aeneous tinge; hind legs brown, the tibiæ fuscous, with the tarsi, except basal and last joints, white or whitish; wings with the apical three-fifths embrowned, the basal two-fifths clear hyaline; hair tuft on scutellum long, black.

Type.—Cat. No. 4764, U.S.N.M.; also in collection of the American Entomological Society.

Habitat.—Mexico.

Described from two female specimens received from the American Entomological Society of Philadelphia, labeled 461 and 435, and supposed to have been received from Mexico.

82. ASTEROPÆUS Howard.

1898. *Asteropæus* HOWARD, Proc. U. S. Nat. Mus., XXI, p. 232.

(Type, *Asteropæus primus* Howard.)

1. ASTEROPÆUS PRIMUS Howard.

Asteropæus primus HOWARD, Proc. U. S. Nat. Mus., XXI, p. 231, female.

Type.—Cat. No. 5021, U.S.N.M.

Habitat.—Mexico: Guaymas.

Host.—Rhynch.: *Ceroplastes* sp.

83. ANICETUS Howard.

1896. *Anicetus* HOWARD, Proc. U. S. Nat. Mus., XVIII, p. 639.

(Type, *Anicetus ceylonensis* Howard.)

1. ANICETUS CEYLONENSIS Howard.

Anicetus ceylonensis HOWARD, Proc. U. S. Nat. Mus., XVIII, 1896, p. 639, female.

Type.—Cat. No. 3258, U.S.N.M.

Habitat.—Ceylon.

Host.—Rhynch.: *Vinsonia stellifera* Westwood.

84. ZARHOPALUS Ashmead, new genus.

(Type, *Zarhopalus sheldoni* Ashmead.)

Head antero-posteriorly thick, with some sparse punctures above, the scrobes deep semicircular, but not bounded by a carina superiorly. Ocelli arranged in a triangle, the lateral ocelli touching the eye margin. Eyes large oval, sparsely hairy. Antennæ short, stout, the scape dilated beneath toward apex, the flagellum strongly incrassated, subcompressed, and hardly longer than the scape; the pedicel is long, longer than the first 3 joints of funicle united, the latter being annular. Front wings fuliginous, the marginal vein punctiform, the stigmal and postmarginal veins very long, as in *Encyrtus* (*Comys*).

1. ZARHOPALUS SHELDONI Ashmead, new species.

Female.—Length, 1.2 mm. Black, submetallic, and highly polished; tarsi, except last joint, white or pale yellowish white.

The mesonotum is a little shorter than the scutellum, and with the latter highly polished and impunctate; the wings are fuliginous, but paler at basal third, the veins black; while the abdomen is oval, not longer than the thorax.

Type.—Cat. No. 4766, U.S.N.M. (Ashmead collection.)

Habitat.—Lake Placid, New York (Charles Sheldon); Bladensburg, Maryland (E. A. Schwarz).

2. ZARHOPALUS INQUISITOR Howard.

Encyrtus inquisitor HOWARD, Rep. U. S. Dept. Agric., 1880–81, p. 367, female.—CRESSON, Syn. Hym. N. A., p. 239.—DALLA TORRE, Cat. Hym., V, 1898, p. 260.

Type.—Cat. No. 2616, U.S.N.M.

Habitat.—Florida.

Host.—Rhynch.: *Dactylopius destructor* Comstock.

3. ZARHOPALUS CRASSUS Howard.

Encyrtus crassus HOWARD, Journ. Linn. Soc. Lond., Zool., XXVI, 1894, p. 93, female.—DALLA TORRE, Cat. Hym., V, 1898, p. 257.

Type in British Museum.

Habitat.—West Indies: St. Vincent.

4. (?) ZARHOPALUS QUADRICOLOR Howard.

Encyrtus quadricolor HOWARD, Journ. Linn. Soc. Lond., Zool., XXV, 1894, p. 93, male.—DALLA TORRE, Cat. Hym., V, 1898, p. 262.

Habitat.—West Indies: St. Vincent.

85. METALLON Walker.

1848. *Metallon* Walker, List Chalc. Brit. Mus., II, p. 219.
1856. *Rhopus* Förster, Hym. Stud , II, p. 34.
1875. *Technites* Thomson, Hym. Skand., IV, p. 118.
1880. *Acerophagus* Smith (Emily), N. Am. Entom., I, p. 83 (*teste* Howard).

(Type, *Metallon acacallis* Walker.)

1. METALLON ACACALLIS Walker.

Metallon acacallis Walker, List Chalc. Brit. Mus., II, 1848, p. 220, female.—Dalla Torre, Cat. Hym., V, 1898, p. 236.

Habitat.—England.

2. METALLON ATRICEPS Walker.

Metallon atriceps Walker, Notes on Chalc., Pt. 7, 1872, p. 115, male.—Dalla Torre, Cat. Hym., V, 1898, p. 236.

Habitat.—Africa: Madeira.

3. METALLON COCCOIS Smith (Emily).

Acerophagus coccois Smith (Emily), N. A. Entom., I, 1880, p. 83, pl. VI, figs. 20–23.
Rhopus coccois Howard, Rep. U. S. Dept. Agric., 1880–81, p. 361, pl. XXIV, fig. 2.—Cresson, Syn. Hym. N. A., 1887, p. 238.—Dalla Torre, Cat. Hym., V, 1898, p. 232.

Cotype.—Cat. No. 1470, U.S.N.M.
Habitat.—Illinois; Pennsylvania.
Host.—Rhynch.: *Pseudococcus aceris* Signoret.

4. METALLON DEBILIS Förster.

Rhopus debilis Förster, Progr. Realsch. Aachen, 1861, p. xxxiii, male.—Dalla Torre, Jahresber. naturf. Ges. Graubunden, XXVIII, 1885, p. 61; Cat. Hym., V, 1898, p. 232.

Habitat.—Europe: Switzerland.

5. METALLON FUSCITARSIS Thomson.

Metallon fuscitarsis Thomson, Hym. Skand., IV, 1875, p. 169, female.—Dalla Torre, Cat. Hym., V, 1898, p. 236.

Habitat.—Europe: Sweden.

6. METALLON INFUSCATUS Förster.

Rhopus infuscatus Förster, Progr. Realsch. Aachen, 1861, p. xxxiii, male.—Dalla Torre, Jahresber. naturf. Ges. Graubunden, XXVIII, 1885, p. 61; Cat. Hym., V, 1898, p. 232.

Habitat.—Europe: Switzerland.

7. METALLON TESTACEOUS Ratzeburg.

?Encyrtus piso Walker, Ent. Mag., V, 1838, p. 423, male.
Encyrtus testaceus Ratzeburg, Ichn. d. Forstins., II, 1848, p. 146; III, 1852, p. 190.
Rhopus piso Förster, Hym. Stud., II, 1856, p. 37.
Rhopus testaceus Mayr, Verh. Zool.-bot. Ges. Wien, XXV, 1875, p. 691, female and male.—Dalla Torre, Cat. Hym., V, 1898, p. 232.

Habitat.—Europe.
Host.—Rhynch.: *Physokermes abietis* Modeer.

86. CERCOBELUS Walker.

1837. *Cercobelus* WALKER, Ent. Mag., V, p. 48.

(Type, *Cercobelus jugæus* Walker.)

1. CERCOBELUS JUGÆUS Walker.

Encyrtus (*Cercobelus*) *jugæus* WALKER, Ent. Mag., V, 1837, p. 48, female; Entomologist, 1841, pl. N, fig. 1.

Cercobelus jugæus FÖRSTER, Hym. Stud., II, 1856, p. 36.—WALKER, Notes on Chalcid, Pt. 5, 1872, p. 73, fig.—THOMSON, Hym. Skand., IV, 1875, p. 171, female.—DALLA TORRE, Cat. Hym., V, 1898, p. 231.

Habitat.—Europe.

87. COCCOBIUS Ratzeburg.

1852. *Coccobius* RATZEBURG (part), Ichn. d. Forstins., III, p. 195.

(Type?)

Ratzeburg, in his original description of this genus, as has been shown by Dr. Howard, confused with it a number of species belonging to *Aphelinus* or allied genera; but, nevertheless, he must have had before him at least one genuine Encyrtine, as his figure, both of venation and antenna, clearly shows; and I here restore the name for a species agreeing in all particulars with his brief diagnosis and his figure. No Aphelinine has a wing-venation as figured by Ratzeburg.

1. COCCOBIUS DIASPIDIS Ashmead, new species.

Female.—Length, 0.3 mm. Polished black; scape and legs pale yellow, the clavate 5-jointed flagellum, light brown; wings hyaline, the marginal vein punctiform, the post-marginal vein entirely wanting, the stigmal vein very minute, represented by a subpetiolated dot.

Type.—Cat. No. 5084, U.S.N.M.

Habitat.—Washington.

Host.—Rhynch.: *Diaspis rosæ* Bouché.

Described from two specimens reared at the Department of Agriculture May 18, 1895, from *Diaspis rosæ* Bouché.

Tribe IV. ARRHENOPHAGINI.

88. RHOPOIDEUS Howard.

1898. *Rhopoideus* HOWARD, Proc. U. S. Nat. Mus., XXI, p. 235.

(Type, *Rhopoideus citrinus* Howard.)

1. RHOPOIDEUS CITRINUS Howard.

Rhopoideus citrinus HOWARD, Proc. U. S. Nat. Mus., XXI, 1898, p. 235, female.

Type.—Cat. No. 5027, U.S.N.M.

Habitat.—California: Truckee.

Host.—? Lepid.: Tortricid; Rhynch.: *Aspidiotus perniciosus* Comstock.

89. ARRHENOPHAGUS Aurivillius.

1888. *Arrhenophagus* AURIVILLIUS, Ent. Tidskr., IX, p. 144.

(Type, *Arrhenophagus chionaspidis* Aurivillius.)

1. ARRHENOPHAGUS CHIONASPIDIS Aurivillius.

Arrhenophagus chionaspidis Aurivillius, Ent. Tidskr., IX, 1888, p. 146, pl. 1, figs. 1–9.—Dalla Torre, Cat. Hym., V, 1898, p. 266.—Howard, Proc. Ent. Soc. Wash., IV, 1898, p. 135, fig. 9, male and female antennæ.

Co-type.—Cat. No. 4854, U.S.N.M. (Chris. Aurivillius collection.)

Habitat.—Europe; North America; Asia; Ceylon; Australia.

Host.—Rhynch.: *Chionaspis salicis* Signoret, *C. eugeniæ* Maskell, *Diaspis rosæ* Bouché, *D. ostreæformis* Signoret, *Fiorinia saprosmæ* Green, *Aspidiotus nerii* Bouché.

Subfamily III. SIGNIPHORINÆ.

90. SIGNIPHORA Ashmead.

1880. *Signiphora* Ashmead, Orange Insects, 1880, p. 30.
1894. *Signiphora* Howard, Insect Life, VI, p. 233.

(Type, *Signiphora flavopalliata* Ashmead.)

TABLE OF SPECIES.

Body *not* wholly black 2
Body wholly black or blue-black.
Wings fuliginous on basal half; all tarsi white, the middle and anterior tibiæ brown, rest of legs black.....(1) *S. nigra* Ashmead, new species.
Wings fuscous with a hyaline band across the middle; legs black, a dot on knees and the tarsi whitish.....(2) *S. australiensis* Ashmead, new species.
Wings hyaline, with a fuscous band across the middle; tarsi alone white.
(3) *S. dactylopii* Ashmead, new species.
Wings entirely hyaline; all tarsi white...(4) *S. noacki* Ashmead, new species.
2. Head, thorax, and most of the abdomen yellow..... 4
Head anteriorly and a broad band between the wings ivory white..... 3
Thorax black, with a single narrow yellowish-white band across the base of the scutellum and continued at sides along the posterior margin of the mesopleura and the mesosternal suture; wings hyaline.
(5) *S. unifasciata* Ashmead, new species.
Thorax black, with two transverse narrow bands between the tegulæ; wings hyaline.....(6) *S. bifasciata* Ashmead, new species.
Head and abdomen blue-black; thorax, except the pronotum, bright yellow; wings hyaline with a dusky band beneath the marginal vein.
(7) *S. flavopalliata* Ashmead.
Head and thorax mostly brown.
Mesonotum lemon-yellow; abdomen brown-black; wings hyaline, with a broad fuscous band beneath the marginal vein.....(8) *S. occidentalis* Howard.
Mesonotum brown, the lateral margins narrowly yellow; abdomen æneous black; wings clear hyaline.....(9) *S. mexicana* Ashmead, new species.
3. Head anteriorly, a broad band between wings including the metathorax, and sutures between abdominal segments, ivory white; wings hyaline with a discoidal cloud beneath the marginal vein.
(10) *S. rhizococci* Ashmead, new species.
4. Body mostly yellow; thorax at anterior apex, band across base of abdomen, ovipositor, and band across middle of front wings dark brown.
Band at base of abdomen narrower, including hardly one-third of its length; club of antennæ entirely yellow.....(11) *S. aleyrodis* Ashmead, new species.
Band at base of abdomen including more than one-third of its length; club wholly yellow; no distinct band between the eyes.
(12) *S. coquilletti* Ashmead, new species.

Club of antennæ with its apical half brown.

(13) *S. aspidioti* Ashmead, new species.

Band at base of abdomen including more than one-half of the abdomen, sometimes with only the tip yellow; club of antennæ shorter and wholly yellow.

(14) *S. townsendi* Ashmead, new species.

1. SIGNIPHORA NIGRA Ashmead, new species.

Female.—Length, about 0.55 mm. Polished black impunctate, but with a decided aeneous tinge in certain lights. Flagellum brown-black. Legs black, the anterior and middle tibiæ brownish, their tips and all tarsi white. Wings with the basal half or more fuliginous, the apical half or less hyaline.

Type.—Cat. No. 4767, U.S.N.M. (Ashmead collection.)

Habitat.—District of Columbia: Washington.

2. SIGNIPHORA AUSTRALIENSIS Ashmead, new species.

Female.—Length, 0.60 mm. Aeneous black, the mesonotum with a bronzy tinge, the scutellum with a slight bluish tinge; legs black, a spot on knees and tarsi white or yellowish-white, the anterior tibiæ yellowish beneath; wings fuscous with a hyaline band across the disk from apex of the marginal vein.

Type.—Cat. No. 4771, U.S.N.M.

Habitat.—Australia. (Albert Koebele, collector.)

Host.—Rhynch.: Sp. not identified.

3. SIGNIPHORA DACTYLOPII Ashmead, new species.

Female.—Length, 0.58 mm. Blue-black, the mesonotum with an aeneous tinge anteriorly; legs concolorous with the body, except the tarsi, which are white; wings hyaline, with a fuscous band across the middle from beneath marginal vein to the hind margin.

Type.—Cat. No. 4772, U.S.N.M.

Habitat.—District of Columbia.

Host.—Rhynch.: *Dactylopius ephedræ* Coquillett. Bred at Department of Agriculture.

4. SIGNIPHORA NOACKI Ashmead, new species.

Female.—Length, 0.50 mm. Coal-black, except a whitish line on the hind margin of the mesopleura, along the suture separating it from the metapleura and the tarsi, which are white; wings wholly hyaline.

Type.—Cat. No. 4773, U.S.N.M.

Habitat.—Brazil: San Paulo. (F. Noack.)

Host.—Rhynch.: *Psylla* sp. on a wild shrub. Bred October, 1897, by F. Noack.

5. SIGNIPHORA UNIFASCIATA Ashmead, new species.

Female.—Length, about 0.70 mm. Black, with a narrow yellowish-white band across base of scutellum and continued below on the hind margin of the mesopleura and along the mesosternal suture; tarsi white; wings hyaline.

Type.—Cat. No. 4774, U.S.N.M.

Habitat.—Florida: Georgiana. (Dr. Wittfield.)
Host.—Rhynch.: *Ceropsylla sideroxyli* Riley.

6. SIGNIPHORA BIFASCIATA Ashmead, new species.

Female.—Length, about 0.60 mm. Black, with two transverse yellow bands on thorax above between the tegulæ, or on the hind border of the mesonotum, the other at the base of the scutellum, the latter also continued along the mesopleural suture; legs black or blackish, the knees yellowish, the tarsi whitish; wings hyaline.
Type.—Cat. No. 4775, U.S.N.M.
Habitat.—West Indies: St. Vincent. (H. H. Smith.)

7. SIGNIPHORA FLAVOPALLIATA Ashmead.

Signiphora flavopalliata ASHMEAD, Orange Insects, 1880, p. 30.—HOWARD, Rep. U. S. Dept. Agric., 1880–81, p. 371; Ins. Life, VI, 1894, p. 235.—DALLA TORRE, Cat. Hym., V, 1898, p. 217.

Type.—Cat. No. 2801, U.S.N.M. (Ashmead collection.)
Habitat.—Florida.
Host.—Rhynch.: *Aspidiotus citricola* Packard, *A. cydoniæ* Comstock, *Mytilaspis gloverii* Packard, *Aleyrodes* sp.

8. SIGNIPHORA OCCIDENTALIS Howard.

Signiphora occidentalis HOWARD, Ins. Life, VI, 1894, p. 233, fig. 12, female and male.—DALLA TORRE, Cat. Hym., V, 1898, p. 217.

Type.—Cat. No. 1473, U.S.N.M.
Habitat.—California: San Gabriel.
Host.—Rhynch.: *Aspidiotus aurantii* var. *citrinus* Coquillett.

9. SIGNIPHORA MEXICANA Ashmead, new species.

Female.—Length, about 0.45 mm. Head, thorax, antennæ, and legs, except tarsi, brownish-yellow; abdomen æneous black; tarsi white; mesonotum margined with yellow at sides; wings hyaline.
Type.—Cat. No. 4776, U.S.N.M.
Habitat.—Mexico: San Luis.
Host.—Rhynch.: *Aspidiotus nerii* Bouché. (Tyler Townsend.)

10. SIGNIPHORA RHIZOCOCCI Ashmead, new species.

Female.—Length, about 0.50 mm. Head anteriorly, a broad band on thorax between the wings and the sutures between abdominal segments, more or less, ivory white; club of antennæ and vertex faintly dusky; anterior orbits narrowly, rest of body and a broad band on middle of front wings, dark brown.
Type.—Cat. No. 4858, U.S.N.M.
Habitat.—Brazil: Minas Geras.
Host.—Rhynch.: *Rhizococcus* sp. on a composite plant. Bred by F. Noack, July, 1897. One specimen.

11. SIGNIPHORA ALEYRODIS Ashmead, new species.

Female.—Length, about 0.50 mm. Body mostly golden-yellow; vertex of head faintly dusky; thorax anteriorly and very narrowly, and a band across base of abdomen including hardly one-third its length, dark brown; wings hyaline, with a dusky band across the middle just beneath the marginal vein, which is a little narrower at the hind margin than at its origin; antennæ and legs entirely pale yellowish white.

Type.—Cat. No. 4855, U.S.N.M.

Habitat.—West Indies: Trinidad.

Host.—Rhynch.: *Aleyrodes* sp. on orange. Two specimens, Acc. No. 6162, Department of Agriculture.

12. SIGNIPHORA COQUILLETTI Ashmead, new species.

Female.—Length, hardly 0.50 mm. Bright golden-yellow; vertex of head fuscous; thorax *entirely*, and abdomen, except a dark brown band at base which occupies fully one-third or more of its length, yellow; otherwise as in *Aleyrodis*.

Type.—Cat. No. 4857, U.S.N.M.

Habitat.—Rhynch.: *Aleyrodes* sp. on *Quercus agrifolia*.

Easily distinguished from *S. aleyrodis* by the fuscous vertex and the absence of the brown blotch on the anterior part of the thorax.

13. SIGNIPHORA ASPIDIOTI Ashmead, new species.

Female.—Length, about 0.50 mm. Lemon or golden-yellow; head faintly dusky above; apical half of antennal club, anterior half of the mesonotum, and a broad transverse band at base of abdomen, including nearly half its length, dark brown; wings with a broad fuscous band, as in previous species.

Type.—Cat. No. 4859, U.S.N.M.

Habitat.—Mexico: San Louis.

Host.—Rhynch.: *Aspidiotus nerii* Bouché. Bred November, 1894, by Tyler Townsend.

14. SIGNIPHORA TOWNSENDI Ashmead, new species.

Female.—Length, about 0.45 mm. Mostly dark-brown; a broad band between the wings including the hind margin of the mesonotum, scutellums, and metathorax, and the apical third of abdomen, or less, lemon-yellow. Wings hyaline, as in previous species, but the fuscous band has a deep median hyaline emargination on its basal margin. Antennæ and legs pale yellowish, the club rather short, about one-third shorter than in the other species.

Type.—Cat. No. 4856, U.S.N.M.

Habitat.—Mexico: Tabasco.

Host.—Rhynch.: *Aleyrodes* sp. on a coarse grass. Bred by Tyler Townsend, June 19, 1897. Four specimens.