CLASSIFICATION OF THE ICHNEUMON FLIES, OR THE SUPERFAMILY ICHNEUMONOIDEA.

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The characters common to genera give those of the higher groups; the orders and their common characters combine to form those of the classes. It depends, therefore, upon every classifier how far he will proceed in separation and subdivision. Indeed, much difference of opinion exists upon the determination of the groups between the species and the order, whence have arisen the several definitions of subgenus, genus, and tribe. In fact, opinions will never harmonize upon the claims of genera, because no universal principle for the structure of genera in any artificial subdivision can be given. This principle is in itself exceedingly capricious, and if one maintains thus far a genus extends, and another thus far, both are certainly right, if only every group, which they distinguish as genera, is distinguished by similar and exclusive characters. Burmeister.

The pertinency of this quotation from one of the great masters of the science of entomology will be better understood and appreciated when the body of this work is examined and it is found that no less than *eleven hundred and forty genera*, or more, have been recognized and tabulated, although when Burmeister penned the above lines, in 1835, the Ichneumonoidea contained only about *one hundred and nine genera*. If we go back to the early days of Burmeister, we find, too, that authorities differed as to the value and utility of some of these genera, just as they differ to-day. In my tables, therefore, there will be found many genera which by some eminent living hymenopterologists are thought to be of no value, but which the writer, on the contrary, holds to be good and distinct—a difference of opinion that time alone can settle.

Very few persons have given any attention to these insects, and the necessity for these fine subgeneric and tribal divisions is evidently apparent to only a few active workers. The great majority of the workers in other groups seem totally ignorant of this vast complex, or at least have no conception of its immensity or the difficulties encountered in studying and identifying material belonging to it derived from different parts of the world.

The writer has now been studying the Hymenoptera for twenty-five years, and much of this time has been devoted specially to studies in

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the *Parasitica*—the Proctotrypoidea, Cynipoidea, Chalcidoidea, and, for the past ten years or more, to studies in the Ichneumonoidea. He has had material for examination from all parts of the world, and hopes, in the tables he is now publishing, to place the families, subfamilies, tribes, and genera on a better foundation, thus enabling students to avoid many of the difficulties he himself encountered, to create an interest in their collecting, and to stimulate their systematic study.

The first systematist to fully appreciate the immensity of this complex, to bring order out of confusion, and to lay a safe foundation for its study and classification, was Dr. Arnold Förster, of Aachen, Germany, who accomplished this great work in two contributions, entitled Synopsis der Familien und Gattungen der Braconen, published in 1862, and Synopsis der Familien und Gattungen der Ichneumonen, published in 1868.

My own work in this superfamily is based almost entirely upon that of Förster's, and it is scarcely necessary for me to state that without his contributions for my guide the present work would have been almost impossible.

The more I study Förster's works on the parasitic Hymenoptera, the greater is my admiration for him and his work, and it was with the utmost astonishment I found that these important contributions had remained so long neglected, unappreciated, and, until within comparatively recent years, almost totally ignored by American and European students.

Dr. Förster went too far in calling his groups families, but in the majority of cases these so-called families represented natural groups, and as such ought to have been sooner recognized. His groups in the family *Braconidæ* have been recognized in most cases as subfamilies by the Rev. T. A. Marshall, in his monographs of the European species, while in the present work I have recognized his so-called families in the *Ichneumonidæ* as either equivalent to subfamilies or tribes.

In order that the position of this immense complex in the order Hymenoptera may be thoroughly understood, I reproduce here a corrected table of the superfamilies:

TABLE OF SUPERFAMILIES.[1]

Suborder I. Heterophaga. Abdomen petiolate or subpetiolate, never broadly sessile; larvæ apodous.

* Hypopygium entire, and closely united with the pygidium, the sting or ovipositor when present always issuing from the tip of the abdomen.

[1] The numbering of the superfamilies and families in this paper conform to a scheme of arrangement of the whole order Hymenoptera, as proposed by the writer in John B. Smith's Insects of New Jersey, Trenton, 1900, pp. 500–613. Tables for the recognition of the 94 families into which the order is now divided will be given at the end of this work.

a. Pronotum not extending back to the tegulæ; trochanter *one-jointed.*

b. Hind tarsi dilated or thickened; pubescence of head and thorax feathery or plumose. Superfamily I. APOIDEA.

bb. Hind tarsi slender, not dilated or thickened; pubescence of head and thorax simple, not plumose.

Superfamily II. SPHECOIDEA.

aa. Pronotum extending back to the tegulæ, or the latter absent.

c. Trochanters always *one jointed.*

d. Abdomen variable, rarely twice longer than the head and thorax united, most frequently much shorter; hind tibiæ in female neither inflated nor strongly constricted at base.

Petiole or first segment of abdomen simple, *without* a scale or node; winged forms *with* well developed tegulæ.

Superfamily III. VESPOIDEA.

Petiole or first segment of abdomen with one or two scales or nodes; winged forms *without* or with very imperfectly formed tegulæ. Superfamily IV. FORMICOIDEA.

dd. Abdomen in female greatly elongated, several times longer than the head and thorax united, the segments constricted at sutures and flexible; hind tibiæ in female inflated and strongly constricted at base; abdomen in male not especially long, clavate. (Pelecinidæ.)

Superfamily V. PROCTOTRYPOIDEA (part).

cc. Trochanters *two-jointed.*

Mandibles large, 4-dentate; hind wings *with* a distinct venation, with two basal cells and a radius. (Trigonalidæ.)

Superfamily III. VESPOIDEA (part).

Mandibles never very large nor 4-dentate, either simple or bidentate, or at the most 3-dentate; hind wings *without* a distinct venation, or at most and *rarely* with only one basal cell, the radius always absent.

Superfamily V. PROCTOTRYPOIDEA.

* * Hypopygium divided or never united closely with the pygidium, the ovipositor issuing some distance *before* the tip of the abdomen; trochanters always *two-jointed.*

d. Front wings always *without* a stigma, the marginal vein, if present, linear never large or stigmated; abdomen with the ventral segment hard and chitinous, without a fold.

e. Pronotum extending back to the tegulæ; front wings with a marginal and basal cell, either complete or incomplete; antennæ straight, not elbowed.

Superfamily VI. CYNIPOIDEA.

ee. Pronotum *not* extending back to the tegulæ; front wings with neither a marginal cell nor a distinct basal cell, the latter, if at all indicated, usually poorly defined by hyaline veins visible only by transmitted light; hind wings without a basal cell; antennæ elbowed.

Superfamily VII. CHALCIDOIDEA.

dd. Front wings *with* a stigma, the marginal vein usually large or stigmated (rarely linear in some Alysiidæ); abdomen with the ventral segments most frequently soft and membranous, with a fold (rarely hard and chitinous without a fold, *Evaniidæ* and *Agriotypidæ*); pronotum always extending back to the tegulæ; antennæ straight, not elbowed.

Superfamily VIII. ICHNEUMONOIDEA.

Suborder II. Phytophaga. Abdomen broadly sessile; larvæ *with* legs; trochanters two-jointed.

Anterior tibiæ with only *one* apical spur.....Superfamily IX. SIRICOIDEA.
Anterior tibiæ with *two* apical spurs....Superfamily X. TENTHREDINOIDEA.

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Superfamily VIII. ICHNEUMONOIDEA.

This group has in the past received the following names:

1744. *Ichneumon* LINNÆUS (part), Syst. Natur., 4th ed.
1807. *Pupophaga* LATREILLE (part), Gen. Crust. et Ins., III, p. 249.
1809. *Ichneumonides*, Family IV, LATREILLE, Fam. Natur. du Règne anim., p. 444.
1823. *Entomotilla*, DUMERIL (part), Considér. génér. sur l. classe d. Ins., p. 220.
1837. *Parasitica*, HARTIG (part), Wiegmann's Archiv., I, p. 158.
1840. *Entomophaga*, Div. I, Spiculifera, WESTWOOD (part), Intro. Mod. Classif. Ins., II, p. 83.
1899. *Ichneumonoidea*, Superfamily VIII, ASHMEAD, Jour. N. Y. Ent. Soc., VII, p. 47.

No one, I think, who will make use of the above table of superfamilies, can fail to place correctly any parasitic wasp belonging to this superfamily.

It is unquestionably the largest and most extensive complex in the order Hymenoptera, with possibly the exception of the Chalcidoidea, and is composed of a vast number of minor groups, representing hundreds of genera and many thousand species.

Not less than a million species will be found existing on the globe, although the known or described species do not yet reach much over 10,000.

Unlike some species, in others of these great complexes, all, without a single exception, are genuine parasites, and destroy or devour the eggs, larvæ, pupæ, or imagoes of other insects; scarcely a single order of insects is free from their attacks, and even relatives in their own order and family are devoured by them.

The group, therefore, taken as a whole, is of the greatest economic importance, since the vast majority of the species composing it are beneficial to man. No other group of insects has a more important rôle in the economy of nature.

It is composed of innumerable species of the greatest variety in shape and size, from the most minute or microscopic size, measuring scarcely a millimeter in length, to forms that attain an inch, an inch and a half, or even two inches or more in length, and with or without a prominently exserted ovipositor, the ovipositor sometimes attaining a length of four or five inches, and the group is in consequence one of the most difficult and perplexing to classify.

The fauna of no single country is yet thoroughly known and our private and public collections are crowded with undescribed forms.

Up to the present time no general work on the group has been published, and this contribution is the first effort made to classify the group as a whole or to bring together in systematic order, or in tabular form, the families, subfamilies, tribes, and the described genera of the world.

The author, although familiar with all of the groups and with most of the genera, has in some cases been compelled to rely upon descriptions for placing certain of the genera. The work, therefore, must be imperfect in some particulars, but he hopes for it a kindly reception, and trusts it will not only stimulate the collecting of these important insects, but that it will afford an aid and a guide for future study.

The families recognized may be distinguished by the use of the following table:

TABLE OF FAMILIES.

Wingless forms 7
Winged forms 2

2. Costal and subcostal veins confluent, extending close together, side by side, the costal cell therefore absent 3

Costal and subcostal veins separated, a space between, the costal cell therefore present, distinct.

Abdomen inserted normally, sessile or subsessile, or the first segment long, petioliform; front wings with only one recurrent nervure; head most frequently globose and usually tuberculous 6

Abdomen petiolated, inserted upon the dorsum of the metathorax, the body of same usually strongly compressed; front wings with one or two recurrent nervures, more rarely with none; head variable but never globose nor tuberculous; antennæ 13–14 jointed, inserted either just above the clypeus or far above it on the middle of the face.

Family LXXIV. EVANIIDÆ.

3. Front wings with *two* recurrent nervures (the second recurrent absent only in the genus *Pharsalia* Cresson) 4

Front wings with only *one* recurrent nervure or with none 5

4. First cubital and first discoidal cells always confluent; abdominal segments 2–3 usually flexible, rarely connate; mandibles attached normally.

Ventral abdominal segments hard and chitinous, without a fold; dorsal segments 2 and 3 connate, *not* flexible; scutellum spined.

Family LXXV. AGRIOTYPIDÆ.

Ventral abdominal segments soft and membranous, usually with a fold; dorsal segments 2 and 3 flexible; scutellum rarely spined.

Family LXXVI. ICHNEUMONIDÆ.

First cubital and first discoidal cells separated, distinct, not confluent; mandibles attached abnormally, the tips turned outwardly and not meeting when closed ..... Family LXXVII. ALYSIIDÆ.

5. Mandibles attached abnormally, the tips turned outwardly, not meeting when closed ..... Family LXXVII. ALYSIIDÆ.

Mandibles attached normally.

Abdominal segments 2 and 3 most frequently rigid, connate, not flexible; if not rigid, then all the segments are flexible; abdomen never greatly elongate and strongly compressed; first cubital and first discoidal cells, although not always, most frequently distinct and separated.

Family LXXVIII. BRACONIDÆ.

Abdominal segments 2 and 3 flexible, the abdomen very elongate, narrow, and strongly compressed; first cubital and first discoidal cells always confluent. (*Pharsalia* Cresson.)

Family LXXVI. ICHNEUMONIDÆ.

6. Antennæ inserted close to the clypeus; hind femora most frequently swollen, and usually, but not always, toothed beneath.

Family LXXIX. STEPHANIDÆ.

7. Mandibles attached abnormally, the tips turned outwardly and not meeting when closed.....ALYSIIDÆ.

Mandibles attached normally, the mandibles when closed meeting or crossing each other.

Abdominal segments 2 and 3 flexible.....ICHNEUMONIDÆ.

Abdominal segments 2 and 3 rigid, connate, not flexible ....BRACONIDÆ.

All abdominal segments flexible (*Aphidinæ*).....BRACONIDÆ (part).

Family LXXIV. EVANIIDÆ.

1802. *Evaniales* LATREILLE, Hist. Nat. Crus. et Ins., III, p. 328.
1815. *Evanides* LEACH (part), Edinb. Encyc., IX, p. 142.
1838. *Evaniadæ*, Family I, HALIDAY, Ent. Mag., V, p. 212.
1839. *Evaniadæ*, Family 8, HALIDAY, Hym. Synop., p. ii.
1839. SHUCKARD, Newman's Entomologist, I, p. 120.
1840. *Evaniidæ*, Family 2, WESTWOOD, Intro. Mod. Class Ins., II, p. 124.
1883. *Evaniales* THOMSON, Opus. Ent., IX, p. 844.
1887. *Evaniidæ* CRESSON, Syn. Hym. North America, p. 36.
1889. SCHLETTERER, Ann. k. k. Naturh. Hofmus., IV, p. 115.
1900. *Evaniidæ*, Family LXXIV, ASHMEAD, Smith's Insects of New Jersey, p. 563.

This family is readily distinguished from all the others by the attachment of the abdomen. The abdomen is, as a rule, strongly compressed, petiolate, and attached to the dorsum of the metathorax, either just back of the scutellum or posteriorly upon or near the superior margin of the truncature, but never normally at apex, between the hind coxæ, as in all other ichneumonids, with but two or three exceptions. It is further distinguished from all the other families, except the *Stephanidæ*, by having a *distinct costal cell* in the front wings, the costal and subcostal veins, unlike other ichneumonids, being distinctly separated.

The family is usually divided into two subfamilies, but I have here recognized three major groups, separable upon good structural characters, and further supported by their economy or different habits of the species composing them.

These three subfamilies may be easily recognized by the aid of the following table:

TABLE OF SUBFAMILIES.

Antennæ inserted far anteriorly just above the clypeus..... 2

Antennæ inserted far *above* the clypeus *on*, or very near the middle of the face.

Front wings *without* or at most with only one recurrent nervure; venation in hind wings wanting or indistinct, *without* a median cell.

Pronotum very short, transverse linear and abruptly truncate anteriorly; abdomen attached by a petiole to the superior margin of the metatho-

racic truncature, remote from the scutellum, the body short and compressed, the ovipositor not or at most subexserted; head viewed from above transverse, the temples never very broad.

Subfamily I. EVANIINÆ.

Pronotum elongate, conical, never transverse linear, abdomen attached to the base of the metanotum just behind the scutellum, the body very long, usually long, sickle-shaped, compressed; the ovipositor long or always strongly exserted; head viewed from above subtriangular or obtrapezoidal, the temples oblique but very broad or broad, more rarely globose ..... Subfamily II. GASTERUPTIONINÆ.

2. Front wings most frequently with two recurrent nervures, the second sometimes subobsolete, rarely wholly absent; hind wings with a distinct median cell; abdomen clavate, not strongly compressed, the ovipositor exserted.

Subfamily III. AULACINÆ.

Subfamily I. EVANIINÆ.

1900. *Evaniinæ*, Subfamily II, ASHMEAD, Smith's Insects of New Jersey, p. 563.

The position of the antennæ, the venation of the front and hind wings, as well as the shape of the abdomen, readily distinguish this group from the *Aulacinæ*, while from the *Gasteruptionina* it is at once separated by the shape of the head, the very short truncate pronotum, and the short, strongly compressed, hatchet-shaped abdomen and its attachment to the metathorax.

All the species falling in the subfamily are parasitic in the eggs of cockroaches. *Evania appendigaster* Linnæus, a species now widely distributed to all parts of the world, has been frequently bred from the eggs of these insects. In Florida I have reared it from the eggs of *Periplaneta americana* Linnæus and *P. australasiæ* Fabricius. I have also a specimen of *Hyptia dorsalis* Westwood, bred by Mr. Weed, in Mississippi, from the eggs of *Ischnoptera pennsylvanica* De Geer.

Only two genera are known, distinguished as follows:

TABLE OF GENERA.

Front wings *without* a marginal cell and also *without* cubital and discoidal cells.

(1) *Hyptia* Illiger.

Front wings *with* a marginal cell and also with one or two discoidal cells.

(2) *Evania* Fabricius.

Subfamily II. GASTERUPTIONINÆ.

This group, or subfamily, is at once separated from the *Aulacinæ* by the insertion of the antennæ, the venation of front wings, and by the attachment of the abdomen, which is joined to the metathorax just behind the scutellum.

It approaches nearest to the *Evaniinæ*, but is easily separated by the quite different shaped head, which is long, obtrapezoidal, as viewed from above; by the very long conical pronotum; by the abdomen, which is very long, narrow, and strongly compressed, and attached

differently; and by the shape of the hind legs, which differ decidedly from the other two subfamilies, the femora being shorter and thicker, the tibiæ very strongly clavate, while the basal joint of the tarsi is stout, and as long or a little longer than the following joints united:

The habits of the species, too, are quite different from the others, since all whose parasitism is known have been bred from the nests of wasps and bees—*Crabro*, *Philanthus*, *Cerceris*, *Gorytes*, *Stizus*, *Eumenes*, *Odynerus*, *Sphecodes*, *Prosopis*, *Halictus*, *Andrena*, etc.

The two genera falling in this group may be separated as follows:

TABLE OF GENERA.

Front wings *without* a distinct venation, at most with only slight traces of a venation, as in *Pelecinus;* head globose and deeply excavated anteriorly above for the reception of the scape ..... (3) *Leptofoenus* Smith.

Front wings *with* a distinct venation; head large, viewed from above subtriangular or obtrapezoidal, the temples oblique, broad; no excavation anteriorly for the reception of the scape ..... (4) *Gasteruption* Latreille = *Foenus* Fabricius.

Subfamily III. AULACINÆ.

1840–42. *Aulacidæ*, Family, SHUCKARD (part), Newman's Entomologist, p. 121.
1900. *Aulacinæ*, Subfamily I. ASHMEAD, Smith's Insects of New Jersey, p. 563.

This group was first recognized by W. E. Shuckard as above, but he incorrectly included as components of it *Trigonalys* Westwood and *Lycogaster* Shuckard, which have no real affinity with it, but represent a distinct family far removed from any family belonging in this series.

The *Trigonalidæ* are now placed in the superfamily *Vespoidea* between the *Bethylidæ* and the *Sapygidæ*.

The *Aulacinæ*, as here restricted, are easily distinguished from the other two subfamilies by having the antennæ inserted on the anterior margin of the head, just above the clypeus, by the quadrate or subglobose head, and by the venation of the front wings, which have usually two recurrent nervures.

The abdomen, too, is quite different from the other groups, being elongate, clavate, and only slightly compressed.

All of the species are parasitic on the larvæ of different Coleoptera, those belonging to the family *Cerambycidæ* being particularly subject to their attacks.

Three genera have been recognized, distinguishable as follows:

TABLE OF GENERA.

First cubital cell receiving the first recurrent nervure toward the middle; hind coxæ swollen, much elongate, and prolonged within beyond the insertion of the trochanters ..... (5) *Pammegischia* Provancher.

First cubital cell receiving the first recurrent nervure at or near the tip, or interstitial with the first transverse cubitus; hind coxæ normal, not prolonged within.

Claws with *one* tooth beneath ..... (6) *Aulacus* Jurine.
Claws with *three* or more teeth beneath ..... (7) *Pristaulacus* Kieffer.

Family LXXV. AGRIOTYPIDÆ.

1832. *Agriotypus* WALKER, Curtis Brit. Ent., IX, pl. 389.
1838. *Agriotypidæ*, Family III, HALIDAY, Ent. Mag., V, p. 212.
1868. *Agriotypoidæ* FÖRSTER, Verh. d. naturh. Ver. pr. Rheinl., XXV, p. 143.
1884. *Agriotypidæ* BRIDGMAN and FITCH, The Entom., XVII, p. 121.

This is probably one of the most interesting families in the superfamily *Ichneumonoidea*, not only on account of its rarity, its structural peculiarities, and its aquatic habits, but also on account of being represented, up to the present time, by but a single genus with a single species—the *Agriotypus armatus* Walker.

A doubt as to its proper position in this great complex has been expressed by several eminent entomologists, and quite recently Dr. David Sharp has suggested its close relationship with the *Proctotrypidæ*. I myself have long had doubts as to its true position, but now, after a careful study of specimens of both sexes, am prepared to defend its position here, the only character at variance with any in this major group being in the abdomen, which has the venter hard and chitinous, as in the higher Hymenoptera, the *aculeata* or *monotrocha*. All its other characters are, however, as with the genuine Ichneumonids and with the Braconids.

The trochanters are two jointed; the wings and their venation as in most Ichneumonids, the costal cell being absent, the subcostal vein lying close to and extending parallel with the costal vein; there are two recurrent nervures, the second received beyond the first transverse cubitus, the first cubital and first discoidal cells confluent, the first abscissa of the cubitus being absent; there are two basal cells, two complete discoidal cells, and a short triangular marginal cell, while the stigma is broad and oblong; the hind wings have a distinct venation, the submedian cell being about half the length of the median, the subdiscoidal nervure being distinct and originating from the transverse median nervure a little below the middle.

The venter, although hard and chitinous as in the genuine wasps and Proctotrypids, has the ovipositor subexserted, issuing from before its tip, and structurally is the same as in the Ichneumonids and the Braconids. In the male the external claspers are unusually long and broad, a character sometimes met with in males belonging to the *Tryphoninæ* and the *Ophioninæ*. The spined scutellum in *Agriotypus* is quite unique, although a somewhat similar spined scutellum is found in some Ophionines.

The only species, *Agriotypus armatus* Walker, is unknown outside of the European fauna. It attacks the larvæ of various species of *Trichoptera* belonging to the genera *Silo*, *Goera*, *Trichostoma*, *Aspatherium*, and *Odontocerum* and has been observed swimming and diving under water to seek its prey.

Generic-characters same as family ....(1) *Agriotypus* Walker = *Cratopus* Holmgren.
(Type, *Agriotypus armatus* Walker.)

Family LXXVI. ICHNEUMONIDÆ.

1815. *Ichneumonida* LEACH (part), Edinb. Encycl., IX, p. 142.
1837. *Parasitica* HARTIG (part), Wiegmann's Archiv., I, p. 158.
1838. *Ichneumonidæ*, Family II, HALIDAY, Entom. Mag., V, p. 4.
1840. *Ichneumonidæ*, Family III, WESTWOOD, Intro. Mod. Class., Ins., II, p. 83.
1900. *Ichneumonidæ*, Family LXXVI, ASHMEAD, Smith's Insects of New Jersey.

This family is readily distinguished from the *Evaniidæ* and the *Stephanidæ* by the absence of a distinct costal cell in the front wings, the costal and subcostal veins being parallel and extending close together, side by side, to the stigma; by the abdomen being attached normally, not high up on the dorsum of the metathorax, and by the venation of the hind wings. From the *Alysiidæ* it is separated by the normally attached mandibles, as well as by palpial characters, while from the *Braconidæ* it is separated by the venation of the front wings, having, except in a single case, two recurrent nervures, whereas the *Braconidæ* have none or only one. The first cubital and the first discoidal cells are also always confluent, not distinctly separated as in the normal wings of a Braconid, and also by the usually longer abdomen and by the flexibility of the first and second segments, which in the *Braconidæ* are rigid, connate, or not at all flexible, except in the subfamily *Aphidiinæ*.

The family *Ichneumonidæ* may be divided first into five major groups, called subfamilies, as follows:

TABLE OF SUBFAMILIES.

First abdominal segment straight, not elbowed, most frequently sessile or subsessile, more rarely petiolate, its spiracles usually placed at or before the middle, more rarely somewhat behind the middle; in the latter case the abdomen is compressed; if petiolate, the petiole is usually abruptly enlarged at apex, the spiracles being closer to each other than to the apical margin (very rarely widely separated) 2

First abdominal segment petiolate, not straight, or very rarely, but depressed, curved, bent, or elbowed, and most frequently widened at the apical third, its spiracles placed always beyond the middle or between the middle and the apex; areolet in front wings usually pentagonal or small quadrate, rarely deltoid, petiolate, or rhomboidal, although often absent.

Mesosternum not separated from the mesopleura by a grooved line or furrow; spiracles of first abdominal segment wider from each other than to the apex of the segment; ovipositor hidden or at most subexserted; areolet of front wings pentagonal, rarely deltoidal or rhomboidal, or incomplete; no apterous forms ..... Subfamily I. ICHNEUMONINÆ.

Mesosternum separated from the mesopleura by a grooved line or furrow; spiracles of first abdominal segment nearer to each other than to the apex of the segment; ovipositor exserted, prominent, rarely very short; areolet of front wings pentagonal or small quadrate, often incomplete or wanting; apterous and subapterous forms common.

Subfamily II. CRYPTINÆ.

2. Abdomen usually depressed and sessile, never strongly compressed, although sometimes compressed toward apex, more rarely petiolate; spiracles of

first segment placed at or a little *before* the middle, rarely slightly behind the middle.

Abdomen elongate, subcylindrical, most frequently sessile, rarely petiolate or subcompressed at apex; ovipositor always prominent, often very long; areolet in front wings, when present, usually rhomboidal or triangular, very rarely pentagonal ..... Subfamily III. PIMPLINÆ.

Abdomen not or rarely very long, depressed, and sessile, fusiform, clavate, ovate, or oval, more rarely distinctly petiolate; ovipositor hidden, never prominent, at the most subexserted; areolet triangular, rhomboidal or wanting, rarely pentagonal ..... Subfamily IV. TRYPHONINÆ.

Abdomen usually long, wholly compressed or compressed along the posterior half, rarely subcylindrical; in the latter case the petiole is somewhat abruptly dilated at apex; spiracles of first segment most frequently placed at or behind the middle, more rarely before; areolet in front wings usually triangular, rhomboidal or wanting, often petiolate; ovipositor either hidden or prominent ..... Subfamily V. OPHIONINÆ.

Subfamily I. ICHNEUMONINÆ.

1900. *Ichneumoninæ*, Subfamily I, ASHMEAD, Smith's Insects New Jersey, p. 563.

To this subfamily belong Förster's families *Trogoidæ* (= Joppinæ Kriechbaumer), *Ichneumonoidæ*, *Listrodromoidæ*, *Alomyoidæ*, and *Phæogenoidæ*, which, however, are here recognized as tribes, since they represent natural minor groups.

The tribes recognized in this subfamily may be separated by the use of the following table:

TABLE OF TRIBES.

Metathoracic spiracles round or circular, more rarely broadly oval; claws simple, never pectinate 3

Metathoracic spiracles linear or long-oval, but very rarely rounded; if rounded the claws are always pectinate.

Mandibles not bidentate, simple, edentate, acute at apex 2

Mandibles bidentate; head not broader than long.

Metanotum with a strong constriction or furrow between it and the postscutellum, the metanotum usually short, with a median elevation toward base and without the basal or first median area, or, if at all present, open; areola often reduced to a tubercle, or if defined usually confluent with the petiolar area, rarely distinct, horse-hoof shaped or broadly transverse; scutellum variable, frequently cone-shaped, pyramidal, or highly convex, rarely very flat; sutures between the abdominal segments often strongly constricted; areolet in front wings tetragonal, triangular, or pentagonal (rarely wanting).

Tribe I. JOPPINI.

Metanotum without such a constriction or furrow, at most with only a weak furrow between it and the postscutellum; metanotum rarely short, always *without* a median elevation at base and with the basal or first median area distinct, usually complete, the areola and petiolar are separated, distinct, abdomen normal, not or rarely strongly constricted between the segments; areolet in front wings pentagonal.

Claws simple; second and third abdominal segments *with* lunulæ.

Tribe II. ICHNEUMONINI.

Claws pectinate; second and third abdominal segments most frequently *without* lunulæ or at least not present on both segments.

Tribe III. LISTRODROMINI.

2. Head, viewed from in front, broader than long; occiput strongly concave, the temples broad, full ..... Tribe IV. Heresiarchini.

3. Metanotum *without* the basal or first median area, the areola fully two and a half times as long as wide and acutely pointed at base; petiolar area not longer than wide; metathoracic spiracles large, broadly oval. Tribe V. Alomyini.

Metanotum with the basal or first median area distinct, the areola never twice as long as wide and not pointed at base, either truncate or rounded, or, at the most, obtusely triangular at base; petiolar area much longer than wide; metathoracic spiracles rounded or circular, never large ..... Tribe VI. Phæogenini.

Tribe I. JOPPINI.

1868. *Trogoidæ*, Family 27, Förster, Verh. d. naturh. Ver. pr. Rheinl., XXV, pp. 144 and 188.
1894. *Trogini*, Tribe I, Ashmead, Proc. Ent. Soc. Wash., III, p. 278.
1898. *Joppinæ*, Subfamily, Kriechbaumer, Ent. Nachr., XXIV, p. 2.
1900. *Joppini*, Tribe I, Ashmead, Smith's Insects of New Jersey, p. 563.

The typical forms falling in this tribe are easily separated by antennal, scutellar, and abdominal characteristics from those falling in the tribe *Ichneumonini;* but there are several genera which can scarcely be distinguished from genuine ichneumonini, and these must be examined carefully for the metathoracic characters made use of in my table of tribes.

Förster based the group upon the genus *Trogus* Gravenhorst and gave for the family diagnosis a single character—the shape of the scutellum. Kriechbaumer has done no better, although he calls the group a subfamily—the *Joppinæ*, taking the name from the first-described genus, *Joppa* Fabricius. He has, however, given an excellent table, and brought together a number of genera closely related. Kriechbaumer does not include in his table *Joppa* Fabricius, but for the species usually considered as such he has proposed the name *Microjoppa*. He had, of course, the right to segregate the old genus Joppa, but no right to reject it entirely and I have here restored the name *Joppa* for his *Microjoppa*. His genus *Tricyphus*, too, seems to be identical with *Trogus* Gravenhorst.

The following table will aid in separating the genera belonging to this tribe:

TABLE OF GENERA.

Antennæ in female at or beyond the middle widened, compressed; in male beneath serrate; abdomen with more or less distinct angular emarginations, the segments, at least in part, striate or aciculate 2

Only one or the other characteristics present 6

2. Wings with at least the tips brown, often also with brown maculæ or bands toward the base or before the middle, seldom wholly or in great part brown 3

Wings hyaline, the widening of the antennæ often insignificant, scarcely perceptible 4

3. Labrum hidden under the clypeus; head large, with the cheeks more or less swollen; species rather small, mostly yellow, or reddish yel-

low and black; areolet in front wings usually oblique, trapezoidal, not petiolate; scutellum convexly rounded; gastrocœli distinct.....(1) *Joppa* Fabricius=*Microjoppa* Kriechbaumer.
(Type, *Joppa dorsata* Fabricius.)

Labrum prominent or projecting; species rather large.

Fifth dorsal abdominal segment in female inclosing the sixth; in male the sixth inclosing the seventh; apex in both sexes sometimes extending into a short point....(2) *Cryptopyge* Kriechbaumer.
(Type, *Joppa picta* Guérin.)

Fifth dorsal abdominal segment in the female and the seventh in the male distinctly visible; areolet oblique, trapezoidal, petiolate.
(3) *Macrojoppa* Kriechbaumer.
(Type, *Joppa blandita* Cresson.)

4. Antennæ in male lengthened, but scarcely perceptibly widened; areolet pentagonal..... 5

Antennæ in male much thickened at the middle or strongly widened and again narrowed; abdominal segments two and three very flat and with fine close aciculations, the following compressed, almost conically pointed, with fine scattered punctures; areolet small, pentagonal, but so narrowed and contracted as to appear nearly tetragonal.....(4) *Conopyge* Kriechbaumer.
(Type, *Conopyge cinctipes* Kriechbaumer.)

5. Scrobes normal, the lateral margins not produced into tubercles; gastrocœli distinct.

Basal joint of hind tarsi produced below into a flattened leaf-like projection.
(5) *Ileanta* Cameron.
(Type, *Ileanta latitarsis* Cameron.)

Basil joint of hind tarsi normal.

Labrum prominent, projecting; aciculations of abdomen in male very strong, extending to the middle of the fourth segment, in female on to the fifth.....(6) *Lindigia* Kriechbaumer.
(Type, *Lindigia varia* Kriechbaumer.)

Labrum hidden under the clypeus.

Abdomen with the aciculations extending only to the middle of the third segment.....(7) *Pœcilojoppa* Kriechbaumer.
(Type, *Pœcilojoppa histrio* Kriechbaumer.)

Abdomen with all the segments aciculated; scutellum margined at sides; submedian cell a little shorter than the median.
(8) *Ortezia* Cresson.
(Type, *Joppa egregia* Cresson.)

Abdomen with segments two and three ruguloso—punctate, the following almost smooth, shining; gastrocoeli large, oblique, deep, with a narrow space between; scutellum convex; abruptly declivous posteriorly, the sides margined; metathorax with the upper hind angles briefly dentate, the areolet present.
(9) *Henicophatnus* Kriechbaumer.
(Type, *Henicophatnus rufithorax* Kriechbaumer.)

Scrobes with the lateral margins produced into slightly curved tubercles; gastrocœli wanting; scutellum flat; abdomen strongly punctate.
(10) *Abzaria* Cameron.
(Type, *Abzaria latipetiolaris* Cameron.)

6. Antennæ in female dilated between the middle and the apex, more rarely scarcely perceptibly dilated; abdominal segments truncate, without distinct aciculations or foveate impressions, usually punctate; male often difficult to separate from those in the *Ichneumonini;* areo-

let trapezoidal, rarely quadrate, triangular, or pentagonal (rarely wanting) 8

Antennæ in both sexes filiform, not perceptibly dilated at the middle.

Abdomen with more than three visible dorsal segments, and aciculate or striate 7

Abdomen with only three visible dorsal segments, closely and strongly punctate, the third at apex ending in a strong tooth on each side; scutellum at apex tridentate .....(11) *Rothneyia* Cameron.

(Type, *Rothneyia wroughtonii* Cameron.)

7. Legs long and slender, the hind femora extending to or beyond the tip of the abdomen; last ventral segment entire; shape of body and color of wings similar to *Macrojoppa* species.

(12) *Ischnopus* Kreichbaumer.

(Type, *Ischnopus longiceps* Kreichbaumer.)

Legs shorter, at the most the hind femora extending only to the apex of the fourth dorsal segment.

Scutellum flat; wings wholly violaceous black or the anterior are marked with yellow.....(13) *Pedinopelte* Kreichbaumer.

(Type, *Joppa Gravenhorstii* Guérin.)

Scutellum subquadrate, truncate at apex, subconvex above and margined laterally; metathorax short, imperfectly areolated, the spiracles elongate linear; areolet in front wings triangular.

(14) *Obba* Tosquinet.

(Type, *Obba calatus* Tosquinet.)

Scutellum more or less pyramidal or conical, immargined; areolet in front wings subpentagonal or subrhomboidal.

(15) *Dinotomus* Förster = *Psilomastix* Tischbein.

(Type, *Ichneumon lapidator* Fabricius.)

8. Scutellum elevated, convex, conical or saddle-shaped; posterior face of metathorax with three parallel areas, rarely entirely wanting or indistinctly defined 9

9. Metathorax normal, the upper hind angles not produced into teeth or spines..10

Metathorax with the upper hind angles produced into teeth or spines, or with a very sharp ledge 14

10. Areolet small or only moderately large, trapezoidal, triangular, or pentagonal..11

Areolet large, in outline quadrate; abdomen with normal number of segments.

(16) *Tetragonochara* Kriechbaumer.

(Type, *Joppa polychroa* Brulle.)

Areolet wanting; abdomen with only three visible dorsal segments.

(17) *Chreusa* Cameron.

(Type, *Chreusa fulvipes* Cameron.)

11. Abdomen *with* a ventral slit at apex 12

Abdomen *without* a ventral slit at apex.

Scutellum and metanotum at base elevated, the postscutellum between also sometimes with a small elevation, the metanotum very short, obliquely truncate from near base; areolet in front wings trapezoidal or rhomboidal, more rarely pentagonal.

Labrum hidden, areola of metanotum obsolete or very minute, sometimes represented by a tubercle; areolet in front wings not pentagonal; scutellum subconical, not margined laterally.

(18) *Trogus* Gravenhorst = *Tricyphus* Kriechbaumer.

Labrum not entirely hidden, rounded anteriorly; areola of metanotum distinct, usually horse-hoof shaped; areolet in front wings usually pentagonal .....(19) *Automalus* Wesmael.

(Type, *Trogus alboguttatus* Gravenhorst.)

Scutellum flat or subconvex, the metanotum not elevate, the areola distinct; female antennæ slightly flattened beyond the middle; metanotum not short.

Areola horse-hoof shaped, a little longer than wide; basal lateral and middle lateral areas confluent ...(20) *Protichneumon* Thomson.
(Type, *Ichneumon fusorius* Linnæus.)

Areola not distinctly horse-hoof shaped, a little wider than long; basal lateral and middle lateral areas separated.
(21) *Celichneumon* Thomson.
Type, *Ichneumon lineator* Gravenhorst.

12. Antennæ in female very slightly widened 13

Antennæ in female distinctly lanceolate.

Areolet tetragonal, pyramidal; metathorax very short, strongly declivous; the areola very short .....(22) *Catadelphus* Wesmael.
(Type, *Ichneumon arrogator* Fabricius.)

Areolet irregularly pentagonal or nearly trapezoidal, the veins sometimes curved, as in *Dinotomus* Förster.
(23) *Camarota* Kriechbaumer.
(Type, *Camarota thoracica* Kriechbaumer.)

Areolet pentagonal; scutellum margined laterally and posteriorly; head almost quadrate; abdomen narrow.
(24) *Ischnojoppa* Kriechbaumer.
(Type, *Joppa lutea* Fabricius.)

13. Scutellum convex, with lateral ridges at base; areolet irregularly pentagonal; metathorax areolated; abdomen strongly punctate, the segments 2–5 constricted at the sutures.
(25) *Trogomorpha* Ashmead, new genus.
(Type, *Ichneumon trogiformis* Cresson.)

Scutellum saddle-shaped; i. e., pyramidal, with an emargination at apex; metathorax exareolated; abdomen aciculate and rugulose.
(26) *Microsarge* Kriechbaumer.
(Type, *Microsarge sieberi* Kriechbaumer.)

Scutellum cushion-shaped, surrounded by a distinct, elevated margin, the field thus formed nearly horse-hoof shaped; metathorax exareolated, the hind angles rounded, with only a small tubercle; abdomen finely punctate-rugulose; all tarsi long, as long or a little longer than their femora. Female...(27) *Hoplojoppa* Kriechbaumer.
(Type, *Hoplojoppa parvispina* Kriechbaumer.)

Scutellum thorn-shaped; metathorax areolated as in *Ichneumon;* abdomen rather flat, subclavate, finely and moderately regularly aciculate and rugulose; female antennæ scarcely perceptibly widened .....(28) *Stenolonche* Kriechbaumer.
(Type, *Stenolonche areolata* Kriechbaumer.)

14. Labrum prominent, distinct; metathoracic spines very large; scutellum flat and margined to beyond the middle, the margins anteriorly acutely elevated; areolet pentagonal; submedian cell a little longer than the median, the disco-cubital vein broken at the middle by a slight stump of a vein....(29) *Cryptojoppa* Kriechbaumer.
(Type, *Cryptojoppa semicastanea* Kriechbaumer.)

Labrum hidden; metathoracic spines small.

Head transverse, the temples not especially broad; scutellum saddle-shaped, emarginate above; areolet pentagonal or nearly trigonal; antennæ feebly dilated.....(30) *Eccoptosarge* Kriechbaumer.
(Type, *Eccoptosarge Waageni* Kriechbaumer.)

Head large, swollen, the occiput deeply concave; scutellum very broad, subquadrate, more or less elevated, and margined at the sides, unituberculate, or with a small spine above; areolet rather small, pentagonal, the median and submedian cells of an equal length; gastrocœli very large transverse.

(31) *Œdicephalus* Cresson.

(Type, *Œdicephalus longicornis* Cresson.)

Head transverse, or subquadrate; scutellum cushion-shaped, convex, and margined; areolet trapezoidal; metathorax exareolated. (Male).

(27) *Hoplojoppa* Kriechbaumer.

(Type, *Hoplojoppa parvispina* Kriechbaumer.)

Tribe II. ICHNEUMONINI.

1868. *Ichneumonoidæ*, Family 29, Förster, Verh. d. naturh. Ver. pr. Rheinl., XXV, pp. 144 and 149.

1894. *Ichneumonini*, Tribe II, Ashmead, Proc. Ent. Soc., Wash., III, p. 278.

1900. *Ichneumonini*, Tribe II, Ashmead, Smith's Insects of New Jersey, p. 564.

As previously stated, this tribe is scarcely separable from some forms belonging to the *Joppini*, and it requires considerable care and the closest scrutiny for the detection of the metathoracic differences, used in my table of tribes, before one can be sure of the position of certain forms. It is clearly connected with the *Joppini* by the genus *Amblyteles* and allied genera through *Protichneumon*, *Calichneumon*, and *Automalus*.

The tribe is, however, easily separated from the others: The simple, non-pectinate claws separate it from the *Listrodromini*, the bidentate mandibles from the *Heresiarchini*, while the large, elongate or linear spiracles distinguish it from the *Alomyini* and the *Phæogenini*.

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

TABLE OF GENERA.

Basal third of petiole flattened, wider than thick dorso-ventrally 8

Basal third of petiole *not* flattened, or so little that it is *not* wider than thick dorso-ventrally.

Abdomen in female with its tip blunt, the last ventral segment covering the base of the borer (*Amblypygi*) 5

Abdomen in female with its tip pointed, *not* blunt, the last ventral segment *not* covering the base of the borer (*Oxypygi*) 2

2. Scutellum not short, convexly elevated and declivous posteriorly, not margined laterally; metathorax with the upper hind angles usually dentate, the areola wider than long.

(32) *Hoplismenus* Gravenhorst.

(Type, *Hoplismenus perniciosus* Gravenhorst.)

Scutellum short, subconvex, rounded posteriorly and margined laterally, metathorax unarmed, the areola narrow, curved and much broader than long ..... (33) *Callimus* Tosquinet.

(Type, *Callimus adornatus* Tosquinet.)

Scutellum usually flat, never much elevated nor highly declivous posteriorly.

Clypeus medially on the anterior margin *not* emarginate or sinuate, either truncate or slightly rounded 3

Clypeus medially on the anterior margin, emarginate or sinuate; metathorax with the areola elongate rectangular, the labrum more or less exposed; ciliate; antennæ filiform.

(34) *Chasmias* Ashmead, new name.

= *Chasmodes* Wesmael *nec* Cuvier et Valenciennes.

(Type, *Ichneumon notatorius* Gravenhorst.)

3. Ovipositor and sheaths *not* or only slightly extending beyond the tip of the abdomen 4

Ovipositor and sheaths thickened and extending beyond the tip of the abdomen.

Antennæ filiform; metathorax with the areola large, nearly hexagonal; eighth dorsal abdominal segment exserted.

(35) *Exephanes* Wesmael.

(Type, *Ichneumon hilaris* Gravenhorst.)

4. Second abdominal segment cask-shaped, the sutures between segments 2, 3, and 4 very deep.....(36) *Pithotomus* Kriechbaumer.

(Type, *Pithotomus rifiventris* Kriechbaumer.)

Second abdominal segment normal, *not* cask-shaped, trapezoidal, or rectangular.

Abdomen subdepressed, the petiole feebly bent.

(37) *Diphyus* Kriechbaumer = *Diphyes* Kriechbaumer.

(Type, *Diphyes tricolor* Kriechbaumer.)

Abdomen convex, the petiole strongly curved or bent at the posterior third;

Anterior tarsi in female somewhat dilated...(38) *Eupalamus* Wesmael.

(Type, *Eupalamus oscillator* Wesmael.)

Anterior tarsi in female normal.

Areola of metanotum quadrate or nearly, the basal lateral and the middle lateral areas confluent; post petiole scabrous or rugulose; flagellar joints 2–4 in female three or more times longer than thick.

(39) *Stenichneumon* Thomson.

(Type, *Ichneumon pisorius* Linnæus.)

Areola of metanotum quadrate, usually a little longer than wide, the hind margin curved inwardly or more or less angularly emarginate, the basal lateral and the middle lateral areas usually, but not always, separated; post petiole aciculate; flagellar joints 2–4 in female short, scarcely or not much longer than thick.

(40) *Ichneumon* Linnæus.

(Type, *Ichneumon luctatorius* Linnæus.)

Areola of metanotum large, hexagonal or subquadrate, the basal lateral and the middle lateral areas usually separated; post petiole punctate; flagellar joints 2–4 in female subequal, longer than thick.....(41) *Melanichneumon* Thomson.

(Type, *Ichneumon spectabilis* Holingren.)

Areola of metanotum horse-hoof shaped or nearly, a little wider than long, or cordate, the basal lateral and the middle lateral areas complete; antennæ in female stout; flagellar joints 2–4 longer than thick .....(42) *Cratichneumon* Thomson.

(Type, *Ichneumon luteiventris* Thomson.)

Areola of metanotum nearly semicircular, wider than long, the basal lateral and middle lateral areas separated; head subquadrate; antennæ and legs stout; flagellar joints 2–4 in female quadrate or nearly, not or scarcely longer than wide.

(43) *Barichneumon* Thomson.

(Type, *Ichneumon anator* Gravenhorst.)

5. Abdomen in female very long and much compressed toward apex.
(44) *Limerodes* Wesmael.
(Type, *Limerodes ophionoventris* Wesmael.)
Abdomen in female neither especially long nor compressed toward apex.
Abdomen in female with 7 dorsal segments; joints 12–16 of male antennæ not widened 6
Abdomen in female with 8 dorsal segments; joints 12–16 of male antennæ somewhat widened.
Scutellum normal.
Metathorax unarmed, the spirales oval; abdomen very slender.
(45) *Hypomecus* Wesmael.
(Type, *Hypomecus albitarsis* Wesmael.)
Metathorax normal, bispinose, or bidentate, the spirales elongate or linear; abdomen not slender; male antennæ slender, the joints nodulose beneath.
Abdomen without ventral fold, except sometimes on first segment; gastrocœli and thyridia large, deep, broader than the space between; seventh segment in both sexes black; areola of metanotum in outline circular with its apex truncate.
(46) *Ctenichneumon* Thomson.
(Type, *Amblyteles funereus* Gravenhorst.)
Abdomen with ventral fold on segments 1 and 2 or 1 to 3; gastrocœli and thyridia small or moderate.
Mesosternal epicnemia entire; dorsal abdominal segments 6 and 7 spotted with white or yellow; hypopygium large, almost entirely covering the terebra; third ventral segment rarely with a fold ..... (47) *Spilichneumon* Thomson.
(Type, *Amblyteles occisorius* Gravenhorst.)
Mesosternal epicnemia not entire; anus usually pale; hypopygium usually not attaining the terebra; third ventral segment usually with a fold.
Upper hind angles of metathorax unarmed.
(48) *Pseudamblyteles* Ashmead, new genus.
(Type, *Amblyteles palliatorius* Gravenhorst.)
Upper hind angles of metathorax distinctly bispinose or bidentate ..... (49) *Amblyteles* Wesmael.
(Type, *Ichneumon bidentorius* Fabricius = *fasciatorius* Wesmael.)
Scutellum gibbous; metathorax bidentate; abdomen short, oval.
(50) *Hybophorus* Kriechbaumer.
(Type, *Ichneumon audacus* Gravenhorst.)
6. Pronotal furrow normal, *not* interrupted medially by an elevation or keel ... 7
Pronotal furrow interrupted medially by an elevation or keel.
(51) *Anisobus* Wesmael.
(Type, *Ichneumon cingulatorius* Wesmael.)
7. Tarsi on the underside pilose, *without* or with very small spines.
Metathorax with the areola longer than wide.
(52) *Hepiopelmus* Wesmael.
(Type, *Ichneumon leucostigmus* Gravenhorst.)
Tarsi on the underside pilose, *with* strong spines.
Clypeus anteriorly strongly rounded and medially toothed or angulated.
(53) *Acolobus*, Wesmael.
(Type, *Acolobus sericeus* Wesmael.)

Clypeus anteriorly straight, truncate.
Scutellum quadrate; antennal joints 12-16 dilated laterally. Male.
(45) *Hypomecus* Wesmael.
(Type, *Hypomecus albitarsis* Wesmael.)
Scutellum not quadrate; antennal joints 12-16 not dilated laterally.
Metathorax bidentate ..... (49) *Amblyteles* Wesmael.
Metathorax unarmed ..... (48) *Pseudamblyteles* Ashmead.

8. First abdominal segment at the elbow much swollen, gibbous, or angulated.
(54) *Probolus* Wesmael.
(Type, *Ichneumon fossorius* Gravenhorst.)
First abdominal segment at the elbow *not* gibbous or angulated.
Scuttellum pyramidal ..... (55) *Pyramidophorus* Tischbein.
(Type, *Pyramidophorus flavoguttatus* Tischbein.)
Scutellum not pyramidal.
Antennæ very strongly serrate. Male ... (56) *Pristocerus* Gravenhorst.
(Type, *Pristocerus serrarius* Gravenhorst.)
Antennæ not strongly serrate.
First abdominal segment neither broad nor rugose its entire length 9
First abdominal segment very broad and wholly rugose.
(57) *Rhyssolabus* Kriechbaumer.
(Type, *Platymischos brassicus* Tischbein.)

9. Areolet pentagonal (rarely subtriangular and briefly petiolate in some males.)
Scutellum laterally margined at the most only at the base, never to the middle.
Front tarsi *without* a single joint armed with fine spines.
(58) *Eurylabus* Wesmael.
(Type, *Eurylabus torvus* Wesmael.)
Front tarsi *with* most of the joints armed with fine spines.
(59) *Eristicus* Wesmael.
(Type, *Ichneumon clericus* Gravenhorst.)
Scutellum laterally margined to beyond the middle. (60) *Platylabus* Wesmael.)
(Type, *Platylabus rufus* Wesmael.)

Tribe III. LISTRODROMINI.

1868. *Listrodromoidæ*, Family 32, Förster, Verh. d. naturh. Ver. pr. Rheinl., XXV, pp. 144 and 194.
1894. *Listrodromini*, Tribe IV, Ashmead, Proc. Ent. Soc. Wash., III, p. 278.

The species belonging to this tribe have the claws pectinate, never simple; otherwise they are scarcely distinguishable from those found in the *Joppini* and the *Ichneumonini*.

Förster placed in the group only two genera, *Neotypus* and *Listrodromus*, while I have ventured to place here five other genera.

TABLE OF GENERA.

Metathoracic spiracles, round or oval 4
Metathoracic spiracles, large, elongate, forming a long slit, sometimes curved.
Scutellum flat, or at most subconvex, never gibbous or elevated 2
Scutellum elevated at apex and highly declivous; metathorax normal, unarmed.
(61) *Ctenochares* Förster.

Scutellum gibbous with lateral carinæ; metathorax bidentate, exareolate.
(62) *Joppites* Berthoumieu = *Celmis* Tosquinet = *Pseudojoppa* Kreichbaumer.

2. Metathorax normal, unarmed 3
Metathorax bispined or bidentate.
Spiracles of abdominal segments elongate or oval; metathorax *not* or very indistinctly areolated; submedian cell *not* longer than the median; disco-cubital nervure broken by a stump of a vein; areolet with the sides strongly convergent above, triangular or rhomboidal; abdomen banded, the ovipositor subexserted.
(63) *Cressoniamus* Ashmead, new genus.
(Type, *Patroclus lectus* Cresson.)

3. Metathorax *not* short, *not* or very indistinctly areolated; submedian cell a little *longer* than the median; disco-cubital nervure broken by a stump of a vein; areolet pentagonal; scutellum margined at sides anteriorly; abdomen blue or black, not banded, the spiracles of the first segment large, subreniform; claws with long teeth.....(64) *Patroclus* Cresson.
(Type, *Patroclus nigrocæruleus* Cresson.)
Metathorax short, truncate posteriorly and distinctly areolated; submedian cell a little *shorter* than the median, or never longer; disco-cubital nervure not broken by a stump of a vein; areolet regularly pentagonal; scutellum margined at sides clear to the apex; abdomen not wholly blue or black, the spiracles of the first segment very small, rounded; claws with shorter teeth at base only (sometimes difficult to discern).
(65) *Neotypus* Förster.
(Type, *Ichneumon lepidator* Fabricius.)

4. Metathoracic spiracles oval, the metanotum exareolated; scutellum flat, longer than wide, with elevated lateral margins.....(66) *Eradha* Cameron.
(Type, *Eradha trichiosoma* Cameron.)
Metathoracic spiracles round, the metanotum areolated; scutellum pyramidal.
(67) *Listrodromus* Wesmael.
(Type, *Ichneumon nyctermerus* Gravenhorst.)

Tribe IV. HERESIARCHINI.

1900. *Heresiarchini*, Tribe IV, ASHMEAD, Smith's Insects of New Jersey, p. 567.

This tribe is proposed for certain genera having the mandibles simple, edentate and acute at apex, and this simple character readily distinguishes the group from all others.

Four genera belong here, separable as follows:

TABLE OF GENERA.

Metathorax normal, unarmed 2
Metathorax bidentate.
Head large, strongly concave behind the temples, the cheeks full, buccate; transverse median nervure in front wings interstitial; disco-cubital nervure broken by a stump of a vein before the middle; antennæ broadly ringed with white.....(68) *Plagiotrypes* Ashmead, new genus.
(Type, *Ichneumon concinnus* Say.)

2. Metathorax with the areola semicircular, smooth, and shining; scutellum *not* margined laterally to beyond the middle; second abdominal segment with the gastrocœli linear and placed longitudinally.
(69) *Heresiarches* Wesmael.
(Type, *Heresiarches eudoxius* Wesmael.)

Metathorax with the areola *not* semicircular; scutellum margined laterally to beyond the middle; second abdominal segment with the thyridia occupying the entire breadth and scarcely separated at the middle.

(70) *Rhexidermus* Förster.

(Type, unknown.)

Metathorax with the basal median and basal lateral areas confluent; scutellum margined laterally only at base; second abdominal segment with the thyridia widely separated at the middle.

(71) *Stenodontus* Berthoumieu. (=*Guathoxys* Wesmael.)

(Type, *Ichneumon marginellus* Gravenhorst.)

Tribe V. ALOMYINI.

1844. *Ichneumones heterogastri* Wesmael, Nouv. Mém. Acad. Sci. Brux., XVIII, p. 217.

1868. *Alomyoidæ*, Family 31, Förster, Verh. d. naturh. Ver. pr. Rheinl., XXV, pp. 144 and 194.

1894. *Alomyini*, Tribe III, Ashmead, Proc. Ent. Soc. Wash., III, p. 278.

I have followed Förster in retaining this group as distinct from the *Ichneumonini*, where some authorities would place it, or from the *Phæogenini*, where others would place it. To me it seems to approach nearest to the *Phæogenini*, but is readily separated by its metanotal characters and by the shape of the metathoracic spiracles.

Only a single genus is known in the group, distinguishable as follows:

Form elongate; metathorax smooth, exareolated, the spiracles large, oval; abdomen elongate, smooth and polished, the sides parallel, the second segment *without* gastrocœli; antennæ with the joints of the flagellum short, in female not or scarcely twice as long as wide, in male the joints, except the first, not longer than wide; head quadrate ..... (72) *Alomya* Panzer.

(Type, *Alomya orata* Panzer.)

Tribe VI. PHÆOGENINI.

1868. *Phæogenoidæ*, Family 30, Förster, Verh. d. naturh. Ver. pr. Rheinl., XXV, pp. 144 and 191.

1894. *Phæogenini*, Tribe V, Ashmead, Proc. Ent. Soc. Wash., III, p. 278.

1898. *Cyclopneustici*, Subtribe, Berthoumieu, Ann. Soc. Ent. France, LXV, p. 332.

1900. *Phæogenini*, Tribe VI, Ashmead, Smith's Insects of New Jersey, p. 568.

To this tribe belong a large number of the smaller ichneumonids, separated at once from those in the other tribes by the small, rounded, or circular metathoracic spiracles.

It is believed that the genera falling here can be readily distinguished by the use of the following table:

TABLE OF GENERA.

Scutellum *not* especially elevated 2

Scutellum very convex and elevated.

Tip of abdomen acute, the ovipositor quite straight; head transverse-quadrate, the temples as wide as the eye; lunulæ large transverse, more or less confluent ..... (73) *Ischnus* Gravenhorst.

(Type, *Ischnus thoracicus* Gravenhorst.)

Tip of abdomen very obtuse, the ovipositor curving upward.
(74) *Heterischnus* Wesmael.
(Type, *Ichneumon pulex* Müller.)

2. Superior hind angles of metathorax normal, *not* toothed 3
Superior hind angles of metathorax prominently toothed; clypeus subquadrate.
(75) *Apæleticus* Wesmael.
(Type, *Apæleticus bellicosus* Wesmael.)

3. Spiracles of first abdominal segment placed at the middle.
(76) *Diacritus* Förster.
Spiracles of first abdominal segment placed behind the middle.
Metathorax *not* produced at apex beyond the base of hind coxæ 4
Metathorax much lengthened and at apex produced beyond the base of the hind coxæ.
Clypeus convex, not separated from the face at base; abdomen not compressed at the apex .....(77) *Oronotus* Wesmael.
(Type, *Oronotus coarctatus* Wesmael.)
Clypeus depressed, separated from the face by a deep furrow; abdomen compressed at apex .....(78) *Diaschisaspis* Förster.
(Type, *Diaschisaspis campoplegoides* Holmgren.)

4. Second abdominal segment with the lunulæ small, never twice as long as broad; metanotum *not* sloping gradually from base to apex 5
Second abdominal segment with the lunulæ very large, linear, twice as long as broad; metanotum gradually sloping from base to apex; areolet open or closed.....(79) *Hemichneumon* Wesmael.
(Type, *Hemichneumon suspectus* Wesmael.)

5. Areolet open behind; marginal cell along the costa scarcely longer than the triangular stigma; transverse median nervure in hind wings straight, *not* broken.....(80) *Epitomus* Förster.
(Type, *Epitomus parvus* Thomson.)
Areolet closed.
Clypeus unarmed, *without* a tooth at apex 6
Clypeus *with* a tooth at apex. Upper tooth of the mandibles longer than the lower; transverse median nervure in hind wings broken below the middle.....(81) *Misetus* Wesmael.
(Type, *Misetus oculatus* Wesmael.)

6. Clypeus at apex *with* a median semicircular emargination; mandibles with the teeth very unequal .....(82) *Oiorhinus* Wesmael.
(Type, *Oiorhinus pallipalpis* Wesmael.)
Clypeus at apex *without* such an emargination.
Clypeus at apex medially *without* a fovea 7
Clypeus at apex medially *with* a deep depression or fovea which often appears laterally as two small, blunt teeth; abdomen shagreened or densely coriaceous and finely punctate; mandibles rather large, the teeth subequal; transverse median nervure in hind wings broken very little below the middle .....(83) *Æthecerus* Wesmael.
(Type, *Æthecerus dispar* Wesmael.)

7. Discoidal transverse nervure wanting ....(84) *Tycherus* Förster.
Discoidal transverse nervure present.
Second abdominal segment *without* distinct gastrocœli at base 8
Second abdominal segment *with* distinct gastrocœli at base.
Metathorax at apex not produced beyond insertion of hind coxæ.
Scape of antennæ only slightly emarginate, longer than the first joint of flagellum.....(85) *Herpestomus* Wesmael.
(Type, *Ichneumon brunnicornis* Gravenhorst.)

Scape of antennæ very deeply emarginate, shorter or no longer than the first joint of flagellum ..... (86) *Diadromus* Wesmael.
(Type, *Ichneumon troglodytes* Gravenhorst.)
Metathorax at apex produced somewhat beyond the insertion of hind coxæ ..... (87) *Thyracella* Holmgren.
(Type, *Ischnus collaris* Gravenhorst.)

8. Second segment with the thyridia more or less distinct 13
Second segment *without* a trace of thyridia or the same are unusually small and indistinct.
Mandibles in female at base beneath not emarginate 9
Mandibles in female at base beneath emarginate.
(88) *Colpognathus* Wesmael.
(Type, *Ichneumon celerator* Gravenhorst.)

9. Head quadrate or nearly, the temples broad 11
Head transverse, not nearly quadrate.
Metanotum with the areola lengthened, *not* cordate 10
Metanotum with the areola cordate or reniform.
(89) *Dicælotus* Wesmael (=*Dicalus* Wesmael=*Cinxælotus* Holmgren).
(Type, *Ichneumon pumilus* Gravenhorst.)

10. Scutellum margined laterally to the tip ..... (90) *Holocrepis* Förster.
Scutellum *not* marginal laterally to the tip; at the most margined only at the base ..... (91) *Deloglyptus* Förster.
(Type, *Deloglyptus punctiventris* Thomson.)

11. Clypeus twice as wide as long; first abdominal segment somewhat longer than the second; flagellum in male very slender at base 12
Clypeus scarcely broader than long; first abdominal segment in female shorter than the second, in male about one-half as long .. (92) *Microps* Förster.
(Type, *Phæogenes macilentus* Wesmael.)

12. Face much shortened; scape twice as long as the first joint of flagellum.
(93) *Eparces* Förster.
(Type, *Eparces quadriceps* Thomson.)
Face not much shortened; scape stout, globose.
First joint of flagellum rarely longer than thick, shorter than the second; transverse median nervure in hind wings broken *below* the middle.
(94) *Centeterus* Wesmael.
(Type, *Centeterus major* Wesmael.)
First joint of flagellum elongate, three or more times longer than thick, and longer than the second; transverse median nervure in hind wings broken *above* the middle ..... (95) *Poecilostictus* Ratzeburg.

13. Mesonotum and scutellum *not* wholly flattened 14
Mesonotum and scutellum wholly flattened, the postscutellum smooth, shining.
Metanotum *with* a distinctly circumscribed areola .... (96) *Eriplatys* Förster.
(Type, *Harpestomus ardeicollis* Wesmael.)
Metanotum *without* an areola ..... (97) *Anopiesta* Förster.

14. Second abdominal segment with two foveæ at base; metathorax *not* areolated.
(98) *Nematomicrus* Wesmael.
Second abdominal segment with thyridia only at base; metathorax areolated.
Thyridia lying close to the base and indistinct; postpetiole broad, strongly punctured; clypeus thickly punctured ..... (99) *Baosemus* Förster.
(Type, *Ichneumon mitigosus* Gravenhorst.)
Thyridia *not* lying close to the base and usually large; postpetiole *not* broad nor strongly punctured; clypeus not thickly punctured.
Postpetiole very short, scarcely one-fourth the length of the petiole;

thyridia very large and broad, placed far beyond the base and only a little before the middle of the segment.

Head quadrate; areola pentgonal or nearly; abdomen shagreened or punctate basally. ..... (100) *Notosemus* Förster.
(Type, *Notosemus Bohemani* Wesmael.)

Head subglobose; areola of metanotum semicircular; abdomen smooth ..... (101) *Maresia* Holmgren.
(Type, *Phæogenes argutus* Wesmael.)

Head not quadrate, at most subquadrate; postpetiole not very short; thyridia placed tolerably close to the base of the segment; clypeus completely separated from the face.

Cheeks not buccate; the clypeus truncate or slightly rounded anteriorly ..... (102) *Phæogenes* Wesmael.
(Type, *Ichneumon semirulpinus* Gravenhorst.)

Cheeks buccate; the clypeus very short bisinuate anteriorly.
(103) *Proscus* Holmgren.
(Type, *Phæogenes cephalotes* Wesmael.)

Subfamily II. CRYPTINÆ.

1868. *Cryptodæ*, Family 26, Förster (part), Verh. d. naturh. Ver. pr. Rheinl., XXV, pp. 144 and 186.
1873. *Cryptidæ*, Family, Thomson, Opus Ent., V, p. 467.
1887. *Cryptinæ*, Subfamily, Cresson, Syn. Hym. North America, p. 42.
1888. *Cryptidæ*, Family, Thomson, Opus Ent., XII, p. 1236.
1900. *Cryptinæ*, Subfamily II, Ashmead, Smith's Insects of New Jersey, p. 568.

This subfamily, with the exception of possibly the *Ichneumoninæ*, can be easily separated from all the others by the characters made use of in my table of subfamilies. With the subfamily mentioned, however, it is different, since the species falling in it are exceedingly closely allied, and the males especially are separated, or placed, with difficulty. The females, however, may be easily distinguished, except in a few cases, by the prominent, exserted ovipositor, and the position of the spiracles of the first abdominal segment.

Both sexes, however, possess a character not found in the *Ichneumoninæ*, viz, *a more or less distinct, longitudinal grooved line or furrow, sometimes punctate or crenulate, situated low down on the mesopleura and which separates the mesosternum from these sclerites.* This character may always be depended upon to separate a cryptine from an ichneumonine.

Seven distinct minor groups, or tribes, may be distinguished, separated as follows:

TABLE OF TRIBES.

Metathorax *without* distinct longitudinal carinæ or at the most with only the pleural carinæ present, the petiolar area always wanting, usually with one or two transverse carinæ or with none; stigma most frequently narrowed, lanceolate; apterous and subapterous forms common..... 2

Metathorax *with* longitudinal carinæ and usually more or less completely areolated, the petiolar area present; stigma usually widened, triangular, subtriangular, or ovate; subapterous forms rare.

Metathorax usually produced beyond the insertion of hind coxæ, the petiolar area and the areola usually confluent and extending clear to the base; ovipositor very short, at the most subexserted. Tribe I. STILPNINI.

Metathorax not produced beyond the hind coxæ; ovipositor exserted.

Front wings with a complete areolet; head usually quadrate; antennæ and legs most frequently stout ..... Tribe II. PHYGADEUONINI.

Front wings with the areolet incomplete, open behind or wanting; head *not* or rarely quadrate; antennæ and legs usually slender.

Basal nervure not strongly curved inwardly....Tribe III. HEMITELINI.

Basal nervure strongly curved inwardly.....Tribe IV. PEZOMACHINI.

2. Wings fully developed..... 3

Wings absent or abbreviated .....Tribe IV. PEZOMACHINI.

Metanotum not areolated.....Tribe IV. PEZOMACHINI.

3. Front wings with the stigma narrowed, the areolet variable, pentagonal, or small quadrate, sometimes almost punctiform, more rarely open behind or entirely absent; discoidal cell with the lower apical angle straight or obtuse, the basal nervure *not* strongly curved inwardly; abscissa of costa long 4

Front wings with the stigma broad, triangular, the areolet pentagonal in position but open behind, the basal nervure strongly curved inwardly; abscissa short. (Male.).....Tribe IV. PEZOMACHINI.

4. Areolet entirely wanting.....Tribe V. HEMIGASTERINI.

Areolet distinct, usually large, never very small, and always pentagonal, the sides convergent above or parallel.....Tribe VI. CRYPTINI.

Areolet small, quadrate, sometimes almost punctiform, sometimes open behind, but never pentagonal in position.....Tribe VII. MESOSTENINI.

Tribe I. STILPNINI.

1868. *Stilpnoidæ*, Family 28. FÖRSTER, Verh. d. naturh. Ver. pr. Rheinl., XXV, pp. 144 and 188.

1873. *Stilpnina*, Tribes, THOMSON, Opus Ent., V, p. 468.

1884. *Stilpnina*, Tribes, THOMSON, Opus Ent., X, p. 1018.

1894. *Stilpnini*, Tribe I, ASHMEAD, Proc. Ent. Soc. Wash., III, p. 278.

1900. *Stilpnini*, Tribe I, ASHMEAD, Smith's Insects of New Jersey, p. 568.

This group is of small extent and at one time, on account of the brevity of the ovipositor, was confused and classified with the genuine Ichneumonines; but from these it is at once separated by the longitudinal furrow which separates the mesosternum from the mesopleura.

The tribe is distinguished from the others in this subfamily not only by the non-exserted, or at most, subexserted ovipositor, but also by its metathoracic characters. All, except two or three of the genera, have the metathorax long, gradually sloping from base to apex, and produced posteriorly beyond the insertion of the hind coxæ, with the areola and the petiolar area confluent, extending to, or almost to, its base.

Most of the species, too, are highly polished and have the abdomen long, more or less compressed, rarely short or broad, while the areolet in the front wings, although sometimes closed and pentagonal, is most frequently wanting or open.

Eight genera are placed here, distinguished as follows:

TABLE OF GENERA.

Fourth abdominal segment and the following *not* at all or only slightly compressed; if much compressed, compressed from the second segment, the incisions always distinctly visible 2

Fourth abdominal segment and those following very strongly compressed, the incisions scarcely visible..... (104) *Seleucus* Holmgren.

(Type, *Seleucus cuneiformis* Holmgren.)

2. Third joint of flagellum strongly excised..... (105) *Zetisima* Förster.

(Type, *Zetisima rufipes* Förster.)

Third joint of flagellum *not* excised.

Areolet closed at apex, or, if open, the abdomen much lengthened 3

Areolet open at apex, the abdomen rounded or oval; antennæ 17–18-jointed. (106) *Nestophya* Förster.

(Type, *Nestophya fallax* Förster.)

3. Second abdominal segment in female from the base and beyond *not* much compressed, the postpetiole not entirely smooth and shining 4

Second abdominal segment from the base and all the following segments much compressed from the sides, the petiole entirely smooth, shining, the postpetiole scarcely wider than the petiole; second segment longer than wide at apex; metanotum with the external and median lateral areas confluent..... (107) *Asynerita* Förster.

(Type, *Atractodes foveolatus* Gravenhorst.)

4. Antennæ in female 16–17-jointed, in male 19–23-jointed; pronotum anteriorly uncovered ..... (108) *Stilpnus* Gravenhorst.

(Type, *Stilpnus gagates* Gravenhorst.)

Antennæ in female more than 17-jointed; pronotum covered.

Abdomen in female either lengthened or somewhat compressed from the sides, the second segment more or less rounded laterally; areolet either closed or open behind 5

Abdomen in female compressed laterally, also not strongly lengthened, the second segment laterally not rounded, much widened toward apex; spiracles of the first and second segments in males and females not really visible from above..... (109) *Polyrhembia* Förster.

5. Abdomen in female not compressed laterally, *with* a distinct ventral fold; middle vein in hind wings obliterated at base in both sexes; petiole and postpetiole in male smooth, shining, and longer than the coxæ and trochanters; second segment with thyridia; areolet open.

(110) *Exolytus* Holmgren.

(Type, *Mesoleptus lævigator* Gravenhorst.)

Abdomen in female much compressed laterally, *without* a ventral fold; middle vein in hind wings distinct in both sexes; petiole in male more or less coriaceous or rugulose, *not* longer than the coxæ and trochanters; areolet wanting or open..... (111) *Atractodes* Gravenhorst.

(Type, *Atractodes bicolor* Gravenhorst.)

Tribe II. PHYGADEUONINI.

1868. *Phygadeuontoidæ*, Family 25, FÖRSTER, Verh. d. naturh. Ver. pr. Rheinl., XXV, pp. 144 and 181.
1873. *Phygadeuonina*, THOMSON, Opus. Ent., V., pp. 468 and 517.
1894. *Phygadeuonini*, Tribe III, ASHMEAD, Proc. Ent. Soc. Wash., III, p. 278.
1900. *Phygadeuonini*, Tribe II, ASHMEAD, Smith's Insects of New Jersey, p. 568.

This group is undoubtedly the largest and probably the most difficult to study and classify of all the tribes in this subfamily, and I am by no means satisfied that, as at present constituted, it is a natural group, or that it can always be kept separate from the *Hemitelini*. In fact, I am inclined to believe, from studies thus far made in the two groups, that some of the forms now placed in the *Hemitelini* really belong here, and that the closed or open areolet will not always prove a reliable character to separate them, although typical forms are readily separated by it.

For the present, however, or until a larger and better collection can be brought together, I prefer to treat these two tribes in the Försterian sense.

About 51 genera are now recognized in the tribe, separable as follows:

TABLE OF GENERA.

Wings normal, not abbreviated 3
Wings abbreviated.
Wings *with* a closed marginal cell 2
Wings *without* a marginal cell.
Basal nervure present; metanotum incompletely areolated, the apical transverse carina distinct, complete ..... (112) *Stibeutes* Förster.
(Type, *Stibeutes gravenhorstii* Förster.)
Basal nervure absent; metanotum not areolated, the apical transverse carina incomplete ..... (113) *Pezoporus* Förster.
(Type, *Pezomachus nigrocinctus* Gravenhorst.)
2. Wings *with* a basal nervure; metathorax completely areolated.
(114) *Phyrtus* Förster.
(Type, *Hemiteles hemipterus* Gravenhorst.)
Wings *without* a basal nervure ..... (115) *Chamæzelus* Förster.
3. First three joints of flagellum *not* especially lengthened, or at least not the third; in female scarcely more than twice, or at most thrice, as long as thick; in male rarely more than thrice as long as thick at apex 8
First three joints of flagellum much lengthened; the first and second at least four times as long as wide at apex, or longer, the third fully three or more times longer than thick 4
4. Sides of the face clothed with a glittering or silvery white pubescence; parapsidal furrows deep and extending at least to the middle of the mesonotum 5
Sides of the face *not* clothed with a glittering white pubescence; parapsidal furrows wanting or indistinct, at the most feebly indicated anteriorly 6

5. Transverse median nervure in hind wings *not* broken. (116) *Thysiotorus* Förster.
Transverse median nervure in hind wings broken.
Disco-cubital nervure straight or slightly curved, but not angularly broken.
Abdomen scarcely longer than the head and thorax united, the second segment at apex thrice as wide, or nearly, as long.
(117) *Apsilops* Förster.
Abdomen longer than the head and thorax united, the second segment longer than wide at apex; areolet with the sides convergent above.
Metathoracic spiracles large, long elliptical (male) (see p. 29).
(126) *Plectocryptus* Thomson.
Metathoracic spiracles small, short oval or subrotund (male) (see p. 29) ..... (127) *Microcryptus* Thomson.
Disco-cubital nervure angularly broken.
Abdomen elongate, much longer than the head and thorax united, the second segment *not* twice as wide as long, not much more than half the length of the segment..... (118) *Panargyrops* Förster.
6. Metathorax regularly areolated, more or less rugolose, or coriaceous, and frequently opaque..... 7
Metathorax areolated, but quite smooth and shining.
First abdominal segment *with* dorsal carinæ; metathorax with *five* areas at apex..... (119) *Leptodermus* Förster.
First abdominal segment *without* dorsal carinæ; metathorax with *three* areas at apex ..... (120) *Oxytænia* Förster.
7. Radius originating before the middle of the stigma; disco-cubital cell at base as wide as the second discoidal cell at apex..(121) *Isotima* Förster.
Radius originating from the middle of the stigma; disco-cubital cell at base nearly twice as wide as the second discoidal cell at apex.
Transverse median nervure in hind wings obtusely angularly broken a little above the middle; petiole long, almost straight, *not* elbowed or much widened at apex..... (122) *Acroricnus* Ratzeburg.
Transverse median nervure in hind wings straight and broken by the subdiscoidal nervure far below the middle; petiole bent and widened at apical third ..... (123) *Stiboscopus* Förster.
8. Dorsal carinæ of first abdominal segment extend from the base to the spiracles, but not beyond 9
Dorsal carinæ of first abdominal segment extend from the base to beyond the spiracles, but rarely to the tip of the segment; if not, then antennæ in female compressed or flattened between the middle and the apex 10
9. Hind tibiæ deeply incised at apex, the tarsi attached below the tip.
Metanotum areolated, the areola wider than long; hind tibiæ spinulose.
(124) *Glyphicnemis* Förster.
(Type, *Phygadeuon vagabundus* Gravenhorst.)
Hind tibiæ normal, *not* deeply incised at apex; the tarsi attached normally.
Metanotum with the lateral basal and median areas *not* confluent.
Spiracles small, round ..... (125) *Bathymetis* Förster.
Spiracles long oval or ovate (males).
Last joint of tarsi as long as the third; scutellum spotted with yellow (see p. 27)..... (113) *Pezoporus* Förster.
Last joint of tarsi shorter than the third; scutellum black (see p. 27)..... (112) *Stibeutes* Förster.

Metanotum with the lateral basal and the median areas confluent.
Spiracles rather large, elliptic-oval .....(126) *Plectocryptus* Thomson.
Spiracles rather small, short oval or subrotund.
(127) *Microcryptus* Thomson.
(Type, *Cryptus erythrinus* Gravenhorst.)

10. Clypeus in male and female anteriorly distinctly bidentate, or with two, more or less distinct, nipples 11
Clypeus with the anterior margin simple or with a single tooth 13

11. Eyes bare, never distinctly hairy 12
Eyes distinctly hairy.
Antennæ tricolored, ringed with white; first and second flagellar joints of an equal length ..... (128) *Iselix* Förster.
Antennæ neither tricolored nor ringed with white; first flagellar joint shorter than the second .....(129) *Homolys* Förster.

12. Metanotum at base *not* completely areolated .....(130) *Polytribax* Förster.
Metanotum at base completely areolated.
Carina at apex of the middle lateral area sharply elevated; second segment much narrowed toward the base, scarcely half as wide as at apex, and finely striately rugulose its entire length.
(131) *Ernoctona* Förster.
Carina at apex of the middle lateral area *not* sharply elevated; second segment *not* much narrowed toward base, more than half as wide as at apex, and not striate its entire length.
(132) *Plesiognathus* Förster.
(Type, *Phygadeuon cephalotes* Gravenhorst.)

13. Clypeus with *one* tooth on its anterior margin.....(133) *Macromonodon* Förster.
Clypeus with the anterior margin simple or without a tooth.
Transverse median nervure in hind wings *not* broken, or broken *below* the middle 14
Transverse median nervure in hind wings broken *at* or *above* the middle.
Transverse median nervure in front wings originating before the basal nervure; base of third discoidal cell much wider than the base of the second discoidal cell.....(134) *Heterotypus* Förster.
Transverse median nervure in front wings *not* originating before the basal nervure; base of third discoidal cell not wider than the base of the second discoidal cell.....(135) *Dapanus* Förster.
= *Sorbus* Förster = *Trichocryptus* Förster.
(Type, *Ichneumon cinctorius* Fabricius.)

14. Transverse median nervure in hind wing broken below the middle..... 15
Transverse median nervure in hind wings *not* broken.
Abdominal segments 2 and 3 very large.....(136) *Hedylus* Förster.

15. Pronotum not lengthened; ovipositor prominently projecting..... 16
Pronotum lengthened; ovipositor only slightly visible beyond the tip of the abdomen.....(137) *Dirophanes* Förster.

16. Petiolar area very short, the areola narrow, rectangular, extending to apex; head very small; antennæ slender, filiform.
(138) *Tricholinum* Förster.
Petiolar area not very short, the areola not long, rectangular, most frequently transverse and hexagonal, rarely pentagonal, if elongate, narrowed toward base, rarely wholly wanting.
Eyes bare..... 18
Eyes hairy.
Second abdominal segment shorter than the third..... 17

Second abdominal segment a little longer than the third, smooth and polished, the post petrole striate.....(139) *Zaphleges* Förster.
(Type, *Phygadeuon leucostigimus* Gravenhorst.)

17. Fovea at base of scutellum divided by a sharp carina, metanotum completely areolated, the areola transverse, trapezoidal.
(140) *Endasys* Förster.

Fovea at base of scutellum *not* divided by a sharp carina; metanotum completely areolated, the areola longer than wide, hexagonal.
(141) *Baryntica* Förster.

18. Middle joints of flagellum above in female *not* flattened, in male clothed usually with short, shaggy hairs 19

Middle joints of flagellum above much flattened.

Metanotum exareolated or very incompletely areolated; spiracles *large*, linear or elliptical .....(142) *Giraudia* Förster.
(Type, *Cryptus congruen* Gravenhorst.)

Metanotum with a long middle area, the areola and basal area very united; spiracles *not* large, oval; subdiscoidal nervure in hind wings originating very close to the origin of the transverse median area .....(143) *Schenkia* Förster.
(Type, *Cryptus graminicola* Gravenhorst.)

19. Metathorax with four distinct prominent teeth; disco-cubital nervure broken by a stump of a vein near the middle..(144) *Rhembobius* Förster.
(Type, *Phygadeuon quadrispinosus* Gravenhorst.)

Metathorax at most with two prominent teeth, often unarmed.

Hind tibiæ normal 20

Hind tibiæ toward apex broadened and broadly flatly truncate.
(145) *Coloenema* Förster.

20. Metanotum at base usually more or less incompletely areolated, the areola and basal areas confluent, or the former is not separated from the middle lateral areas by a sharp carina..... 21

Metanotum at base completely areolated 24

21. Lower tooth of mandibles much longer than the upper tooth.

Head quadrate; transverse median nervure interstitial with the basal nervure.....(146) *Exporthetor* Förster.
(Type, *Phygadeuon fortipes* Gravenhorst.)

Lower tooth of mandibles shorter or no longer than the upper tooth.

Metathoracic spiracles round, or very short oval, scarcely longer than wide 22

Metathoracic spiracles fully twice as long as wide, or nearly.

Areola seen from above pyramidal; metathoracic spiracles not quite twice as long as wide.....(147) *Neleophron* Förster.

Areola seen from above not pyramidal; metathoracic spiracles twice or more than twice longer than wide....(148) *Epiphobus* Förster.

22. Head cubiform.

Femora somewhat short and swollen; antennæ short, stout; metanotum without or with areas confluent .....(149) *Ecpaglus* Förster.
(Type, *Phygadeuon brevicornis* Gravenhorst.)

Head *not* cubiform.

Disco-cubital nervure *with* a short process.....(150) *Odontoneura* Förster.

Disco-cubital nervure *without* a process.

Second recurrent nervure received by the areolet *at* or *behind* the middle 23

Second recurrent nervure received by the areolet *before* the middle.

Metanotum coarsely rugose, the areola very high and narrow; first abdominal segment wholly striate...(151) *Ulothymus* Förster.

Metanotum *not* coarsely rugose, the first and second lateral areas confluent; first abdominal segment *not* striate.
(152) *Ophidnus* Förster.

23. Lower tooth of mandibles very small and *much* shorter than the upper tooth.
(153) *Homotherus* Förster.

Lower tooth of mandibles equal, or nearly, with the upper tooth.

Posterior tibiæ and tarsi normal, not spinulose.

First three segments of abdomen finely coriaceous, the second a little longer than the third.....(154) *Pammachus* Förster.
=*Stenocryptus* Thomson.

First three segments of abdomen smooth, the second and third of an equal length.....(155) *Phygadeuon* Gravenhorst.

Posterior tibiæ and tarsi spinulose.

Metathorax bidentate.....(156) *Trachyphyrus* Haliday.

24. Spiracles of the second and third abdominal segments placed close to the lateral margin..... 25

Spiracles of the second and third abdominal segments placed away from the lateral margin..... 26

25. Scutellum very flat.....(157) *Terpiphora* Förster.

Scutellum convex.....(158) *Scinascopus* Förster.

26. Third abdominal segment *not* longer than the second..... 27

Third abdominal segment longer than the second....(159) *Medophron* Förster.

27. Metanotum with the areola most frequently hexagonal, never pentagonal, the basal area never triangular..... 28

Metanotum with the areola regularly pentagonal, quite pointed toward apex, the basal area triangular.....(160) *Physelus* Förster.

28. Anterior margin of clypeus *not* emarginate; metathoracic spiracles surrounded by sharp curved carinæ.....(161) *Bachia* Förster.

Anterior margin of clypeus more or less emarginate.

Metanotal carina angular; radius originating from the middle of the stigma; first abdominal segment *with* strong dorsal carinæ.
(162) *Nunechas* Förster.

Metanotal carina curved; radius originating behind the middle of the stigma; first abdominal segment *without* dorsal carinæ; upper tooth of mandibles more than twice as long as the lower.
(163) *Demopheles* Förster.

Tribe III. HEMITELINI.

1868. *Hemiteloida*, Family 24, Förster, Verh. d. naturh. Ver. pr. Rheinl., XXV, pp. 144 and 173.
1873. *Hemitelina*, Tribus, Thomson, (part) Opus. Ent., V, p. 468.
1884. Opus Ent., X, p. 967.
1894. *Hemitelini*, Tribe II, Ashmead, Proc. Ent. Soc. Wash., III, p. 278.
1900. *Hemitelini*, Tribe III, Ashmead, Smith's Insects of New Jersey, p. 569.

Thomson (see above) included with this tribe Förster's *Pezomachoida*, but so far I have been able to separate the two readily by the characters made use of in my table of tribes, the female being distinguished by metathoracic characters and the winged males by the difference in the shape of the basal nervure in the front wings.

Förster gave no character to separate the winged males in this group from those in the *Pezomachini*, and I suspect he may have included

some of them here under different generic names, since I have already recognized three or four generic types of males among the *Pezomachini*.

Some 78 genera fall in this tribe, as at present interpreted, although some of these, if I have identified them correctly, will have to be removed to other tribes later, that is, to the *Phygadeuonini Pezomachini*, and possibly to the *Plectiscini*.

TABLE OF GENERA.

First transverse cubitus *not* entirely wanting, usually very distinct, the areolet pentagonal in position, but open behind, the transverse nervure entirely wanting or very pale, subobsolete 3

First transverse cubitus entirely wanting, the discocubital nervure being interstitial with the second abscissa of the radius, the areolet wholly wanting 2

2. First joint of flagellum as long or somewhat longer than the second; vertex as high as the upper eye margins.

Ocelli lying close to the eyes ..... (164) *Spinolia* Förster.

Ocelli not lying close to the eyes, the lateral ocelli as wide, or nearly, from each other as to the eye margin.

Antennæ 20-jointed or more ..... (165) *Allocota* Förster.

Antennæ short, less than 20-jointed .. (166) *Alastoneura* Kriechbaumer.

First joint of flagellum shorter than the second; vertex much higher than the upper eye margins; ocelli far away from the eyes; eyes small; antennæ 17-jointed ..... (167) *Synecches* Förster.

3. Metanotum not at all areolated ..... (168) *Chirotica* Förster.

Metanotum more or less areolated.

Second discoidal cell closed 5

Second discoidal cell open at apex 4

4. Wings in female much shortened, without a stigma; head quadrate. (169) *Catolytus* Förster.

Wings normal, with a stigma; head transverse.

Antennæ 15–17-jointed; metathorax with the petiolar area very large. (170) *Gnypetomorpha* Förster.

Antennæ at least 19-jointed; metathorax regularly areolated. (171) *Xenolytus* Förster.

5. Metathoracic spiracles round 6

Metathoracic spiracles oval ..... (172) *Otacustes* Förster.

6. Transverse median nervure in hind wings broken 15

Transverse median nervure in hind wings not broken, straight.

Antennæ more than 17-jointed; second abscissa of the radius not 5 times as long as the first 7

Antennæ 17-jointed; marginal cell very long and pointed, the second abscissa of radius about 5 times as long as the first. (173) *Cænomeris* Förster.

7. Discoidal cell closed at apex 8

Discoidal cell open at apex.

Second discoidal cell closed ..... (174) *Acrolyta* Förster.

8. Hind femora very thick ..... (175) *Gunopaches* Förster.

Hind femora not very thick, normal.

Metanotum with the carina distinct, not obliterated at the middle 9

Metanotum with the carina obliterated at the middle.

Parapsidal furrows uniting at the middle of the mesonotum; areolet irregular; first abscissa of the radius fully half the

length of the second; first joint of the flagellum longer than the second ..... (176) *Thestis* Förster.

Parapsidal furrows not uniting at the middle of the mesonotum; areolet regularly formed: first abscissea of radius not half the length of the second; first joint of flagellum shorter than the second ..... (177) *Pemon* Förster.

9. Metathorax with the petiolar area bounded by a prominent ridge above, the middle lateral area also prominent ..... (178) *Trisacra* Förster.

Metathorax with the petiolar area not bounded by a prominent ridge above.

Metanotum incompletely areolated 14

Metanotum completely areolated.

Face not clothed with long glittering white hairs; mesonotum with the parapsidal furrows incomplete or wanting 10

Face clothed with long glittering white hairs; mesonotum with the parapsidal furrows complete.

Face very much narrowed ..... (179) *Ischnargops* Förster.

Face broad ..... (180) *Steganops* Förster.

10. Middle lateral areas very strongly toothed ..... (181) *Ischyracis* Föster.

Middle lateral areas not strongly toothed.

Clypeus distinctly separated; anal valves in male small; mandibles not emarginate at the middle 11

Clypeus not separated, wholly bent downward, the anterior margin squarely truncate; anal valves in male very large, prominent; mandibles very small, emarginate medially. (182) *Astomaspis* Förster.

11. Petiolar area *not* confluent with the areola 12

Petiolar area confluent with the areola and extending nearly to the base of the metanotum; antennæ 18-jointed, toward apex clavate. (183) *Microplex* Förster.

12. First joint of flagellum fully as long or longer than the second 13

First joint of flagellum a little shorter than the second ..... (184) *Lysibia* Förster.

13. Middle vein in hind wings toward the base obliterated and only visible by a hyaline line ..... (185) *Dactora* Förster.

Middle vein in hind wings distinct, not obliterated at base.

Metanotum with 5 areas; spiracles of the first abdominal segment very prominent ..... (186) *Aclastus* Förster.

Metanotum with 3 areas; spiracles of the first abdominal segment not at all prominent ..... (187) *Opisthostenus* Förster.

14. Metanotum *without* areas at base; wings very narrow ..... (188) *Asthenoptera* Förster.

Metanotum *with* areas at base; wings broad ..... (189) *Stygera* Förster.

15. Metathoracic ridge *not* interrupted at the middle 16

Metathoracic ridge interrupted at the middle.

First abominal segment short, broad, and strong ..... (190) *Diaglypta* Förster.

16. Eyes distinctly hairy ..... (191) *Habromma* Förster.

Eyes not hairy.

Ocelli touching the eyes ..... (192) *Plesiomma* Förster.

Ocelli not touching the eyes.

Clypeus bare, or nearly, *without* long hairs 17

Clypeus with long hairs, almost forming a fascicle. (193) *Bathythrix* Förster.

17. First joint of the flagellum somewhat shorter than the second 18

First joint of the flagellum as long as or longer than the second 19

18. Third joint of the flagellum as well as the second joint somewhat longer than the first; clypeus anteriorly at the middle impressed and broadly, although slightly, emarginate ..... (194) *Algina* Förster.

Third joint of the flagellum not longer than the first; clypeus anteriorly at the middle neither impressed nor emarginate. (195) *Daïctes* Förster.

19. Transverse median nervure in hind wings broken at or below the middle, never above the middle 20

Transverse median nervure in hind wings broken above the middle.

(196) *Strepsimallus* Förster.

20. Head widened behind the eyes, the temples broad ..... (197) *Enoplex* Förster.

Head *not* widened behind the eyes, the temples flat or narrow.

Discoidal nervure not longer than the base of the discocubital cell 21

Discoidal nervure longer than the base of the discocubital cell.

(198) *Mastrus* Förster.

21. Metanotum with the apical carina strongly angulated or toothed.

(199) *Lymeon* Förster.

Metanotum with the apical carina normal.

Radius more or less curved, but not broken at a right angle 22

Radius broken almost at a right angle ..... (200) *Paraphylax* Förster.

22. Discoidal cell not narrowed at base, the apex lying far from the hind margin of the wing 23

Discoidal cell much narrowed at base, the apex not far from the hind margin of wings, the entire radius strongly arcuate; transverse median nervure in hind wings quite near the inner margin.

(201) *Rhadiurgus* Förster.

23. Metanotum *without* carinæ ..... (202) *Aschistus* Förster.

Metanotum *with* carinæ.

Clypeus anteriorly *without* an impression 24

Clypeus anteriorly with an impression on both sides.

Metanotum coarsely rugose; antennæ in male thick, the first joint of the flagellum not thrice as long as thick ..... (203) *Tolmerus* Förster.

Metanotum *not* coarsely rugose; antennæ slender, filiform, the first three joints of flagellum at least five times as long as thick.

(204) *Rhadinocera* Förster.

24. Clypeus anteriorly *not* bidentate; middle lateral areas not broadly carinately prominent at apex 25

Clypeus anteriorly at the middle bidentate; middle lateral areas at apex broadly carinately prominent ..... (205) *Isadelphus* Förster.

25. Penultimate joint of the maxillary palpi more than half as long as the last .. 26

Penultimate joint of the maxillary palpi only half as long as the last.

(206) *Blapsidotes* Förster.

26. Third joint of hind tarsi as long as or longer than the fifth 27

Third joint of hind tarsi shorter than the fifth.

Spiracles of the first abdominal segment placed somewhat before the middle; ovipositor with a slight upward curve.

(207) *Allomacrus* Förster.

27. Third joint of hind tarsi longer than the fifth 29

Third joint of hind tarsi of an equal length with the fifth.

Clypeus distinctly but not deeply separated; all femora, and especially the hind pair, distinctly thickened; head much narrowed behind the eyes; the middle lateral areas at apex not strongly prominent 28

Clypeus very deeply separated; femora not especially thickened; head not especially narrowed back of eyes; metathorax with five areas at apex, the middle lateral area strongly prominent at apex.

(208) *Philonygmus* Förster.

28. Metathorax at apex perpendicularly truncate, the carinæ not sharp, the petiolar and lateral apical areas confluent; first abdominal segment at apex twice as wide as at base; disco-cubital nervure broken by a stump of a vein; antennæ usually ringed with white.
(209) *Barydotira* Förster.

Metathorax at apex not perpendicularly truncate, the carinæ very sharp, the petiolar area separated from the lateral apical areas; first abdominal segment at apex not much wider than at base; antennæ not ringed with white ..... (210) *Pantolispa* Förster.

29. Metathorax as seen from the side perpendicularly truncate, or almost..... 30

Metathorax as seen from the side *not* perpendicularly truncate..... 31

30. Dorsal carinæ of the first abdominal segment sharp and distinct from the base to beyond the middle; first joint of the flagellum scarcely longer than the second, the latter distinctly longer than the third, the ten joints before the last in female wider than long; marginal cell not longer than the stigma..... (211) *Microtorus* Förster.

Dorsal carinæ of first abdominal segment extending to the middle, but feeble; flagellum filiform, the first three joints much lengthened, slender and often of an equal length; marginal cell longer than the stigma ..... (212) *Orthizema* Förster.

31. Clypeus medially somewhat produced and deflected at the sides.
(213) *Chriodes* Förster.

Clypeus not produced-medially and not deflexed at the sides.

Antennæ not strongly thickened behind the middle..... 32

Antennæ strongly thickened behind the middle and the acuminate.
(214) *Agasthenes* Förster.

32. Head not much shortened, also not especially broad nor lenticular..... 33

Head much shortened, very broad and almost lonticular.

First abscissa of radius usually small, scarcely longer than the transverse cubital nervure, at the most one-eighth the length of the second abscissa..... (215) *Xenobrachys* Förster.

First abscissa of radius at least one-third the length of the second abscissa.
(216) *Brachycephalus* Förster.

33. First abdominal segment not bent at the middle, also not elevated..... 34

First abdominal segment bent at the middle and somewhat elevated.
(217) *Naëtes* Förster.

34. Last joint of maxillary palpi not longer than the penultimate and shorter than the third..... (218) *Ilapinastes* Förster.

Last joint of maxillary palpi longer than the penultimate.

Scutellum laterally margined only at base 35

Scutellum laterally margined to the apex.

Spiracles of the third abdominal segment placed far from the lateral margin ..... (219) *Gnotus* Förster.

Spiracles of the third abdominal segment placed quite near the lateral margin ..... (220) *Itamus* Förster.

35. Metathorax with the areola toward the base, not regularly and sharply pointed, usually hexagonal or wanting, the basal area not triangular. 36

Metathorax with the areola toward the base very regularly and sharply pointed, pentagonal, the basal area triangular.

Second and third abdominal segments sharply but finely aciculate.
(221) *Eudelus* Förster.

Second and third abdominal segments *not* transversely aciculate; wings fasciate ..... (222) *Idemum* Förster.

36. Basal area and areola wanting ..... (223) *Phatnacra* Förster.
Basal area and areola present, or at least the areola is present.
Last joint of the hind tarsi hardly one-third longer than the fourth 37
Last joint of the hind tarsi hardly one-fifth longer than the fourth; anterior margin of the clypeus not truncate.
Second abdominal segment *with* sharp well-defined thyridia.
(224) *Ethelurgus* Förster.
Second abdominal segment *without* thyridia.. (225) *Zoophthorus* Förster.
37. Transverse median nervure in hind wings broken *below* the middle..... 38
Transverse median nervure in hind wings broken at the middle.
(226) *Diatora* Förster.
38. First three abdominal segments transversely impressed.. (227) *Encrates* Förster.
First three abdominal segments *not* transversely impressed.
Clypeus *not* separated, quite flat, anteriorly truncate or medially projecting and feebly margined..... (228) *Adiastola* Förster.
Clypeus more or less distinctly separated.
Metathorax *without* two regularly formed transverse carinæ..... 39
Metathorax *with* two transverse carinæ, but *without* a closed areola.
(229) *Isdromus* Förster.
39. Second abdominal segment *not* finely, longitudinally aciculate..... 40
Second abdominal segment finely, longitudinally aciculate; metathorax bidentate, the areola in the male as long as the petiolar area.
(230) *Ocymorus* Förster.
40. Abscissa of the cubitus behind the transverse discoidal nervure so strongly bent upward that it extends parallel with the transverse cubitus.
(231) *Urithreptus* Förster.
Abscissa of the cubitus behind the transverse discoidal *not* parallel with the transverse cubitus.
Head behind not very much narrowed..... 41
Head behind very much narrowed ..... (232) *Hemiteles* Gravenhorst.
41. Metathorax with the spiracular area *with* a sharp carina within.
(233) *Eriplanus* Förster.
Metathorax with the spiracular area *without* a sharp carina within; first abdominal segment *without* a sharp carina extending from the spiracles to apex.
Clypeus with the anterior margin *not* impressed medially; abscissa of the cubitus lying behind the transverse discoidal nervure and extending parallel with the second abscissa of the radius; ocelli in male not close to the eyes..... (234) *Isochresta* Förster.
Clypeus with the anterior margin medially impressed; abscissa of the cubitus lying behind the transverse discoidal nervure but strongly convergent with the second abscissa of the radius; ocelli in male very close to the eyes..... (235) *Charitopes* Förster.

Tribe IV. PEZOMACHINI.

1868. *Pezomachoidæ*, Family 23, Förster, Verh. d. naturh. Ver. pr. Rheinl., XXV, pp. 144 and 173.
1873. *Hemitelina*, Tribus Thomson (part), Opus. Ent., V. p. 468.
1900. *Pezomachini*, Tribe IV, Ashmead, Smith's Insects of New Jersey, p. 569.

This tribe is here restricted to species having a non-areolated metathorax, or at most with only a transverse apical carina. The subapterous females with an areolated metathorax are removed to the

Phygadeuonini, where, in fact, Förster had already placed some of them under different generic names, namely: *Stibeutes*, *Pezoporus*, *Phyrtus*, and *Chamaezelus*. *Aptesis* Förster, as originally defined, seems to have included some *if not most* of these forms. The name, therefore, may have to disappear entirely, since all of the species placed here by Förster that I have had for examination belong to other genera, in a different tribe.

Agrothereutes Förster also can not be retained in this tribe. It is removed to the tribe *Cryptini*.

In this group the females, so far as my own observations go, seem to be always wingless or subapterous, never fully winged, while the males are most frequently fully winged, although wingless males are not rare. Both in this country and in Europe the males have been frequently mistaken and described as species of *Hemiteles*, and at present many of them will be found in our catalogues under that genus.

The strongly inwardly curved basal nervure of the front wings, together with the broad triangular stigma, will, however, easily separate them from genuine *Hemitelini*.

TABLE OF GENERA.

Winged species (males) 5

Wingless or subapterous.

Ovipositor elongate, usually longer than half the length of the first abdominal segment, the second segment normal 2

Ovipositor much abbreviated, either scarcely exserted or so short that it does not attain half the length of the first abdominal segment.

Second abdominal segment very large, occupying most of the surface of abdomen; metathorax abruptly, obliquely truncate behind, the truncature superiorly bounded by a sharp carina; petiole very long and slender, not widened at apex.... (236) *Thaumatotypus* Förster.

Second abdominal segment normal; petiole widened at apex.

Metathorax sloping from the base; first joint of the flagellum longer than the second..... (237) *Cremnodes* Förster.

Metathorax not sloping from the base; first joint of the flagellum not longer than the second..... (238) *Apterophygus* Förster.

2. Scutellum wanting..... 4

Scutellum present 3

3. Rudimentary wings usually extending to or beyond the base of the metathorax; first abdominal segment punctured, not longitudinally aciculate, or striate ..... (239) *Aptesis* Förster.

Rudimentary wings not extending to base of metathorax, often scale-like; first abdominal segment more or less longitudinally striate, longitudinally wrinkled, or opaque, coriaceous ... (240) *Theroscopus* Förster.

Wings wanting; metathorax with the apical transverse carina present; abdomen with 6 dorsal segments, the second and third large, subequal, the first not longitudinally striate ..... (241) *Pezomachus* Gravenhorst.

4. Face of the usual length ..... (241) *Pezomachus* Gravenhorst.

Face much abbreviated ..... (242) *Pezolochus* Förster.

5. Transverse median nervure in hind wings broken far below the middle. (240) *Theroscopus* Förster.

Metanotum more or less distinctly areolated, the surface irregularly nyclose. (241) *Pezomachus* Gravenhorst.

Metathorax exareolated, with only the apical transverse carina present, the surface coriaceous or granulate .....(241) *Pezomachus* Gravenhorst.

Transverse median nervure straight, not broken, the subdiscoidal nervure absent .....(243) *Hemimachus* Ratzeburg.

Tribe V. HEMIGASTERINI.

This group is proposed for two genera differing from any in the preceding tribes in having a narrow, lanceolate stigma. In this character it comes nearest to the two tribes which are to follow, the *Cryptini* and the *Mesostenini*, but it is at once separated from them by the areolet in the front wings being wholly absent.

The marginal cell is rather long, extending almost to the tip of the wing; the first transverse cubitus is short but distinct; the second recurrent nervure joins the cubitus beyond this vein; while the subdiscoidal nervure originates from above the middle of the discoidal nervure.

The two genera falling here may be separated as follows:

TABLE OF GENERA.

Hind wings with the transverse median nervure straight, not broken, the subdiscoidal nervure wanting 2

Hind wings with the transverse median nervure angularly broken; ovipositor short, less than half the length of the abdomen; metathorax areolated .....(244) *Hemigaster* Brullé.

2. Mesonotal furrows more or less distinct; metathorax incompletely areolated; ovipositor as long as or longer than the abdomen. (245) *Macrogaster* Brullé.

Tribe VI. CRYPTINI.

1868. *Cryptoidæ*, Family 26, Förster, Verh. d. naturh. Ver. pr. Rheinl., XXV, pp. 144 and 186.

1873. *Cryptina*, Tribus (part), Thomson, Opus. Ent., V, p. 468.

1894. *Cryptini*, Tribe IV, Ashmead, Proc. Ent. Soc. Wash., III, p. 278.

1900. *Cryptini*, Tribe V, Ashmead, Smith's Insects of New Jersey, p. 570.

To this tribe belong the genuine Cryptines distinguished by the narrow lanceolate stigma and the distinct, usually pentagonal, areolet of the front wings, although this sometimes appears quadrate from having the two transverse cubiti straight and parallel, or nearly.

In addition to the shape of the stigma, it is further distinguished from the other tribes previously defined, except the *Pezomachini*, by metathoracic characters. The metanotum, except sometimes with an areola, is exareolated, and is without distinct longitudinal carinæ, or at the most the pleural carinæ are alone present, the lateral longitudinal carinæ always absent, its disk being simple, without carinæ, or with one or two transverse carinæ.

TABLE OF GENERA.

Wings abbreviated 28
Wings fully developed 1

1. Transverse median nervure in hind wings broken distinctly below the middle, usually *far* below the middle 8
Transverse median nervure in hind wings broken *at*, *near*, or somewhat *above* the middle, rarely very slightly below the middle 2

2. Transverse median nervure in front wings originating either before or behind the basal nervure, never distinctly interstitial with it 6½
Transverse median nervure in front wings *interstitial* with the basal nervure.
Metathorax *not* short 3
Metathorax short 6

3. Metanotum exareolated, but with two transverse carinæ, the apical carina sometimes obsolete medially, the spiracles short, oval, or rounded 4
Metanotum usually with 6 more or less distinct areas above; clypeus with a slight median tooth anteriorly; disco-cubital nervure *not* broken by a stump of a vein; apex of seventh or eighth dorsal abdominal segment with a white spot; tarsi with the fourth joint cordate, the last very large, as long as the second or longer.
(246) *Aritranis* Förster[1] = *Hygrocryptus* Thomson.

4. Disco-cubital nervure broken by a stump of a vein.
Disco-cubital nervure *not* broken by a stump of a vein.
Abdomen mostly red, not spotted with white. (247) *Habrocryptus* Thomson.
Clypeus *without* a median tooth anteriorly but with a transverse furrow or impression; areolet large, the sides parallel 5
Clypeus *with* a median tooth or projection anteriorly, the labrum usually projecting as a ledge from beneath; pleural carinæ of metathorax wanting; dorsal abdominal segments 7–8 with a white spot.
(248) *Hoplocryptus* Thomson.

5. Antennæ normal; metathorax and sides of the thorax *not* striate; dorsal abdominal segments 7 and 8 spotted with white at apex.
(249) *Spilocryptus* Thomson (part.).
Antennæ abnormal, compressed or dilated toward apex; first joint of the flagellum *not* longer than the second; metathorax and the sides of the thorax striated; abdomen not spotted with white. (Mexico.) (Female.) (See p. 40) ..... (250) *Joppoceras* Ashmead, new genus.
(Type, *Cryptus dubiosum* Cresson Ashmead, manuscript.)

6½. Metathorax usually short, sloping off from its base, or obliquely truncate, but with two transverse carinæ; abdominal petiole normal, more or less broadened and bent or elbowed at apex; clypeus anteriorly truncate or slightly arcuate, but *without* a median tooth; disco-cubital nervure most frequently broken by a stump of a vein; abdomen red or red with black at apex, without white spots; submedian cell a little shorter than the median, rarely equal; metathoracic spiracles elongate ..... (251) *Trychosis* Förster.
Metathorax not short.
Petiole of abdomen elongate, slender, *not* or only slightly thicker at apex than at base, as seen from the side straight or nearly, at most gently curved, but never distinctly bent or elbowed 7
Petiole of abdomen in female thickened and bent or elbowed at apex, slenderer in male; disco-cubital nervure not broken; abdominal segments 7–8 with a white spot above; metathoracic spiracles small, oval, the pleural carinæ present.
(249) *Spilocryptus* Thomson (part.).

[1] This genus should be removed to the Tribe *Phygadeuonini*.

7. Metathorax strongly striate, with two transverse carinæ, the spiracles elongate; wings black or dark fuscous, the areolet large, with parallel sides; antennæ in female broadened and compressed between the middle and apex (male) (see p. 39)..(250) *Joppoceras* Ashmead, new genus.
(Type, *Cryptus dubiosum* Cresson.)

Metathorax *not* striate, but with two transverse carinæ, the spiracles elongate; wings mostly hyaline, the areolet large pentagonal, the sides slightly convergent above; antennæ filiform.
(252) *Linoceras* Taschenberg = *Osprynchotus* Kriechbaumer *nec* Spinola.
(Type, *Cryptus macrobates* Gravenhorst.)

Metathorax rounded off posteriorly, with only *one* transverse carina—the basal carina, the spiracles large, elongate; wings black, brown, or fuscous, never hyaline, the areolet large pentagonal, with parallel sides.
(253) *Joppidium* Walsh.
(Type, *Joppidium raficeps* Walsh.)

8. Second joint of maxillary palpi normal, never much dilated; antennæ in female usually filiform, setaceous, or flagelliform..... 9

Second joint of maxillary palpi abnormal, much dilated, or triangular; antennæ in female thickened medially, ringed with white in both sexes; metathorax coarsely rugose, the upper hind angles toothed or subdentate, the areola indicated but poorly defined, never distinct, the spiracles long-oval.....(254) *Megaplectes* Förster.

9. Petiole of abdomen *not* cylindrical throughout, but dilated and usually bent or elbowed at apical third, where it is always more than twice wider than at base, or even thrice as wide, except in some males..... 12

Petiole of abdomen slender, cylindrical, and nearly of a uniform thickness throughout, or at the most only a little thicker at apex than at base, never twice as wide; as seen from the side it is straight or nearly, or at most slightly bent but never elbowed.

Metathorax *with* the apical transverse carina present, the spiracles elongate; head rostriform, the malar space long...(255) *Ospryncholus* Spinola.

Metathorax *without* a transverse carina, or at most with only a basal transverse carina, smooth, punctate, or transversely striate, especially posteriorly, but sometimes with a smooth, semicircular or triangular shaped space at base, the spiracles long linear 10

10. Disco-cubital nervure arcuate, *not* broken by a stump of a vein, the areolet variable in size and shape 11

Disco-cubital nervure broken by a stump of a vein, the areolet rather small, narrowed above, the transverse medium nervure originating from beyond the basal nervure; head subquadrate, not rostriform, the malar space normal. (Africa.)
(256) *Zonocryptus* Ashmead, new genus.
(*Cryptus sphingis* Ashmead, manuscript.)

11. Metanotum *without* a basal transverse carina, not short.

Areolet small, triangular, the submedian cell *shorter* than the median; mesonotal furrows distinct, sharply defined, the middle lobe convexly elevated; metathorax transversely striate. (Africa.)
(257) *Metarhyssa* Ashmead, new genus.
(Type, *Metarhyssa bifasiata* Ashmead, manuscript.)

Areolet large, with the sides parallel, the submedian cell a little *longer* than the median; mesonatal furrows distinct for two-thirds the length of the mesonotum; metathorax smooth shining. (South America.)
(258) *Opisoxestus* Ashmead, new genus.
(*Opisoxestus ferrugineus* Ashmead, manuscript.)

Metanotum *with* a basal transverse carina, short, rounded behind, rugose.

Areolet large, the sides convergent somewhat above, the mesonotal furrows distinct.....(259) *Distantella* Saussure.

12. Metathorax *with* one or two transverse carinæ, but *without* a longitudinal sulcus..... 13

Metathorax *with* a longitudinal sulcus or furrow, but *without* transverse carinæ. (260) *Mansa* Tosquinet.

13. Disco-cubital nervure *not* broken by a stump of a vein; wholly without a trace of such a vein..... 19

Disco-cubital nervure distinctly broken by a stump of a vein, or at least with a trace of such a vein.

Anterior tarsi in female normal, or at most with only the fourth joint cordate or emarginate, never with joints 2–4 cordate or emarginate..... 14

Anterior tarsi in female with joints 2–4 short, cordate, emarginate or lobate, as well as sometimes joints in the other tarsi; cheeks, or the malar space, long; antennæ filiform or tapering off toward apex (males difficult to separate from *Cryptus*, the forehead above insertion of antennæ concave, the spiracles of metathorax larger and longer, the upper hind angles rarely dentate, while the apical transverse carina is wanting or subobsolete).....(261) *Meringopus* Förster.

14. Clypeus anteriorly armed with a median tooth or projection, or angulated.. 18

Clypeus anteriorly normal, unarmed, either truncate or rounded.

Metathorax with *two* distinct transverse carinæ, or at most with the apical carina vaguely or indistinctly defined only medially..... 15

Metathorax with only *one* complete transverse carina, or smooth *without* any..... 17

15. Metathorax short, obliquely truncate posteriorly, the spiracles oval or elliptical..... 16

Metathorax not short, with the upper hind angles often toothed or with the apical transverse carina strongly elevated laterally, the spiracles elongate, or small, short oval, or rounded.

Metathoracic spiracles large, elongate or linear, the metapleural carina indistinct or obliterated posteriorly from the basal transverse carina; median and submedian cells equal, or the latter is a little the shorter; areolet large, the sides convergent above; head transverse, narrowed behind; antennæ filiform, in females most frequently ringed with white; abdominal segments 1–4 not wholly smooth, punctate or coriaceous, the spiracles of the second placed at or before the middle.

Areola of metathorax *not* defined; first joint of flagellum elongate, longer than the second.....(262) *Cryptus* Fabricius.
(Type, *Cryptus spinosus* Fabricius.)

Areola of metathorax more or less defined by surrounding carinæ.
(263) *Itamoplex* Förster.

Metathoracic spiracles small rounded or short oval, the metapleural carina distinct; areolet in front wings moderately large, with the sides convergent above; stump of vein on the disco-cubital nervure very minute or almost obliterated.

Submedian cell a little shorter than the median; metathorax with the super hind angles dentate, the spiracles small, short, oval; body marked with red, black, and white, abdomen usually with some white bands.....(264) *Chromocryptus* Ashmead, new genus.
(Type, *Chromocryptus albopictus* Ashmead, manuscript.)

Submedian and median cells equal; metathorax with the upper hind

angles simple, *not* dentate, the spiracles small, round; thorax mostly black, marked with yellow or white, abdomen mostly red, not banded with white (see p. 39). (247) *Habrocryptus* Thomson (part).

16. Submedian cell a little shorter than the median or equal to it; areolet large, with parallel sides; head transverse, not thick antero-posteriorly, the temples narrower than the width of the eyes; antennæ filiform, the first three joints of the flagellum not especially elongate, the first in female a little longer than the second, in male about equal with the second; abdominal segments 1–4 wholly smooth, neither punctate nor coriaceous, the spiracles of the second placed behind the middle; ovipositor short.

(265) *Idiolispa* Förster=*Liocryptus* Thomson.

17. Metathorax finely closely punctate or shagreened, the pleural carinæ distinct, the spiracles small, round; areolet moderately large, the sides convergent above; head transverse, the temples not well developed; antennæ slender, filiform, the first three or four joints of the flagellum elongate, the first in female longer than the second (see p. 39).

(247) *Habrocryptus* Thomson (part).

18. Metathorax with *two* transverse carinæ, the spiracles small, rounded, the pleural carina wanting or vaguely defined posteriorly; median and submedian cells equal or sometimes with the median cell a little the shorter; areolet with the sides convergent above; head quadrate or subquadrate, the temples full, broad; antennæ filiform, ringed with white, the first joint of the flagellum a little longer than the second .....(266) *Kaltenbachia* Förster.

Metathorax with only *one* complete transverse carina—the basal, the apical transverse carina indicated only laterally, or the upper hind angles are toothed.

The metathoracic pleural carina complete, the spiracles oval or oblong; areolet with sides convergent above; submedian cell slightly shorter than the median; head subquadrate; antennæ not ringed with white .....(267) *Cryptoideus* Ashmead, new genus.

(Type, *Cryptus purpuripennis* Cresson.)

The metathoracic pleural carina wholly absent, the upper hind angles spined, the spiracles long, elliptic; areolet large, the sides almost parallel; submedian and median cells equal; head transverse, the temples flat.....(268) *Cryptopteryx* Ashmead, new genus.

(Type, *Cryptopteryx columbianus* Ashmead, manuscript.)

19. Marginal cell rather short, the areolet large or moderate, the sides parallel or nearly, rarely small, with the sides convergent above; metathoracic spiracles small, round, short-oval, oval or ovate, *never* elongate or linear; abdomen most red, black at apex, and usually spotted with white, very rarely wholly red..... 21

Marginal cell elongate, the areolet with the sides usually convergent above, rarely parallel; metathoracic spiracles large, elongate, or linear, never round or short oval; abdomen not spotted with white at apex.

Metathorax *with* one or two distinct transverse carinæ (sometimes wanting in males), the pleural carina more or less distinct, the upper hind angles sometimes dentate..... 20

Metathorax *without* transverse carinæ, or at the most with the basal alone vaguely and indistinctly defined laterally, the pleural carina absent, the spiracles very large, linear; head subquadrate, the temples rather broad; clypeus anteriorly truncate, the labrum visible from beneath as a semicircular ledge; first three joints of the flagellum not long,

not or scarcely thrice as long as thick, the first in the female not longer than the second; parapsidal furrows vaguely defined *far* anteriorly only; wings fuscous, maculate, or banded.

(269) *Compsocryptus* Ashmead, new genus.

(Type, *Cryptus calipterus* Say.)

20. Head transverse, narrowed behind the eyes, rarely subquadrate, the malar space long; clypeus anteriorly truncate, the labrum projecting from beneath as a semicircular ledge and transversely impressed; wings usually marked with red or yellow, rarely concolorous, the median and submedian cells equal or nearly, the areolet rather large; metathorax with two transverse carinæ, the upper hind angles toothed; abdomen coriaceous or punctate, the spiracles of the second placed a little behind the middle, those of the third much before the middle; fourth joint of tarsi strongly emarginate or bilobed.

(270) *Calliecryptus* Ashmead, new genus.

(Type, *Cryptus fasciatus* Brullé.)

21. Clypeus normal, the anterior margin *without* a median tooth 22

Clypeus impressed on each side of the anterior margin and with a median tooth.

(271) *Cænocryptus* Thomson.

22. Head transverse, narrowed behind or not nearly quadrate or cubical, the temples never as wide as the eyes 23

Head cubical or subquadrate, the temples broad, full, as wide or a little wider than the eyes.

Flagellum in female usually ringed with white, the first joint *not* or only a little longer than the second; metathorax long, with only the apical transverse carina present, the spiracles oval or rounded; ovipositor most frequently longer than the abdomen.

(272) *Charetymma* Förster = *Cratocryptus* Thomson.

23. First joint of the flagellum distinctly longer than the second 24

First joint of the flagellum not longer than the second, usually a little shorter.

Metathorax rather long, the basal transverse carina usually well defined but sinuate, the apical transverse carina being entirely obliterated medially; spiracles oval; areolet large, pentagonal, the sides very nearly parallel, receiving the second recurrent nervure beyond its middle; median and submedian cells equal or the latter slightly the longer; tarsal joints strongly spinous at apex.

(273) *Pycnocryptus* Thomson.

24. Front wings with the lower angle of the discoidal cell somewhat obtuse, the areolet most frequently large, with the sides parallel or nearly, rarely convergent above 26

Front wings with the lower angle of the discoidal cell posteriorly straight, the areolet small, the sides convergent above.

Submedian vein in the hind wings *not* abruptly broken at the transverse median nervure but continued far beyond 25

Submedian vein in the hind wings abruptly broken at the transverse median nervure.

Face narrowed, the cheeks short; parapsidal furrows short but distinct.

(274) *Hidryta* Förster = *Brachycryptus* Thomson.

25. Metathoracic spiracles small, round, or very short oval; last joint of the hind tarsi distinctly shorter than the third or at least no longer.

(275) *Gambrus* Förster.

26. Areolet with the sides distinctly convergent above 27

Areolet with the sides parallel or nearly *not* or scarcely convergent above; malar space distinct; metathorax with the apical transverse carina some-

times obliterated at the middle, the spiracles short-oval or rounded; tip of abdomen black, with one or more white spots above.

(276) *Agrothereutes* Förster=*Spilocryptus* Thomson (part).

27. Metathorax not short; areolet large; tip of abdomen black, usually with one or two white spots above.

(276) *Agrothereutes* Förster=*Spilocryptus* Thomson.

28. Metathorax with only the first transverse carina present, the second represented by sharp ridges at the upper hind angles, the spiracles small, rounded; first joint of flagellum elongate; apex of abdomen with a white spot above ..... (276) *Agrothereutes* Förster.

Tribe VII. MESOSTENINI.

1900. *Mesostenini*, Tribe VI, ASHMEAD, Smith's Insects of New Jersey, p. 570.

This tribe is proposed for several genera heretofore placed with the *Cryptini* and which are closely allied to them. On the other hand, they present a general *habitus* peculiarly their own, difficult to express in words, but easily recognized by the experienced eye, and which seems to me to justify their separation as a distinct minor group.

For the present, however, the only character I can give to separate them is the one used in my table of tribes, namely, the small quadrate areolet, which is sometimes nearly punctiform and often open behind, but which is never pentagonal in position, or large quadrate, as in the *Cryptini*. The legs, too, relatively speaking, are, as a rule, longer and slenderer, and increase more rapidly in length, antero-posteriorly, than in the others.

Ten genera have been recognized in the group, separable as follows:

TABLE OF GENERA.

Head *with* one or two spines or carinæ between the antennæ..... 7

Head *without* a spine or carina between the antennæ.

Claws large; last joint of hind tarsi about the length of the third; basal joint of front tarsi much shorter than the tibiæ; ovipositor shorter than the body 2

Claws small; last joint of hind tarsi much shorter than the third; basal joint of front tarsi as long, or nearly, as the tibiæ; ovipositor usually longer than the body, or at least never shorter than the abdomen.

(277) *Nematopodius* Gravenhorst.

2. Thorax *not*, or only a little, more than twice as long as wide..... 6

Thorax three or more times longer than wide.

Mesonotum *without* parapsidal furrows, or at most only feebly or vaguely defined anteriorly.

Mesonotum *with* the parapsidal furrows distinct for at least two-thirds its length; first joint of flagellum longer than the second..... 3

3. Metathorax with the upper hind angles tuberculate, dentate, or spined, the basal transverse carina alone present, distinct, the apical wanting or incomplete 4

Metathorax with the upper hind angles rounded, unarmed; both transverse carinæ usually present, entire, although the apical transverse carina is sometimes obliterated medially, but always distinct or highly elevated laterally.....(278) *Mesostenus* Gravenhorst =*Stenarcus* Thomson.

4. Petiole of abdomen longer and slenderer, only slightly and gradually widened toward apex, *not* elbowed, the spiracles closer to each other than to the apex; areolet usually somewhat larger, quadrate 5

Petiole of abdomen shorter, bent or elbowed and much widened at apical third, the spiracles usually wider from each other that to the apex; areolet smaller.

Head a little wider than the thorax; areolet closed.

(279) *Mesostenoideus* Ashmead, new genus.

(Type, *Mesostenus albomaculatus* Cresson.)

Head scarcely so wide as the thorax, or no wider; areolet open behind.

(280) *Christolia* Brullé.

5. Metapleural carinæ distinct to the base of the hind coxæ; transverse median nervure in hind wings obtusely angularly broken by the subdiscoidal nervure near its basal third; scutellum margined at sides only anteriorly.....(281) *Cryptamura* Brullé

Metapleural carinæ wholly wanting or at least not extending beyond the first transverse carina; transverse median nervure in hind wings straight, the subdiscoidal nervure originating from its basal fourth.

(282) *Brachycoryphus* Kriechbaumer.

6. Metathorax short, with only one transverse carina—the basal; hind legs much longer than the middle and anterior pairs; areolet open behind.

(283) *Crypturopsis* Ashmead, new genus=*Crypturus* Ashmead *nec* Gravenhorst.

(Type, *Crypturus texanus* Ashmead.)

7. Head with only *one* spine or acute carina between the antennæ; mesonotum trilobed.

Metathorax with the apical transverse carina wanting or subobsolete, the upper hind angles prominently toothed or spined; abdomen *without* thyridia between segments 2 and 3.....(284) *Polycyrtus* Spinola.

Metathorax with the apical transverse carina distinct, prominent, the upper hind angles at most subdentate; abdomen *with* thyridia between segments 2 and 3.....(285) *Listrognathus* Tischbein.

Head with *two* spines or acute carinæ between the antennæ; mesonotum not trilobed.....(286) *Polycœnus* Cresson.

Subfamily III. PIMPLINÆ.

1859. *Pimplariæ* Holmgren, Öfvers. Vet.-Akad. Förh., XVI, pp. 121–132.
1887. *Pimplinæ*, Subfamily, Cresson, Syn. Hym. North America, p. 49.
1888. *Pimplariæ* Thomson, Opus. Ent., XII, p. 1247.
1895. *Pimplinæ*, Subfamily VI, Ashmead, Proc. Ent. Soc. Wash., III, p. 278.
1900. *Pimplinæ*, Subfamily III, Ashmead, Smith's Insects of New Jersey, p. 571.

The species falling in this subfamily are readily distinguished from those previously treated of by the characters made use of in my table of subfamilies—the shape of the abdomen, the shape of the first segment of the abdomen and the position of its spiracles, and the venation of the front wings.

The abdomen is elongate, subcylindrical or depressed, rarely subcompressed at apex, most frequently sessile, more rarely petiolate and always with a prominent ovipositor; the first segment is straight, rarely bent or curved, as in the *Ichneumonina* and the *Cryptinæ*, and with the spiracles, except in two or three cases, placed *at* or *before*

the middle; while the areolet in the front wings, when present, is most frequently small, triangular, oblique, or rhomboidal, often petiolate, but very rarely pentagonal.

Five minor groups, or tribes, have been recognized; one being based upon Cresson's genus *Labena* and its allies, and the others upon four of Förster's so-called families—*Acœnitoidæ*, *Lissonotoidæ*, *Pimploidæ*, and *Xoridoidæ*.

These tribes may be recognized by the use of the following table:

TABLE OF TRIBES.

Head transverse, rarely subquadrate, and usually narrowed or rounded off behind, the temples not broad; mandibles always fitting close to the clypeus, *not* forming a kind of mouth opening.

Abdomen somewhat compressed toward apex, the ventral valve prominent, plowshare-shaped, or sometimes very large lanceolate; if the ventral valve is hidden, the hind coxæ are abnormally long; antennæ usually rather short and straight; hind legs much lengthened and usually with stout femora.

Hypopygium prominent, plowshare-shaped or lanceolate; hind coxæ normal, rarely three times as long as thick.....Tribe I. ACŒNITINI.

Hypopygium *not* prominent, hidden; hind coxæ abnormally long, four or more times longer than thick.....Tribe II. LABENINI.

Abdomen depressed, rarely weakly compressed toward apex, the ventral valve never prominent or plowshare-shaped; antennæ longer and sometimes eroded; hind coxæ never abnormally lengthened.

Abdomen smooth, *without* impressions and never strongly punctured, at the most alutaceous or shagreened; no lateral impressed lines on segments 2–5.....Tribe III. LISSONOTINI.

Abdomen with more or less distinct impressions and usually also strongly punctured; if smooth, alutaceous or coriaceous; always with lateral impressed lines on segments 2–5.....Tribe IV. PIMPLINI.

Head quadrate or cubical, the temples broad, not narrowed behind; mandibles most frequently slightly projecting forward and forming, with the clypeus, a a kind of mouth opening, or the clypeus is depressed.

Tribe V. XORIDINI.

Tribe I. ACŒNITINI.

1868. *Acœnitoidæ*, Family 17, FÖRSTER, Verh. d. naturh. Ver. pr. Rheinl., XXV, pp. 142 and 167.

1894. *Acœnitini*, Tribe I, ASHMEAD, Proc. Ent. Soc. Wash., III, p. 278.

1900. *Acœnitini*, Tribe I, ASHMEAD, Smith's Insects of New Jersey, p. 571.

This group is distinguished from all the others by the shape of the abdomen, which is much elongated, compressed at apex, and furnished with a large, prominent, plowshare shaped, or lanceolate, hypopygium; the antennæ are rather short and straight, while the hind legs are unusually long, with rather short and stout femora.

Superficially, many of the species falling in this group, especially among the males, resemble those in the tribe *Mesostenini*, in the subfamily *Cryptinæ*, in colorational pattern and in having long hind

legs, but the shape of the abdomen and the venation of the front wings can always be depended upon to distinguish them.

Sixteen genera have been recognized separable as follows:

TABLE OF GENERA.

Front wings *without* an areolet 6

Front wings *with* an areolet.

Areolet small, not rhomboidal; ovipositor shorter than the abdomen; if as long, then the hypopygium unusually large 2

Areolet large, rhomboidal; ovipositor as long as or longer than the abdomen; head as in *exetastes*, but readily distinguished by the longer ovipositor ..... (287) *Leptobates* Gravenhorst.

2. Abdomen sessile, *not* long petioliform 3

Abdomen petiolate, or the first segment long, slender, petioliform.

Areolet small, petiolet; abdomen elongate, narrowed toward base; claws pectinate ..... (288) *Leptobatopsis* Ashmead, new genus.
(Type, *Leptobatopsis australiensis* Ashmead, manuscript.)

3. Ovipositor *not* longer than the abdomen, or if longer the hind legs are very thick; antennæ short and straight 4

Ovipositor longer than the abdomen, the hypopygium unusually large, lanceolate; mesonotum trilobed; metanotum not areolated with from two to four longitudinal carinæ, the spiracles rather large, oval.
(289) *Coleocentrus* Gravenhorst.

4. Disco-cubital nervure *without* a stump of a vein; hypopygium in female large, projecting beyond the tip of the abdomen 5

Disco-cubital nervure *with* a stump of a vein or branch; hypopygium in female short; metanotum *without* carinæ; ovipositor longer than the abdomen ..... (290) *Procinetus* Förster.

5. Transverse median nervure in hind wings broken at the middle; metathorax laterally coarsely rugose, the middle space punctured but shining, the spiracles large, oval; ovipositor longer than the abdomen.
(291) *Mesoclistus* Förster.

Transverse median nervure in hind wings broken far below the middle; metathorax short, truncate posteriorly, and completely areolated, the spiracles small, round; scutellum and postscutellum laterally sharply margined; ovipositor somewhat shorter than the abdomen.
(292) *Aphanoroptrum* Förster.

6. Second joint of tarsi longer than the four following joints united 7

Second joint of tarsi *not* longer than the four following joints united 8

7. Second recurrent nervure uniting with the discoidal nervure before the very short transverse cubital-transverse median nervure in hind wings broken above the middle; first abdominal segment narrow, almost three times as long as wide ..... (293) *Cryptunus* Gravenhorst.

Second recurrent nervure uniting *behind* the transverse cubitus; abdomen a little longer than the head and thorax united, the petiole elongate.
(294) *Encardia* Tosquinet.

8. Second recurrent nervure uniting *behind* the transverse cubitus 9

Second recurrent nervure uniting *before* the transverse cubitus.

Anterior and middle claws cleft before the middle, the hind claws simple, the middle and hind tibiæ with 2 apical spurs; transverse median nervure in hind wings broken at or a little above the middle; hind legs much lengthened; ovipositor as long as the body.
(295) *Arotes* Gravenhorst.

9. Mesonotum *without* deep parapsidal furrows 11
Mesonotum *with* deep parapsidal furrows.
Disco-cubital nervure *with* a stump of a vein 10
Disco-cubital nervure *without* a stump of a vein.
(296) *Phænolobus* Förster.

10. Second abdominal segment longer than wide at apex, the hypopygium in female small and placed far away from tip of abdomen; coxæ much lengthened; ovipositor somewhat prominent .....(297) *Collyria* Schiödte.
Second abdominal segment not longer than wide at apex; hypopygium in female very large and projecting beyond tip of abdomen.
(298) *Chorischizus* Förster.

11. Metathorax elongate, quadrate, rugose, with a vaguely defined areola; head large, much longer than wide, slightly narrowed back of the eyes, the malar space long.....(299) *Hierocerys* Tosquinet.
Metathorax and head quite differently shaped.
Metanotum *with* a well-defined transverse carina; hind femora much thickened; recurrent nervures very close.
Femora *not* compressed, the tibiæ normal; claws of four anterior feet with a blunt tooth before tip .....(300) *Acanites* Latreille.
Femora compressed, the tibiæ bent, narrowed at base, the tarsi long, the posterior dilated, the last joint not merassated, claws simple.
(301) *Acronus* Tosquinet.
Metanotum *without* a transverse carina; hind femora not especially thickened; recurrent nervures widely separated.
(302) *Asthenomeris* Förster.

Tribe II. LABENINI.

1900. *Labenini*, Tribe II, Ashmead, Smith's Insects of New Jersey, p. 571.

This group is proposed for three genera found only in the American fauna. In the shape of the abdomen it bears a superficial resemblance to some of the *Acœnitini*, but the hypopygium is hidden, neither prominent, plowshare shaped nor lanceolate, while from them and the other tribes it is readily separated by the abnormally long hind coxæ, which are four or more times longer than thick.

The characters made use of in the following table may be depended upon to distinguish the genera:

TABLE OF GENERA.

Cheeks armed with a strong tooth behind..... 2
Cheeks normal, unarmed.
Face rugoso-punctate; metathorax completely areolated; areolet in front wings large, pentagonal, the third discoidal cell shorter than the second; transverse median nervure in the hind wings broken slightly *above* the middle; first abdominal segment not especially long, very gradually widened toward apex, the spiracles placed before the middle.....(303) *Labena* Cresson.
Face finely coriaceous; metathorax long, exareolated, but with a transverse carina before the apex; areolet pentagonal, the third discoidal cell much longer than the second; transverse median nervure in hind wings broken *below* the middle; first abdominal segment very long, the spiracles placed a little behind the middle .....(304) *Nomus* Cresson.

2. Face smooth imponctate; metathorax areolate at base only, the areola wanting;

areolet large, pentagonal, the third discoidal cell longer than the second; transverse median nervure in hind wings broken at the middle; first abdominal segment very long and slender, not at all or only slightly widened at apex, the spiracles at or very near the middle.....(305) *Grotea* Cresson.

Tribe III. LISSONOTINI.

1868. *Lissonotoïdæ*, Family 16, FÖRSTER, Verh. d. naturh. Ver. pr. Rheinl., XXV, pp. 142 and 166.
1894. *Lissonotini*, Tribe II, ASHMEAD, Proc. Ent. Soc. Wash., III, p. 278.
1900. *Lissonotini*, Tribe III, ASHMEAD, Smith's Insects of New Jersey, p. 371.

This tribe is distinguished from the two aforementioned by the shape of the abdomen, which is depressed, *not* compressed at apex, and *without* a prominent hypopygium; by the longer antennæ; and by coxal and venational characters.

It approaches nearest to the tribe *Pimplini*, but in that tribe the abdomen, although sometimes smooth, is usually strongly punctured, and has always more or less distinct transverse or oblique impressions, or *lateral impressed lines on segments 2–5*. In the *Lissonotini*, on the contrary, the abdomen is smooth, or at the most alutaceous or shagreened, but never strongly punctate, always *without* transverse or oblique impressions, and *never with lateral impressed lines on segments 2–5*.

The 31 genera falling in this group may be separated as follows:

TABLE OF GENERA.

Metathorax *not* areolated, at the most with a transverse apical carina, or with two median longitudinal carinæ 3
Metathorax more or less indistinctly areolated.
Front wings *with* an areolet 2
Front wings *without* an areolet.
Abdomen sessile, with the first three segments rugulose, the ovipositor short; clypeus large, swollen at base; flagellar joints of male antennæ normal, not eroded; eyes hairy.
(306) *Hybophanes* Förster=*Œdemopsis* Tschek.
2. Areolet oblique, elongate, subtrapezoidal...(307) *Pseudacanites* Kriechbaumer.
3. Abdomen sessile, never petiolate 4
Abdomen petiolate, head transverse; metathorax exareolate, *without* a transverse apical carina.
Abdomen elongate, subfusiform, as seen from the side toward apex, clavate; marginal cell in front wings large, oblong; the areolet small, subtriangular and subpetiolate; legs elongate, slender.
(308) *Atropha* Kriechbaumer.
Abdomen toward base flat, rugose, the first segment flask-shaped, distinctly and longly petiolate; marginal cell in front wings not large, the areolet longly petiolate, the outer nervure faint or subobsolete; legs normal; antennæ not tapering toward apex, the last joint nearly as long as the three preceding joints united; ovipositor nearly as long as the abdomen.
(309) *Taschenbergia* Schmiedeknecht.

4. Areolet always present, rarely incomplete, that is, open behind 6
Areolet wholly wanting.
Metanotum *with* two distinct longitudinal carinæ in both sexes 5
Metanotum *without* longitudinal carinæ. Claws closely, longly pectinate; mandibles bidentate ..... (310) *Asphragis* Förster.

5. Clypeus normal; abdomen rather smooth, the first segment flat, longer than wide; ovipositor almost as long as the body; claws simple, not toothed; eyes bare; third joint of the flagellum at tip and the fourth joint at base in male eroded.
(311) *Lampronota* Haliday=*Cylloceria* Schiödte.

6. Body *not* especially hairy 7
Body, and especially the head, covered with shaggy gray or black hairs.
Metathorax coarsely punctured; eyes widely separated; abdomen in female somewhat compressed at apex, the first segment somewhat longer than wide, rugulose, the following smooth; claws simple, the onychia very small ..... (312) *Arenetra* Holmgren.

7. Metathorax *with* a distinct transverse apical carina, or at least distinct laterally. 11
Metathorax *without* a transverse apical carina.
Claws simple, neither toothed nor pectinate 9
Claws thickly and usually longly pectinate, never simple 8

8. Antennæ long and slender, the last joint twice as long, or nearly, as the preceding; abdomen smooth, the first segment *without* carinæ, the spiracles of the second placed close to the lateral margin.
Transverse median nervure in hind wings broken very far *below* the middle; eyes not quite extending to the base of the mandibles, the malar space being fully as long as the pedicel, the latter being obliquely truncate from beneath; submedian and median cells in front wings equal ..... (313) *Phytodietus* Gravenhorst.
Transverse median nervure in hind wings broken *at* or a little *above* the middle; eyes extending to base of mandibles *without* a malar space; submedian cell in front wings distinctly shorter than the median. (New Zealand.) ..... (314) *Euctenopus* Ashmead, new genus.
(Type, *Euctenopus zealandicus* Ashmead, manuscript.

9. Metapleural carinæ present, strong and long 10
Metapleural carinæ wanting.
Abdomen subpetiolate, smooth, shining, and gradually narrowed toward base; antennæ long and slender, tapering toward apex, the terminal joint in male shorter than the penultimate; submedian cell *not* longer than the median ..... (315) *Aphanodon* Förster.
Abdomen distinctly sessile, the first segment aciculate, segments 2–5 quadrate, the following wider than long, all finely punctate at base, but smooth and shining at apex; antennæ elongate, slender, setiform, but shorter than the body ..... (316) *Nadia* Tosquinet.

10. Abdomen sessile, depressed, finely coriaceous; areolet in front wings pentagonal, the submedian cell longer than the median, the disco-cubital nervure *not* broken by a stump of a vein. Male.
(317) *Trevoria* Ashmead,[1] new genus.
(Type, *Trevoria yukatatensis* Ashmead, manuscript.)

11. Claws simple, *not* pectinate 21
Claws pectinate.
Claws shorter, not thickly pectinate, usually briefly pectinate toward base 12
Claws long, strong, and usually but not always thickly pectinate 17

12. Flagellum entirely composed of cylindrical, closely united, almost inseparable joints; ovipositor long 13

[1] In honor of Prof. Trevor Kincaid.

Flagellum with the joints composing the apical half distinctly separable; ovipositor at the most as long as the abdomen.

Last half of the flagellum in the female with knob-like joints, appearing quite different from the basal half; the knob-like apical joints are as wide as long, almost rhomboidal, seen from beneath angulate, the last joint narrower and scarcely as long as the preceding. (318) *Xenacis* Förster.

The apical third only of the flagellum with distinctly separable joints; the terminal joints are also *not* knob-like, but only faintly compressed, above and beneath rounded, the last joint wider and as long as the two preceding joints united; abdomen perceptibly narrowed toward base, subpetiolate ..... (319) *Cryptopimpla* Taschenberg.

13. Frons *without* horns 14

Frons with two horns.

Areolet longly petiolate; hind wings with the transverse median nervure broken below the middle; mesonotum without trace of furrows; scutellum laterally *not* margined; metapleural carina distinct posteriorly, the spiracles long, linear; abdomen with the first segment laterally toward base with two strong carinæ, the spiracles placed before the middle and distinctly visible from above ... (320) *Diceratops* Förster.

14. Clypeus *not* impressed; areolet usually petiolate 15

Clypeus at base posteriorly strongly impressed, the impression so covered with long hairs as to form a tuft; metanotum in female with a weak, transverse apical carina, stronger in male; metapleural carina faint, nearly obliterated; areolet sessile, irregularly pentagonal; spiracles of second abdominal segment placed close to the base; claws simple ..... (321) *Ensimus* Förster.

15. Metapleura *not* separated from the metanotum by a carina, the spiracles large, elongate or linear; areolet longly petiolate; transverse median nervure in hind wings broken below the middle; face more or less swollen; mesonotum without trace of furrows; scutellum laterally margined only at base; first abdominal segment smooth, the spiracles placed before the middle; claws with abbreviated teeth and long bristles ..... (322) *Zyzeuctus* Förster.

Metapleura separated from the metanotum by a carina, the spiracles round or short oval 16

16. Claws distinctly but not closely pectinate ..... (323) *Lissonota* Gravenhorst.

17. Areolet petiolate, rarely sessile; disco-cubital nervure angulate or angularly broken and usually with a stump of a vein 18

Areolet sessile; disco-cubital nervure bowed or strongly curved, never angulate and *without* a stump of a vein.

Claws shortly pectinate; transverse median nervure in hind wings broken *below* the middle ..... (324) *Meniscus* Schiödte=*Amersibia* Förster.

18. Metathorax normal *without* longitudinal carinæ 19

Metathorax *with* 6 longitudinal carinæ ..... (325) *Phidias* Vollenhoven.

19. Frons above the antennæ normal, *not* at all impressed and *without* peculiar foveæ; metapleural carinæ wanting or only faintly indicated at base 20

Frons above the antennæ impressed or concave, with the margins swollen on each side; metapleural carinæ distinct; transverse median nervure in the hind wings angularly broken below the middle; claws stout, pectinate, but not thickly; first abdominal segment with two carinæ at the basal third .. (326) *Bathycetes* Förster=*Bathynophrys* Förster.

20. Areolet sessile; metathorax with the apical transverse carina present, distinct. (Female) ..... (327) *Alloplasta* Förster.

Areolet petiolate.

Areolet small, oblique, open behind; metathoracic spiracles small, oval; claws strongly pectinate.....(328) *Ctenopimpla* Cameron.

21. Areolet petiolate or subpetiolate..... 24

Areolet sessile.

Areolet triangular or rhomboidal..... 22

Areolet irregularly pentagonal.

Clypeus at base posteriorly strongly impressed, the impression often so covered with long hairs as to form a tuft...(321) *Ensimus* Förster.

22. Disco-cubital nervure strongly curved, but not broken by a stump of a vein. 23

Disco-cubital nervure angularly broken a little before the middle.

Transverse median nervure in hind wings broken a little *below* the middle; clypeus anteriorly rounded; claws very long, not pectinate, but ciliate with bristles within. (Male) (p. 51) (327) *Alloplasta* Förster.

23. Median and submedian cells of an equal length; transverse median nervure in hind wings obtusely angularly broken near the apical third. (South America).....(329) *Epimecoideus* Ashmead, new genus.

(Type *Epimecoideus apicalis* Ashmead, manuscript.)

Median and submedian cells unequal; transverse median nervure in the hind wings broken *below* the middle.

Clypeus prominent, separated and in outline semicircular; metathoracic spiracles short oval; areolet oblique, rhomboidal.

(330) *Pimplopterus* Ashmead, new genus.

(Type *Pimplopterus alaskensis* Ashmead, manuscript.)

24. Disco-cubital nervure strongly curved or bent, but never angularly broken, and *without* a stump of a vein..... 25

Disco-cubital nervure angularly broken, or *with* a stump of a vein.

Disco-cubital nervure angularly broken at the basal third.

(331) *Stenolabis* Kriechbaumer.

Disco-cubital nervure *not* angularly broken but still broken by a stump of a vein near its middle; metathoracic spiracles elliptical, thrice as long as wide; abdominal segments all longer than wide.

(332) *Meyva* Cameron.

25. Metanotum *with* two delicate parallel, or nearly, carinæ down the center, the spiracles rounded; abdominal segments 1–3 longer than wide, the first more than twice longer than wide, 5–6 wider than long, the last very short; transverse median nervure in hind wings broken below the middle.....(333) *Harrimaniella* Ashmead, new genus.

(Type, *Harrimaniella yukakensis* Ashmead, manuscript.)

Metanotum *without* such carinæ, the spiracles small, rounded; third abdominal segment a little wider than long, the first narrowed toward base more than twice longer than wide at apex. (See p. 51.)

(319) *Cryptopimpla* Taschenberg.

Tribe IV. PIMPLINI.

1868. *Pimploidæ*, Family 15, Förster, Verh. d. naturh. Ver. pr. Rheinl., XXV, pp. 142 and 162.

1894. *Pimplini*, Tribe III, Ashmead, Proc. Ent. Soc. Wash., III, p. 278.

1900. *Pimplini*, Tribe IV, Ashmead, Smith's Insects of New Jersey, p. 572.

In this tribe are to be found some of the largest, if not the largest species, of all the parasitica.

The group is a most extensive one, and includes several well-known

genera of a world-wide distribution, and among which are such conspicuous genera as *Rhyssa* and *Thalessa*, commonly known as the Long-Stings.

The species belonging to these two genera destroy the xylophagous saw-flies belonging to the genera *Sirex*, *Paururus Tremex*, etc., which bore and live in the interior of various forest trees, and in order to reach their hosts their ovipositor has become enormously developed, attaining sometimes the length of 5, 6, or more inches. Undoubtedly this group is closely allied to the *Lissonotini*, and some authorities would unite the two groups; but I agree with Förster in thinking the *Pimplini* distinct since they may be readily separated by the sculpture of the abdomen, the transverse impressions or furrows on the segments and particularly by the lateral impressed lines on segments 2 to 5, which are never present in the *Lissonotini*.

Sixty-one genera have been recognized in the group separable as follows:

TABLE OF GENERA.

Mesonotum *not* transversely rugose 4
Mesonotum transversely rugose.
Areolet in front wings present 2
Areolet in front wings wanting.
(334) *Epirhyssa* Cresson=*Rhyssonota* Kriechbaumer.
(Type, *Epirhyssa speciosa* Cresson.)

2. Metathorax *not* areolated; head *without* a carina between the antennæ 3
Metathorax areolated; head sometimes *with* a carina between the antennæ.
Head *with* a strong carina between the antennæ; transverse median nervure straight, *not* broken, the subdiscoidal nervure originating from the median vein far beyond the apex of the submedian cell.
(335) *Apechneura* Kriechbaumer.
(Type, *Rhyssa terminalis* Brullé.)
Head *without* a carina between the antennæ.
(336) *Certonotus* Kriechbaumer.
(Type, *Certonotus varius* Kriechbaumer.)

3. Transverse median nervure in hind wings broken far *above* the middle, or the subdiscoidal nervure originates from the angle formed by the transverse median and the median veins.
Head with the temples broad, well developed, nearly the width of the eyes; hind tarsi much elongated, very much longer than their tibiæ; abdomen in female compressed toward apex.
Clypeus anteriorly medially lengthened or unidentate; abdominal segments at apex either rounded or emarginate.
(337) *Rhyssa* Gravenhorst.
(Type, *Ichneumon persuasorius* Linnæus.)
Clypeus anteriorly truncate; abdominal segments in male smooth, with segments 3–7 at apex emarginate or deeply excavated.
(338) *Thalessa* Holmgren.
(Type, *Ichneumon clavator* Fabricius.)
Head with the temples very narrow, scarcely half the width of the eye; hind tarsi normal, hardly longer than their tibiæ; abdomen depressed.
(339) *Lytarmes* Cameron.
(Type, *Lytarmes maculipennis* Cameron.)

4. Second abdominal segment in female usually much longer than wide, rarely quadrate at apex; ovipositor most frequently longer than the body ... 5
   Second abdominal segment in female transverse or quadrate, seldom a little longer than wide; ovipositor usually shorter than the body 9
5. Antennæ normal, the joints 3 to 5 outwardly *not* serrate 6
   Antennæ with the joints 3 to 5 outwardly serrate.
   Abdomen with segments 1–7 longer than wide, with indistinct lateral swellings; transverse median nervure in hind wings faintly broken below the middle; thorax for the greater part red.
   (340) *Troctocerus* Woldstedt.
   (Type, *Troctocerus elegans* Woldstedt.)
6. Abdomen in both sexes nearly of an equal width throughout, the sides parallel or nearly, the sculpture of the anterior segments not different from that of the posterior segments, or only slightly; disco-cubital nervure straight, curved or angulated 7
   Abdomen in female spindle-shaped or tapering toward base and apex, the sides not nearly parallel; in male straight, broad cylindrical.
   Segments 2–3 in female or 2–5 in male with oblique furrows; disco-cubital nervure angulate and with a short stump of a vein; ovipositor somewhat shorter than the body .....(341) *Atractogaster* Kriechbaumer.
   (Type, *Atractogaster semisculptus* Kriechbaumer.)
7. Claws in female simple, *without* a tooth at base; last joint of hind tarsi at least thrice as long as the preceding; male with the inner margin of the eyes deeply emarginate 8
   Claws in female cleft or with a strong tooth at base; last joint of hind tarsi longer than the preceding; male with the inner margin of the eyes *not* distinctly emarginate.
   Transverse median nervure in hind wings broken *above* the middle; metathoracic spiracles oval or elongate .....(342) *Ephialtes* Gravenhorst.
   (Type, *Ephialtes tuberculatus* Gravenhorst.)
   Transverse median nervure in hind wings broken *at* or *below* the middle; metathoracic spiracles small, round.
   (343) *Calliephialtes* Ashmead, new genus.
   (Type, *Pimpla xanthothorax* Ashmead.)
8. Metathorax smooth, shining, *without* punctures; areolet in front wings rhomboidal, *not* petiolate; transverse median nervure in hind wings broken *above* the middle .....(344) *Perithous* Holmgren.
   (Type, *Pimpla divinator* Gravenhorst.)
   Metathorax punctate, and medially irregularly, transversely rugulose, evanescent toward the sides; a subsemicircular area posteriorly; areolet in front wings small, petiolate; disco-cubital nervure arcuate.
   (345) *Opisorhyssa* Kriechbaumer.
   (Type, *Opisorhyssa flavopicta* Kriechbaumer.)
9. Abdomen distinctly punctate, or coriaceous, or at least never perfectly smooth, shining, or impunctate 15
   Abdomen perfectly smooth, shining, impunctate, or at the most feebly alutaceous.
   Areolet always present 11
   Areolet wanting 10
10. Eyes very large, occupying the whole sides of the head, the temples usually flat; ocelli large, prominent; claws with a tooth toward base beneath.
    Prothorax narrowed into a neck anteriorly; eyes convergent anteriorly; temples flat or oblique .....(346) *Epimeces* Brullé.
    (Type, *Epimeces bicolor* Brullé.)

Prothorax *not* narrowed into a neck anteriorly; eyes *not* convergent anteriorly; temples neither flat nor oblique.....(347) *Eugalta* Cameron.
(Type, *Eugalta strigosa* Cameron.)

11. Eyes with the inner margin emarginate or subemarginate; middle vein in hind wings distinct to the base..... 12

Eyes with the inner margin entire, *not* at all emarginate; middle vein in hind wings sometimes obsolete at base.

Middle vein in hind wings distinct to base; metathorax areolated.

Metathorax irregularly transeversely striate, and with a shallow median furrow on the basal three-fourths.
(348) *Pseudeugalta* Ashmead, new genus.
(Type, *Eugalta spinosa* Cameron.)

Metathorax smooth and polished, *without* a median furrow, the spiracles small, round; disco-cubital nervure not broken by a stump of a vein; transverse median nervure in hind wings broken *below* the middle.....(Africa) (349) *Zonopimpla* Ashmead, new genus.
(Type, *Zonopimpla albicincta* Ashmead, manuscript.)

Middle vein in hind wings toward base obselete; metathorax more or less distinctly areolated, the areola and the petiolar area confluent; hind femora not much swollen; ovipositor longer than the abdomen.
(350) *Idiogamma* Förster.
(Type, *Idiogamma euryops* Förster.)

12. Mesonotum *with* sharply defined parapsidal furrows, which converge and meet before attaining the base of the scutellum; claws stout, simple; metathorax with the upper hind angles toothed, *without* an areola, but with a distinct petiolar area; hind femora with a small tooth beneath toward apex; transverse median nervure in hind wings broken *far above* the middle.... (351) *Lissopimpla* Kriechbaumer.
(Type, *Lissopimple 8-guttata* Kriechbaumer.)

Mesonotum *without* distinct parapsidal furrows, either entirely wanting or only vaguely defined anteriorly; hind femora more or less thickened; ovipositor at most never larger than the abdomen, usually shorter.

Claws simple, *not* pectinate..... 14

Claws very large, strongly pectinate..... 13

13. Metathorax *with* a distinct areola and a petiolar area.. (352) *Theronia* Holmgren.
(Type, *Pimpla flavicans* Fabricius.)

Metathorax *without* either an areola or a petiolar area.

Head normal, the malar space short..... (353) *Neotheronia* Krieger.
(Type, *Theronia tolteca* Cresson.)

Head subrostriform, the malar space long. (See p. 57.)
(366) *Echthromorpha* Holmgren.

14. Metathorax exareolated but with a strong transverse apical area, the upper hind angles dentate or tuberculate; hind femora unarmed. (New Zealand.)..... (354) *Allotheronia* Ashmead, new genus.
(Type, *Allotheronia 12-guttata* Ashmead, manuscript.)

15. Last joint of antennæ *not* longer than the two preceding joints united; last joint of hind tarsi two or more times longer than the preceding joint. 16

Last joint of antennæ large, oblong, longer than the two preceding joints united; last joint of hind tarsi not fully twice as long as the preceding joint.

Face clothed with long silvery hairs; scutellum only slightly margined at sides; metathorax areolated.....(355) *Stilbops* Förster.
(Type, *Pimpla veluta* Gravenhorst.)

16. Clypeus distinctly separated; eyes rarely hairy..... 18

Clypeus *not* separated; eyes either hairy or bare, with their inner margin entire, or at most only slightly emarginate..... 17

17. Eyes hairy; mesonotum *with* distinct parapsidal furrows; abdomen narrow, the first segment bicarinate, the last ventral segment short; ovipositor not long; wings *without* an areolet ...(356) *Schizopyga* Gravenhorst.
(Type, *Schizopyga podagrica* Gravenhorst.)

Eyes bare; mesonotum with the parapsidal furrows indicated only anteriorly; abdomen as in *Pimpla*, the first segment bicarinate.

Metathorax not areolated, the spiracles long; ovipositor longer than the abdomen; claws with a strong angular tooth at base.
(357) *Hemipimpla* Saussure.

Metathorax areolated, the spiracles small, oval or elliptic; ovipositor shorter than the abdomen; claws simple *without* a tooth at base; areolet in front wings wanting (Africa).
(358) *Neopimpla* Ashmead, new genus
(Type, *Neopimpla abbottii* Ashmead, manuscript.)

18. Wings *with* an areolet 19
Wings *without* an areolet 31

19. Claws *not* pectinate, or only faintly and indistinctly 20
Claws strongly pectinate.

Metathorax with a transverse apical carina, the spiracles linear; first abdominal segment bicarinate; stigma narrow, the radius originating before its middle, the areolet large, tetragonal, briefly petiolate; clypeus convex; mesonotum with furrows anteriorly.
(359) *Odinophora* Förster.

20. Abdominal segments with *transverse* impressions, especially laterally near apex on segments 2–4 21
Abdominal segments with strong *oblique* impressions or grooved lines.

Areolet large, tetragonal; abdominal segments 2–3 only with oblique impressions; transverse median nervure in hind wings broken at the middle ..... (360) *Dyspetes* Förster.

Arrolet small, petiolate, not rhomboidal; abdominal segments 2–4, with oblique impressions.

Forehead with two horns; scutellum black; abdomen banded with white ..... (361) *Hoplitophrys* Förster.
(Type, *Glypta brischkei* Holmgren.)

Forehead with one horn; scutellum and the extreme apical margins of the segments yellow; transverse median nervure in hind wings broken above the middle ..... (362) *Teleutea* Förster.
(Type, *Glypta striata* Gravenhorst.)

21. Metathorax *not* areolated 22
Metathorax areolated, or at least with a complete areola and a petiolar area.

Scutellum normal ..... (363) *Delomerista* Förster.
(Type, *Pimpla mandibularis* Gravenhorst.)

Scutellum conically elevated and margined at sides; transverse median nervure in hind wings broken far above the middle.
(364) *Xanthopimpla* Saussure.
(Type, *Xanthopimpla nova* Saussure.)

22. Clypeus more or less distinctly separated from the face at base 23
Clypeus *not* separated from the face at base.

Clypeus anteriorly semicircularly emarginate; abdominal segments 2–5, with deep, transverse furrows at base and apex, which are united with an impression along the sides; metathorax smooth, exareolated, without a trace of carinæ; claws strong, with a large tooth or lobe at base; transverse median nervure in hind wings broken very *far*

below the middle; areolet in front wings oblique, rhomboidal. (Lower Siam) .....(365) *Erythropimpla* Ashmead, new genus
(Type, *Erythropimpla abbottii* Ashmead, manuscript.)

23. Clypeus impressed anteriorly at apex 25
Clypeus *not* impressed anteriorly at apex.
First abdominal segment with a hump-like elevation toward the apex.. 24
First abdominal segment normal, *without* a hump-like elevation.
Head subrostriform, with a broad malar space; eyes slightly convergent anteriorly and submarginate within; areolet petiolate, the submedian cell longer than the median; transverse median nervure in hind wings *not* broken, the subdiscoidal nervure interstitial.
(366) *Echthromorpha* Holmgren.
(Type, *Echthropimpla maculipennis* Holmgren.)
Head normal, not subrostriform; eyes entire, not convergent anteriorly; transverse median nervure in hind wings broken, the subdiscoidal nervure not being interstitial .....(367) *Tromatobia* Förster.
(Type, *Pimpla variabilis* Holmgren.)

24. Head normal; abdominal segments 2–4, with a transverse impression laterally near apex and with oblique lateral impressions at base; submedian cell longer than the median, the disco-cubital nervure *not* broken, the areolet rather large, sessile; metathoracic spiracles oval. (Hawaii.) .....(368) *Glyptogastra* Ashmead, new genus.)
(Type, *Glyptogastra hawaiiensis* Ashmead, manuscript.)

25. Transverse median nervure in hind wings broken, the subdiscoidal nervure not interstitial 26
Transverse median nervure in hind wings straight, *not* broken.
Metathoracic spiracles small, round; hind femora normal; second abscissa of the radius straight, the median and submedian cells equal in length .....(369) *Tromera* Förster.
(Type, *Pimpla pomorum* Ratzeburg.)

26. Metathoracic spiracles round..... 29
Metathoracic spiracles linear, oval or reniform.
Claws in female *with* a tooth beneath 28
Claws in female simple, *without* a tooth 27

27. Metanotum with two elongate more or less distinct areas; head subrostrate; antennæ with the joints toward apex nodosely incrassated. (Male.)
(366) *Echthromorpha* Holmgren = *Polyamma* Kriechbaumer.
Metanotum *without* areas and *without* a transverse apical carina; head and antennæ normal; transverse median nervure in hind wings broken above the middle .....(370) *Pimpla* Fabricius.
Metanotum exareolated, but with a distinct transverse apical carina; head and antennæ normal; areolet trapezoidal, subpetiolate; transverse median nervure in hind wings obtusely angularly broken *above* the middle .....(371) *Notopimpla* Kriechbaumer.
(Type, *Pimpla terminalis* Brullé.)

28. Eyes in both sexes deeply emarginate within; lateral ridges of the mesonotum extending on to the scutellum; ovipositor directed upward at tip.
(372) *Apechthis* Förster.
(Type, *Pimpla rubata* Gravenhorst.)
Eyes *not*, or scarcely, emarginate within; lateral ridges of the mesonotum *not* extending on to the scutellum; ovipositor at tip straight.
(373) *Exeristes* Förster.
(Type, *Pimpla roborator* Gravenhorst.)

29. Claws *without* a tooth beneath 30
Claws *with* a tooth beneath at base.
Transverse median nervure in hind wings broken *far above* the middle and almost at a right angle .....(374) *Iseropus* Förster.
(Type, *Pimpla holmgreni* Schmideknecht.)
Transverse median nervure in hind wings broken *at* or *below* the middle, seldom a little above, but usually at a very obtuse angle.
(375) *Epiurus* Förster.
(Type, *Pimpla brevicornis* Gravenhorst.)

30. The sharp lateral ridges of the mesonotum extend on to the scutellum; transverse median nervure in hind wings broken *before* the middle, but always at a right angle .....(376) *Itoplectis* Förster.
(Type, *Pimpla maculata* Gravenhorst.)
The sharp lateral ridges of the mesonotum do not extend on to the scutellum; transverse median nervure in hind wings broken at an obtuse angle at or before the middle.m.....(377) *Eremochila* Förster.
(Type, *Pimpla ruficollis* Gravenhorst.)

31. Transverse cubital nervure variable, rarely much longer than the basal abscissa of the cubitus; scutellum rounded..... 32
Transverse cubital nervure much longer than the basal abscissa of the cubitus, i. e., the part lying between the disco-cubital nervure, or first recurrent, and the second recurrent; scutellum tetragonal, truncate posteriorly, marked with yellow; segments 2–4, with two oblique lines and with a transverse line before the apex; ovipositor shorter than the abdomen.....(378) *Lycorina* Holmgren.
(Type, *Lycorina triangulifer* Holmgren.)

32. Front femora not especially thickened, not excised..... 33
Front femora gradually swollen before the middle to the tip and excised, their tibiæ bent at the base, the last joint of tarsi stout with strong claws; abdomen narrow, smooth, the first segment longer than wide, bicarinate; ovipositor scarcely as long as the first segment.
(379) *Colpomeria* Holmgren.
(Type, *Colpomeria lævigator* Holmgren.)

33. Abdominal segments 2–4, *without* oblique impressions; claws simple or rarely pectinate 36
Abdominal segments 2–4, *with* oblique impressions or grooved lines; claws pectinate, rarely simple.
Claws not strongly and thickly pectinate..... 34
Claws strongly and thickly pectinate.....(380) *Ctenochira* Förster.
(Type, *Ctenochira bisinuator* Förster.)

34. Frons *with* one or two tubercles or horns..... 35
Frons normal, *without* a tubercle or horn.
Metathorax more or less incompletely areolated; first joint of the flagellum much longer than the second; claws simple, or at most with the hind claws thinly pectinate toward base.
(381) *Glypta* Gravenhorst.
(Type, *Glypta teres* Gravenhorst.)

35. Frons with *one* tubercle or horn; metathorax more or less areolated with two median carinæ and two large lateral areas at base; first joint of flagellum elongate; claws pectinate toward base.
(382) *Conoblasta* Förster.
Frons with *two* tubercles or horns; metathorax exareolate, with only the apical transverse carina present; first joint of flagellum much elongate, nearly as long as joints 2–3 united; claws long, pectinate within.
(383) *Diplastomorpha* Förster.

36. Metathorax *not* completely areolated 37
Metathorax completely areolated.
Clypeus quite depressed; vertex very narrow; eyes strongly convergent anteriorly; areolet defined but open behind; abdomen with transverse impressions only on the first four segments; ventral valve somewhat prominent, but still far from tip of the abdomen.
(384) *Pantoles* Förster.
Clypeus subconvex; vertex broad; eyes not convergent anteriorly; areolet wholly wanting, the submedian cell longer than the median, the transverse median nervure in hind wings broken far below the middle; abdomen *without* transverse impressions, closely punctate, opaque .....(385) *Polysphinctomorpha* Ashmead, new genus.
(Type, *Polysphinctomorpha laggeri* Ashmead, manuscript).
37. Abdomen as in *Pimpla*, the terminal tergites not prolonged ventrally and *not* inclosing or hiding the terminal urites 38
Abdomen with the terminal tergites prolonged beneath and hiding the terminal urites, or forming a cylinder from which projects the hypopygium that extends far beyond the tip of the abdomen; face not narrowed toward the mouth; eyes not, or only faintly, emarginate within; legs moderately stout, the claws long, pectinate; ovipositor scarcely half the length of the abdomen; body always marked with red.
(386) *Clistopyga* Gravenhorst.
38. Transverse cubital nervure present, the first abscissa of the cubitus forming with it a distinct angle 39
Transverse cubital nervure wanting, the first branch of the cubitus being interstitial with the first abscissa of the radius.
Transverse median nervure in hind wings broken; abdomen with the impressions on the segments very feeble or faint.
(387) *Acroductyla* Haliday = *Oxyrrhexis* Förster.
Transverse median nervure in hind wings straight, *not* broken; abdomen with the impressions on the segments distinct.
(388) *Zatypota* Förster.
39. Clypeus normal, not projecting into a snout-like ledge anteriorly 40
Clypeus abnormal, as viewed from the side, projecting forward into a snout-like ledge.
Abdomen subpetiolate, closely opaquely punctate, the segments without distinct, transverse impressions; transverse median nervure in hind wings broken far below the middle.
(389) *Zarhynchus* Ashmead, new genus.
(Type, *Tryphon ? nasutus* Cresson.)
40. Face medially tuberculate; mesonotum trilobed; metanotum very short, with an apical transverse carina, slightly interrupted medially, the posteriorly face very finely, transversely striate; metanotum and the first four abdominal segments clothed with a dense sericeous pubescence .....(390) *Sisyrostolus* Kriechbaumer.
Face normal; mesonotum not trilobed.
Metanotum with a central longitudinal furrow; abdomen with the transverse impressions on the segments well defined, the first segment much longer than wide at apex; last joint of tarsi thickened immediately from the base, not longer than the third; basal joint of hind tarsi not longer than the two following joints; onychium large, unusually developed .....(391) *Polysphincta* Gravenhorst.
Metanotum *without* an areola, at apex trilobed or clavate; abdomen with the transverse impressions *not* sharply defined, the first segment not longer than wide at apex; last joint of tarsi somewhat thickened

at tip only, or in male not at all thickened, longer than the three preceding joints, in male longer than the second; onychium not unusually developed .....(392) *Zaglypta* Förster.

Tribe V. XORIDINI.

1859–60. *Xorides*, Subfamily, Holmgren, Kongl. Vets.-Akad. Handl., III, p. 6.
1868. *Xoridoidæ*, Family 18, Förster, Verh. d. naturh. Ver. pr. Rheinl., XXV, pp. 142 and 168.
1894. *Xoridini*, Tribe IV, Ashmead, Proc. Ent. Soc. Wash., III, p. 278.
1900. *Xoridini*, Tribe V, Ashmead, Smith's Insects of New Jersey, p. 575.

This tribe is distinguished by the shape of the head, which is quadrate, the temples being broad, and by the peculiar mouth opening, formed by the projecting mandibles and the concave or depressed clypeus, somewhat similar to the mouth opening found in Wesmael's division *Cyclostomi* in the family *Braconidæ*.

I have included in the tribe the genera *Echthrus* and *Nyxeophilus*, which most authorities place in the subfamily *Cryptinæ*, and which seem to form a transition between them and the *Pimplinæ*. They are placed here on account of the position of the spiracles of the first abdominal segment, which are placed *at* or a little *before* the middle, and not *beyond* the middle, as in all genuine Cryptines. The inflated front tibiæ, too, is a character frequently found in this group and rare in the *Cryptinæ*.

The group, as a whole, seems to confine itself to attacking the larvæ of wood-boring Coleoptera.

Twenty-four genera have been placed here, distinguished as follows:

TABLE OF GENERA.

Areolet in front wings wanting, or small, triangular, or rhomboidal, never large or pentagonal..... 6

Areolet in front wings large, pentagonal, or at most subtriangular or subtrapezoidal; anterior tibiæ in female usually inflated, constricted at base; abdomen petiolate or subpetiolate..... 2

2. Transverse median nervure in hind wings broken *far* below the middle; disco-cubital nervure in front wings not broken by a stump of a vein.. 4

Transverse median nervure in hind wings broken *at* or a little *above* the middle; disco-cubital nervure broken by a stump of a vein.

Transverse median nervure in front wings interstitial with the basal nervure, the median and submedian cells therefore of an equal length..... 3

Transverse median nervure in front wings originating *before* the basal nervure, the submedian cell therefore shorter than the median; metathorax with two transverse carinæ, the spiracles long oval; dorsal carinæ of first abdominal segment distinct to near the apex. (393) *Nyxeophilus* Förster.

3. Metathorax exareolated, at most with only one transverse carina—the apical; spiracles linear; dorsal carina of first abdominal segment wanting or indicated only at base .....(394) *Echthrus* Gravenhorst.

4. Head transverse, the temples narrow 5

Head quadrate, the temples broad.

Metathorax exareolated, with one transverse carina—the basal; spiracles small, rounded; submedian cell longer than the median, the areolet rather small pentagonal; first abdominal segment short, usually shorter than the second ..... (395) *Holcostizus* Förster.

Metathorax with a median area which is, however, confluent with the petiolar area; submedian cell shorter than the median; first abdominal segment *not* short, distinctly petiolate.

(396) *Cubocephalus* Ratzeburg.

5. Metathorax areolated.

Scutellum rather flat; anterior tibiæ deformed, femora incrassated; areolet pentagonal ..... (397) *Dyscidopus* Kriechbaumer.

Scutellum gibbous; anterior tibiæ subinflated, constricted at base; areolet oblique; subrhomboidal ..... (398) *Microtritus* Kriechbaumer.

6. Not all the femora short and much swollen, the hind femora always unarmed. 7

All the femora short and much swollen, the hind femora sometimes armed with a tooth beneath.

Metathorax areolated; front wings *without* an areolet; abdomen petiolate, the ovipositor longer than the abdomen.

Hind femora armed with a strong tooth beneath; upper hind angles of metathorax toothed or spined ..... (399) *Odontomerus* Gravenhorst.

Hind femora unarmed but much swollen; hind angles of metathorax normal, not toothed .... (400) *Anodontomerus* Ashmead, new genus.

(Type, *Aplomerus tibialis* Provancher.)

7. Frons simple, *not* horned 8

Frons with a prominent horn or excrescence.

Mesonotum with distinct furrows; metanotum areolated; abdomen petiolate, the ovipositor as long as the abdomen.

(401) *Ischnoceros* Gravenhorst.

8. Front wings *without* an areolet, the areolet entirely absent.

Abdomen distinctly sessile 12

Abdomen distinctly petiolate.

Second recurrent nurvure *not* angularly broken by a stump of a vein.

(402) *Clepticus* Haliday.

(Type, *Clepticus præstor* Haliday.)

Second recurrent nervure angularly broken by a stump of a vein; stigma scarcely developed; transverse median nervure in hind wings angularly broken near the middle; legs long .... (403) *Epixorides* Smith.

(Type, *Epixorides chalybeator* Smith.)

Front wings *with* an areolet, rarely open behind.

Mandibles of an equal length; body stouter and not so elongate 9

Mandibles of an unequal length; body slender and elongate.

Head not much swollen, subquadrate; metathorax exareolated; abdomen slender; the ovipositor at the most as long as the abdomen; legs very slender, the hind pair lengthened .... (404) *Callidisis* Förster.

9. Clypeus medially lamellate or toothed; metathorax exareolated, or at most with longitudinal carinæ, rarely indistinctly areolated.

Areolet completely closed 10

Areolet open behind.

Clypeus anteriorly medially lamellate or toothed; metathorax indistinctly areolated ..... (405) *Perosis* Förster.

10. Temples posteriorly simple, not tuberculate 11

Temples posteriorly tuberculate ..... (406) *Achoroccphalus* Kriechbaumer.

11. Transverse median nervure in hind wings broken *below* the middle; front tibiæ moderately thickened but not inflated; middle mesothoracic lobe

not projecting above the lateral lobes; petiolar area widely open at the middle; wings often with a brown transverse band.

(407) *Xylophrurus* Förster.

Transverse median nervure in hind wings broken behind the middle; front tibiæ inflated, constricted at base; mesonotum trilobed, the middle lobe briefly caniculate; metathorax irregularly arcuately striate.

(408) *Gabunia* Kriechbaumer.

12. Metanotum *not* or very indistinctly areolated; all tibiæ slender or only slightly thickened; antennæ in female *without* stiff bristles or hairs; abdominal segments 2 and 3 *without* transverse impressions; legs slender, the posterior pair lengthened 17

Metanotum usually completely areolated, rarely exareolated; front tibiæ much thickened or inflated, constricted at base; antennæ in female *with* rather stiff bristles; abdominal segments 2 and 3 *with* a more or less distinct transverse impression.

Metanotum completely areolated 13

Metanotum *not* areolated ..... (409) *Mounsa* Tosquinet.

13. Antennæ in both sexes short and faintly hairy, the female alone with stiff bristles before apex 14

Antennæ in both sexes clothed with long shaggy hairs—in male entirely, in female only toward apex; female antennæ ringed with white; ovipositor longer than the abdomen ..... (410) *Sterotrichus* Förster.

14. Transverse median nervure in front wings uniting with the median vein *beyond* the origin of the basal nervure; first abdominal segment without a transverse ridge before apex 15

Transverse median nervure in front wings originating *before* the basal nervure; first abdominal segment with a transverse ridge before apex.

(411) *Gonophorus* Förster.

15. First abdominal segment medially *not* emarginate 16

First abdominal segment medially more or less emarginate.

(412) *Xylonomus* Gravenhorst.

16. Second abdominal segment longer than wide ..... (413) *Mœrophora* Förster.

Second abdominal segment *not* longer than wide.

Head behind the eyes inflated; antennæ in both sexes ringed with white; first abdominal segment with two complete carinæ; ovipositor as long as the body ..... (414) *Sichelia* Förster.

Head behind the eyes *not* inflated; antennæ *not* ringed with white; first abdominal segment without complete carinæ.

(415) *Rhadina* Förster.

17. Face distinctly narrowed anteriorly; mandibles of an equal length; clypeus at apex strongly impressed; head broadened behind the eyes; abdomen more or less sessile, rarely somewhat petiolate.

(416) *Xorides* Gravenhorst.

Face *not* or scarcely narrowed anteriorly; mandibles of an unequal length; clypeus at apex flat, not impressed; head somewhat inflated, slightly narrowed behind the eyes; abdomen narrow, cylindrical, petiolated, with segments 1–5 in female, or 1–7 in male, longer than wide ..... (417) *Pœmenia* Holmgren.

Subfamily IV. TRYPHONINÆ.

1887. *Tryphoninæ*, Subfamily, Cresson, Syn. Hym. North America, p. 47.
1889. *Tryphonidæ*, Family, Thomson, Opus. Ent., XIII, pp. 1429 and 1438.
1895. *Tryphoninæ*, Subfamily III, Ashmead, Proc. Ent. Soc. Wash., III, p. 277.
1897. *Tryphoninæ*, Subfamily, Davis, Trans. Am. Ent. Soc., XXIV, p. 193.
1900. *Tryphoninæ*, Subfamily IV, Ashmead, Smith's Insects of New Jersey, p. 575.

The straight, *never* elbowed, first abdominal segment, which is usually sessile, and the position of its spiracles, as well as the venation of the front wings, readily distinguish this subfamily from all except the *Pimplinæ* and the *Ophioninæ*. From the former it is easily separated, in the females, by the hidden, or, at most, subexserted, non-prominent ovipositor; from the latter by the much shorter, broader, non-compressed abdomen, and a totally different habitus.

Some males, however, are placed with the greatest difficulty, and may be easily confused with those to be found in both the above-mentioned subfamilies.

I know of no good character to easily distinguish them, although the practiced eye, in most cases, is able to place them by comparing them for venational and metathoracic characters peculiar to the females, in the different groups.

The *Tryphoninæ* may be divided into ten minor groups or tribes, as follows:

TABLE OF TRIBES.

Posterior tibiæ with one or two apical spurs 2
Posterior tibiæ *without* apical spurs.
Second and third abdominal segments without lunulæ ....Tribe II. Cteniscini.
2. Posterior tibiæ with only *one* apical spur 4
Posterior tibiæ with *two* apical spurs.
Abdomen sessile or subsessile, never distinctly petiolate 3
Abdomen distinctly petiolate.
Claws simple, not pectinate ..... Tribe I. Mesoleptini.
Claws pectinate ..... Tribe III. Ctenopelmini.
3. Claws pectinate ..... Tribe III. Ctenopelmini.
Claws simple, not pectinate.
Mandibles bidentate ..... Tribe IV. Tryphonini.
Mandibles tridentate ..... Tribe V. Bassini.
4. Middle tibiæ with only *one* apical spur 6
Middle tibiæ with *two* apical spurs.
Face normal, *not* swollen 5
Face abnormal, greatly swollen; hind femora usually short and much swollen.
Scape lengthened, *not* short, globose ..... Tribe VI. Orthocentrini.
Scape short, globose ..... Tribe VII. Exochini.
5. Abdomen sessile; dorsum of first and second segments with *two* parallel carinæ. Tribe VIII. Tylecomnini.
Abdomen petiolate, the petiole long; dorsum of second segment *without* carinæ; scutellum margined; areolet in front wings *not* large, subsessile, rhomboidal ..... Tribe IX. Sphinctini.

6. Face and scutellum normal ..... Tribe II. Cteniscini (part).
Face scutatiform; scutellum quadrangular, margined laterally; abdomen long, sessile, the sides parallel or nearly, coarsely punctate; areolet in front wings usually large, lozengoidal, or diamond-shaped.
Tribe X. Metopiini.

Tribe I. MESOLEPTINI.

1855. *Tryphonides homalopi* Holmgren (part), Kongl. Svensk. Vet.-Akad. Handl., I, p. 98.
1868. *Mesoleptoidæ*, Family 35, Förster, Verh. d. naturh. Ver. pr. Rheinl., XXV, pp. 34 and 197.
1883. *Mesoleptina*, Tribus, Thomson (part), Opus. Ent., IX, pp. 876 and 906.
1894. *Mesoleptini*, Tribe I, Ashmead, Proc. Ent. Soc. Wash., III, p. 277.
1897. *Mesoleptini*, Tribe, Davis, Trans. Am. Ent. Soc., XXIV, p. 300.
1900. *Mesoleptini*, Tribe I, Ashmead, Smith's Insects of New Jersey, p. 575.

In having a distinctly petiolated abdomen this tribe agrees with *Ichneumonina*, *Cryptina*, and some in the *Ophionina;* from all, however, excepting some in the last mentioned, it is at once separated by the straight, *not* elbowed petiole, and by the position of the spiracles, which are placed *at* or *before* the middle, never behind, while from the few genera in the *Ophionina* having the spiracles similarly situated, it is readily distinguished by the *non-compressed* abdomen, and by the abdomen in the males not terminating in two long spines.

The only group in the subfamily *Tryphonina*, with which it could be confused, if the other characters made use of in my table are taken into consideration, is the tribe *Ctenopelmini*, but from this tribe it is separated by the simple, not pectinate, claws.

Thirty-six genera have been recognized, distinguishable by characters made use of in the following table:

TABLE OF GENERA.

Head transverse, the temples not broad, scarcely half as wide as the width of the eyes 6
Head quadrate, the temples broad, fully as broad as the width of the eyes.
The longer spur of hind tibiæ as long as or longer than the second joint of tarsi 3
The longer spur of hind tibiæ shorter than the second joint of tarsi.
Front wings *with* an areolet 2
Front wings *without* an areolet ..... (418) *Spanotecnus* Förster.
2. Transverse median nervure in hind wings broken *below* the middle; metanotum incompletely areolated ..... (419) *Eclytus* Holmgren.
Transverse median nervure in hind wings broken *above* the middle; metanotum completely areolated ..... (420) *Ichnæops* Förster.
3. First recurrent nervure, or the disco-cubital nervure *not* angularly broken; head not unusually swollen 4
First recurrent nervure, or the disco-cubital nervure angularly broken; head very much swollen, the vertex posteriorly deeply emarginate.
(421) *Polyoncus* Förster.
4. Stigma broad; first joint of the flagellum *not* longer than the second; metathoracic spiracles round, and not lying nearer the external area than

to the pleural area; first abdominal segment with deep lateral foveæ at base 5

Stigma narrow; first joint of the flagellum distinctly longer than the second; metathoracic spiracles linear and lying nearer the external area than to the pleural area; first abdominal segment usually without deep lateral foveæ at base .....(422) *Sychnoleter* Förster.

5. Transverse median nervure in hind wings broken *below* the middle.
(423) *Laphyroscopus* Förster.

Transverse median nervure in hind wings broken *at* or above the middle.
(424) *Perilissus* Förster.

6. Flagellum 35–40-jointed, usually somewhat thickened; abdomen in female with the last segment so emarginate that the ovipositor lies immediately upon the back 7

Flagellum not especially thick; abdomen in female with last segment normal or not emarginate 8

7. Metanotum at base exareolated; hypopygium in female very prominent.
(425) *Polycinetis* Förster.

Metanotum at base areolated.

Front wings *without* an areolet.....(426) *Homaspis* Förster.

Front wings *with* an areolet.

Second abdominal segment with two middle carina at base.
(427) *Notopygus* Holmgren.

Second abdominal segment *without* middle carinæ.
(428) *Prosmorus* Förster.

8. Hind femora normal 9

Hind femora thickened.

Ovipositor outwardly serrate.....(429) *Catoglyptus* Förster.

9. Cheeks entirely smooth, shining, neither coriaceous nor punctate 10

Cheeks *not* entirely smooth, shining, either alutaceous, coriaceous, or punctate 11

10. Front wings *with* an areolet.....(430) *Gausocentrus* Förster.

Front wings *without* an areolet.

Occipital margin interrupted at the middle.....(431) *Lathiponus* Förster.

Occipital margin entire.....(432) *Phobetes* Förster.

11. Clypeus distinctly separated 12

Clypeus *not* separated.

Eyes small, flat, not arched above the level of the head.
(433) *Homalomma* Förster.

Eyes large, arched above level of the head.....(434) *Hypocryptus* Förster.

12. Face strongly narrowed toward the mouth.....(435) *Rhæstes* Förster.

Face *not* strongly narrowed.

Abdominal segments 2–4 *not* twice as wide as long 13

Abdominal segments 2–4 twice as wide as long..(436) *Stiphrosomus* Förster.

13. First abdominal segment *with* lateral carinæ that extend from the spiracles to the tip 14

First abdominal segment *without* such carinæ 21

14. Front wings *with* an areolet 16

Front wings *without* an areolet.

Last joint of hind tarsi *not* so long as the third and also *not* pectinate ... 15

Last joint of hind tarsi fully as long as the third and also pectinate.
(437) *Dizemon* Förster.

15. Radius originating somewhat *beyond* the middle of the stigma; metathorax completely areolated; abdomen entirely smooth; sheath of ovipositor very broad .....(438) *Callidiotes* Förster.

Radius originating *before* the middle of the stigma.

Fifth joint of hind tarsi scarcely as long as the fourth; claws not large; metanotum regularly areolated, the middle lateral area not separated from the angular area by a transverse carina.

(439) *Ipoctonus* Förster.

Fifth joint of hind tarsi distinctly longer than the fourth; claws long; metanotum *not* at all, or very incompletely, areolated.

(440) *Mesoleptus* Gravenhorst.

16. Last joint of hind tarsi either distinctly shorter than the third, or no longer and not pectinate 17

Last joint of hind tarsi as long or longer than the third and distinctly pectinate.

(441) *Hadrodactylus* Förster.

17. Clypeus *not* impressed at apex 18

Clypeus impressed at apex, faintly rounded; mesonotum and scutellum alutaceous and punctate ..... (442) *Alexeter* Förster.

18. Clypeus *not* flat; external median area not prominently toothed 19

Clypeus flat; external median area prominently toothed; radius in front wings originating *beyond* the middle of the stigma.

(443) *Oxytorus* Förster.

19. Radius originating from the middle of the stigma; transverse median nervure broken beyond the middle; mesonotum and scutellum alutaceous and punctate ..... (444) *Symphobus* Förster.

Radius originating *before* the middle of the stigma.

Transverse median nervure in hind wings broken somewhat *above* the middle; mesonotum and scutellum alutaceous, punctured 20

Transverse median nervure in hind wings broken *below* the middle; mesonotum and scutellum shining, punctured; antennæ *not* ringed with white ..... (445) *Zemiodes* Förster.

20. Disco-cubital nervure broken by an erect stump of a vein; discoidal cell broader at base than the anal cell at apex; teeth of mandibles feebly split at apex; antennæ and hind tarsi *not* ringed with white.

(446) *Terozoa* Förster.

Disco-cubital nervure not broken and *without* a stump of a vein; discoidal cell *not* so wide at base as the anal cell at apex; teeth of mandibles not split; antennæ and hind tarsi ringed with white.

(447) *Himerta* Förster.

21. Clypeus *without* a transverse impression at apex 22

Clypeus *with* a transverse impression at apex.

Third joint of maxillary palpi with a small tooth just before the tip.

(448) *Genarches* Förster.

Third joint of maxillary palpi *without* a tooth before the tip, normal.

(449) *Diëdrus* Förster.

22. Front wings *with* an areolet 23

Front wings *without* an areolet ..... (450) *Neleothymus* Förster.

23. Metathoracic spiracles round, or short oval, not distinctly ovate 24

Metathoracic spiracles distinctly and strongly ovate; scutellum with two sharp parallel carinæ at apex; transverse median nervure in front wings originating behind the basal nervure; antennæ and hind tarsi *not* ringed with white; mesonotum, scutellum, mesopleura, and hind coxæ distinctly punctured but not alutaceous.

(451) *Asymmictus* Förster.

24. Transverse median nervure in the front wings originating distinctly behind the basal nervure; antennæ and hind tarsi *not* ringed with white; mesonotum, scutellum, and mesopleura alutaceous.

(452) *Clepsiporthus* Förster.

Transverse median nervure in front wings originating usually before the basal nervure, rarely interstitial or slightly beyond it; antennæ and tarsi ringed with white; mesonotum, scutellum, mesopleura, and hind coxæ always alutaceous ..... (453) *Eurytproctus* Holmgren.

Tribe II. CTENISCINI.

1855. *Tryphonides homalopi* Holmgren (part), Svensk. Vet.-Akad. Handl., I, p. 98.
1868. *Exenteroidæ* Förster, Verh. d. naturh. Ver. pr. Rheinl., XXV, pp. 144 and 194.
1883. *Cteniscina*, Tribus, Thomson, Opus. Ent., IX, pp. 875–880.
1894. *Exenterini*, Tribe II, Ashmead, Proc. Ent. Soc. Wash., III, p. 277.
1897. *Exenterini*, Tribe, Davis, Trans. Am. Ent. Soc., XXIV, p. 227.
1900. *Cteniscini*, Tribe II, Ashmead, Smith's Insects of New Jersey, p. 577.

This tribe is readily distinguished by the posterior tibiæ, except in a single case, *being entirely without apical spurs*. Five tribes only have the posterior tibiæ armed with a single apical spur, namely, the *Orthocentrini*, the *Exochini*, the *Tylocommini*, the *Sphinctini*, and the *Metopiini*, the others having two apical spurs. Of those just mentioned, having but a single apical spur to the hind tibiæ, all, except the *Metopiini*, have, however, *two* apical spurs on the *middle* tibiæ, whereas the *Cteniscini* and the *Metopiini* have but *one*. The wonderful peculiarities of the face and scutellum in this last group, brought out in my table, will, however, enable a novice to distinguish it.

Twelve genera have been characterized in this group, distinguishable as follows:

TABLE OF GENERA.

Teeth of mandibles of an equal length 2
Teeth of mandibles of an unequal length.
Clypeus anteriorly broadly truncate; claws at base very feebly pectinate or simple ..... (454) *Acrotomus* Förster = *Delotomus* Holmgren.
Clypeus anteriorly broadly rounded; claws strongly pectinate to beyond the middle ..... (455) *Anisoctenion* Förster.
2. Claws *not* pectinate 8
Claws pectinate.
Lateral margins of first abdominal segment normal 3
Lateral margins of first abdominal segment thrice emarginate. (456) *Tricamptus* Förster.
3. Front wings *with* an areolet 4
Front wings *without* an areolet ..... (457) *Eridolius* Förster.
4. Hind tibiæ *with* a single small apical spur. (458) *Microplectron* Förster = *Smicroplectrus* Thomson.
Hind tibiæ *without* an apical spur, the apex crowned with several minute spines.
Abdomen broadly sessile, the first segment strongly widened quite to the base, scarcely distinguishably wider at apex 5
Abdomen almost petiolate, the first segment distinctly narrowed toward base ..... (459) *Cteniscus* Haliday = *Exenterus* Hartig.
5. Metanotum with the areola sharply circumscribed and wider than long 6
Metanotum with the areola *not* sharply circumscribed and wider than long. (460) *Picroscopus* Förster.

6. Metathoracic angles acutely spined or toothed 7
Metathoracic angles rounded, not toothed ..... (461) *Diaborus* Förster.
7. Scutellum deeply and broadly excavated; petiolar area very large, wider than long; second dorsal abdominal segment with the oblique grooves broad rugose ..... (462) *Excavarus* Davis.
Scutellum narrow oval; petiolar area rectangular; second dorsal abdominal segment with the oblique grooves feeble, scarcely indicated. (463) *Auderis* Davis.
8. First abdominal segment ear-like widened 9
First abdominal segment *not* ear-like widened ..... (464) *Anecphysis* Förster.
9. Second abdominal segment at apex twice as wide as the first at apex. (465) *Exyston* Schiödte.
Second abdominal segment at apex hardly one and a half times as wide as the first at apex ..... (466) *Actenonyx* Förster.

Tribe III. CTENOPELMINI.

1855. *Tryphonides homalopi* Holmgren (part), Svensk. Vet.-Akad. Handl., I, p. 98.
1868. *Ctenopelmoidæ*, Family 34, Verh. d. naturh. Ver. pr. Rheinl., XXV, pp. 145 and 195.
1894. *Ctenopelmini*, Tribe III, Ashmead, Proc. Ent. Soc. Wash., III, p. 277.
1900. *Ctenopelmini*, Tribe III, Ashmead, Smith's Insects of New Jersey, p. 577.

This tribe is exceedingly closely allied to the *Mesoleptini*, the only character discoverable, that may be depended upon to separate it, being the *pectinate*, not simple, claws. It comprises genera with both petiolate and sessile abdomen and thus affords a transition group between the tribes *Mesoleptini* and the *Tryphonini*.

Seventeen genera have been recognized, separable as follows:

TABLE OF GENERA.

Abdomen not distinctly petiolate, sessile or subsessile 7
Abdomen distinctly petiolate.
Claws with close, *long* teeth 2
Claws with *short*, distant teeth 4
2. Clypeus distinctly separated, the apex strongly impressed 3
Clypeus *not* distinctly separated, the apex *not* impressed ..... (467) *Rhorus* Förster.
3. Front wings *without* an areolet ..... (468) *Labroctonus* Förster.
Front wings *with* an areolet ..... (469) *Ctenopelma* Holmgren.
4. First abdominal segment only slightly widened behind the spiracles, the following segments not as long as wide 5
First abdominal segment strongly widened behind the spiracles, the following segments as long as wide.
Claws rather stout, strongly pectinate; ovipositor straight; clypeus separated from the face by a deep furrow ..... (470) *Oethophorus* Förster.
Claws with a distinct tooth below the apex; clypeus feebly separated. (471) *Sympherta* Förster.
5. Median nervure in hind wings distinct entire 6
Median nervure in hind wings obliterated toward base ..... (472) *Phrudus* Förster.
6. Metanotum *not* regularly areolated, with only a poorly defined petiolar area; ocelli wider from each other than to the eye margin. (473) *Ecxtesis* Förster.

Metanotum regularly areolated; ocelli nearer to each other than to the eye margin ..... (474) *Prionopoda* Holmgren.

7. Hind tarsi normal, not much thickened 8
Hind tarsi much thickened.
Front wings *without* an areolet; head almost quadrate, the ocelli deeply concave ..... (475) *Scolobates* Gravenhorst.

8. Ovipositor in female more or less distinctly visible; male antennæ normal or *not* strongly compressed and dilated at the middle 9
Ovipositor in female concealed, invisible; male antennæ strongly compressed and dilated at the middle.
(476) *Eumesius* Westwood = *Euceros* Gravenhorst.

9. Clypeal foveæ *not* clothed with a tuft of hairs 11
Clypeal foveæ clothed with a tuft of hairs 10

10. Front wings *with* an areolet ..... (477) *Erromenus* Holmgren.
Front wings *without* an areolet ..... (478) *Trichocalymma* Förster.

11. Clypeus separated from the face by a distinct cross furrow 12
Clypeus *not* at all separated ..... (479) *Monoblastus* Hartig.

12. Claws thickly combed, especially at apex, *without* pectinations basally.
(480) *Ctenacme* Förster.
Claws *not* thickly combed at apex, *with* pectinations basally.
Vertex *not* separated from the occiput by a sharp keel.
(481) *Lathrolestes* Förster.
Vertex separated from the occiput by a sharp keel.
Front wings *with* an areolet ..... (482) *Polyblastus* Hartig.
Front wings *without* an areolet ..... (483) *Scorpiorus* Förster.

Tribe IV. TRYPHONINI.

1855. *Tryphonides homalopi* (part) Holmgren, Svensk. Vets.-Akad. Handl., I, p. 98.
1868. *Tryphonoidæ*, Family 36, Förster, Verh. d. naturh. Ver. pr. Rheinl., XXV, pp. 145 and.
1883. *Tryphonina*, Tribus, Thomson, Opus. Ent., IX, pp. 875 and 895.
1889. *Euryproctides*, Subtribus, Thomson, Opus. Ent., XIII, p. 1429.
1894. *Tryphonini*, Tribe IV, Ashmead, Proc. Ent. Soc. Wash., III, p. 277.
1897. *Tryphonini*, Tribe, Davis, Trans. Am. Ent. Soc., XXIV, p. 265.
1900. *Tryphonini*, Tribe IV, Ashmead, Smith's Insects of New Jersey, p. 578.

As at present characterized, this is the largest and most extensive group in the subfamily *Tryphoninæ*, and is susceptible of subtribal divisions. Its nearest allies are the *Ctenopelmini*, from which it is separated by the *simple*, not pectinate, claws. From the *Bassini* it is separated by the *bidentate*, not tridentate, mandibles, while from all the other tribes, having a sessile abdomen, it is separated by having *two* apical spurs on the middle tibiæ.

One hundred and eleven genera have been recognized, distinguishable by the characters made use of in the following table:

TABLE OF GENERA.

Antennæ more than 14-jointed; areolet of the front wings wanting, or if present, never pentagonal 2

Antennæ 14-jointed; areolet pentagonal, sometimes open behind; metathorax short, obliquely truncate posteriorly but smooth; exareolate, the spiracles small, round ..... (484) *Pammicra* Förster

2. Eyes *not* emarginate within 3
Eyes emarginate within ....(485) *Eccinops* Förster ?=*Acrogonia* Kriechbaumer.
3. First abdominal segment normal, the sides at base *not* ear-like widened 4
First abdominal segment abnormal, the sides at base strongly ear-like widened.
Disco-cubital nervure angularly broken by a stump of a vein, the areolet oblique, subpetiolate; transverse median nervure in hind wings angularly broken below the middle .....(486) *Otoblastus* Förster.
4. Front wings *without* an areolet, or if partially formed, open behind 47
Front wings *with* an areolet 5
5. Disco-cubital nervure sometimes angularly bent, but rarely broken by a stump of a vein; metapleura *without* a tooth immediately above the hind coxæ 6
Disco-cubital nervure angularly broken by a stump of a vein; metathorax incompletely areolated, the metapleura *with* a tooth immediately above the hind coxæ; transverse median nervure in hind wings broken above the middle .....(487) *Protarchus* Förster.
5½. Areolet in front wings large, rather regularly formed, almost rhomboidal ... 5½
Areolet in front wings not large, quite irregular, oblique, not rhomboidal, often petiolate 7
6. Abdominal segments without oblique impressions.
Abdomen normal, smooth .....(488) *Rhimphalea* Förster.
Abdomen compressed toward apex and longitudinally striate above; transverse median nervure in hind wings broken a little below the middle .....(489) *Westwoodia* Brullé.
7. Second abdominal segment *without* thyridia at base 8
Second abdominal segment *with* distinct thyridia at base 19
8. Second abdominal segment *without* lateral carinæ at base ..... ?
Second abdominal segment with sharp lateral carinæ at base which extend to the spiracles .....(490) *Neoeryma* Ashmead=*Eryma* Förster.
9. Metanotum *without* areas 10
Metanotum *with* areas more or less complete 12
10. Spiracles of the first abdominal segment somewhat prominent; no carinæ extending from them to the apex of the segment 11
Spiracles of the first abdominal segment not prominent; with carinæ extending from them to the apex of segment .....(491) *Eriglæa* Förster.
11. Metapleura separated from the metanotum by a sharp carina; transverse median nervure in hind wings broken below the middle.
(492) *Labrossyta* Förster.
Metapleura *not* separated from the metanotum by a sharp carina, the carina absent; transverse median nervure in the hind wings broken *far* below the middle .....(493) *Polytrera* Förster.
12. Transverse median nervure in hind wings distinctly angularly broken 13
Transverse median nervure in hind wings straight, not broken.
(494) *Gnesia* Förster.
13. Transverse median nervure in hind wings broken *at* or *below* the middle 14
Transverse median nervure in hind wings broken *above* the middle.
Clypeus *not* distinctly separated; metathorax with a distinct areola.
(495) *Udenia* Förster.
Clypeus distinctly separated .....(496) *Otlophorus* Förster.
14. Metathorax completely areolated 15
Metathorax *not* completely areolated 17
15. Spiracles of first abdominal segment placed *at* or *before* the middle 16
Spiracles of first abdominal segment placed somewhat behind the middle.
(497) *Hodostates* Förster.

16. Abdominal segments 2 and 3 wider than long; transverse median nervure in hind wings broken *below* the middle.
Transverse median nervure in front wings not interstitial, uniting with the median vein behind the basal nervure; male antennæ *not* dilated beyond the middle.....(498) *Trematopygus* Holmgren.
Transverse median nervure in front wings interstitial with the basal nervure; male antennæ dilated beyond the middle.
(499) *Baryceros* Gravenhorst.
Abdominal segments 2 and 3 not distinctly wider than long; transverse median nervure in hind wings broken exactly at the middle.
(500) *Synagrypnus* Förster.
17. Clypeus *not* separated at base..... 18
Clypeus separated at base.
Mesonotum *with* distinct furrows anteriorly; longer spur of hind tibiæ not half as long as the basal joint of tarsi.....(501) *Homobia* Förster.
Mesonotum *without* furrows anteriorly; longer spur of hind tibiæ longer than half the length of basal joint of tarsi.
(502) *Zemiophora* Förster.
18. First abdominal segment *with* sharp carinæ extending from the spiracles to the apex.....(503) *Synocætes* Förster.
First abdominal segment *without* such carinæ.
(504) *Amorphognathon* Förster.
19. Clypeus *not* transversely divided by an elevated line or ridge..... 26
Clypeus transversely divided by an elevated line or ridge, the anterior part somewhat abrupt or impressed, and also usually differently colored from the basal part.
Frons above the antennæ *with* a strong tubercle..... 20
Frons above the antennæ normal, or *without* a tubercle..... 21
20. Frontal tubercle incised above; lateral clypeal foveæ clothed with long hairs.
(505) *Celoconus* Förster.
Frontal tubercle *not* incised above; lateral clypeal foveæ *not* clothed with long hairs.....(506) *Cosmoconus* Förster.
21. Metanotum more or less completely areolated..... 22
Metanotum exareolate, entirely smooth.
Metanotum *without* longitudinal carinæ but *with* a strongly elevated transverse carinæ.....(507) *Psilosarge* Förster.
Metanotum *with* longitudinal carinæ but *without* an elevated transverse carina.....(508) *Quadrigana* Davis.
22. Antennal fovea *with* an elevated margin..... 23
Antennal fovea *without* an elevated margin..... 24
23. Antennal fovea with an elevated margin above.....(509) *Otitochilus* Förster.
Antennal fovea with an elevated margin within.....(510) *Symbœthus* Förster
24. Clypeus normal *without* teeth anteriorly..... 25
Clypeus *with* two median teeth anteriorly..... (511) *Neleges* Förster.
25. Mandibles with the teeth of an equal length..... (512) *Tryphon* Gravenhorst.
Mandibles with the teeth of an unequal length.....(513) *Polyrhysia* Förster.
26. Transverse median nervure in hind wings broken *above* the middle..... 27
Transverse median nervure in hind wings broken *at* or *below* the middle..... 30
27. First abdominal segment *with* four strong elevations behind the middle.
(514) *Narcopaa* Förster.
First abdominal segment *without* elevations behind the middle.
Lower tooth of mandibles not longer than the upper tooth; clypeus impressed or truncate anteriorly..... 28

Lower tooth of mandibles longer than the upper tooth.

Metathorax *without* an areola or a petiolar area; clypeus *with* a narrow, transverse furrow close to the front margin ..(515) *Isodiacta* Förster.

Metathorax *with* a petiolar area which is separated by a median carina; clypeus *without* a transverse furrow anteriorly.

(516) *Neales* Förster.

28. Clypeus posteriorly at base very strongly impressed, deeply dish-shaped.... 29

Clypeus behind the middle abrupt, anteriorly transversely impressed, the anterior margin strongly and broadly truncate, incised at the middle; first abdominal segment at base narrower than between the spiracles; carinæ extend from the spiracles to the apex of the segment; petiolar area with a sharp median carina. (517) *Zacalles* Förster.

29. First abdominal segment at extreme base *not* wider than between the spiracles; from each spiracle extends a fine carina to the apex of the segment; antennæ ringed with white.....(518) *Perispuda* Förster.

First abdominal segment at extreme base wider than between the spiracles; no carinæ from the spiracles.....(519) *Zaplethis* Förster.

30. Mandibles distinctly bidentate at apex 31

Mandibles gradually acute, *without* teeth .....(520) *Alcochera* Förster.

31. Areolet distinctly petiolate 33

Areolet not distinctly petiolate 32

32. Areolet sessile; mesonotum with deep parapsidal furrows anteriorily.

(521) *Apimeles* Förster.

Areolet subsessile, not distinctly sessile.

Mesonotum *with* abbreviated parapsidal furrows anteriorly; clypeus *not* wider than long; head transverse; transverse median nervure in hind wings broken almost at the middle; lunulæ on segments 2 and 3 very distinct.....(522) *Laepserus* Förster.

Mesonotum *without* parapsidal furrows anteriorly; clypeus wider than long; head not transverse; transverse median nervure in hind wings broken *far* below the middle.....(523) *Epachthes* Förster.

33. Third abdominal segment longer than wide.....(524) *Lagarotis* Förster.

Third abdominal segment *not* longer than wide.

Mesopleura *without* a prominent tooth posteriorly..... 34

Mesopleura *with* a prominent tooth posteriorly.... (525) *Daspletis* Förster.

34. Metanotum more or less areolated 38

Metanotum not areolated 35

35. Lower tooth of mandibles *not* longer than the upper tooth..... 36

Lower tooth of mandibles much longer than the upper tooth.

(526) *Azelus* Förster.

36. Transverse median nervure in hind wings broken *at* or a little *above* the middle, rarely a little below the middle 37

Transverse median nervure in hind wings broken distinctly *below* the middle.

(527) *Adranes* Förster.

37. Fourth abdominal segment fully as long as the third..(528) *Zaphthora* Förster.

Fourth abdominal segment shorter than the third.

Clypeus flat very slightly rounded anteriorly or nearly squarely truncate, *without* an impressed margin; lateral margins of second and third abdominal segments not curving upward..(529) *Adexioma* Förster.

Clypeus medially emarginate, with a transverse impression, the same laterally before the emargination also incised; lateral margins of second and third abdominal segments acutely bent upward, the spiracles not lying close to the lateral margins .....(530) *Lamachus* Förster.

38. Metanotum *not* completely areolated..... 41

Metanotum completely areolated 39

39. Last joint of the hind tarsi *not* longer than the third 40
Last joint of the hind tarsi longer than the third...(531) *Trophoctonus* Förster.
40. Clypeus *with* a transverse impression before the apex..(532) *Synomelix* Förster.
Clypeus *without* a transverse impression before the apex.
(533) *Gastroporus* Förster.
41. Clypeus *not* so impressed that the middle is produced into a tooth 42
Clypeus with a distinct transverse impression on the anterior margin, which projects medially into a more or less distinct tooth.
(534) *Pantorhastes* Förster.
42. Clypeus forming a flat triangle with the longest side along the anterior margin.
(535) *Zapedias* Förster.
Clypeus *not* forming a flat triangle.
First abdominal segment *without* lateral carinæ, or if present never extending beyond the spiracles 43
First abdominal segment with two dorsal carinæ which extend beyond the spiracles.....(536) *Dialges* Förster.
43. Frons *without* a middle carina; second and following abdominal segments not all smooth 44
Frons *with* a middle carina; second and following segments smooth.
(537) *Zemiophron* Förster.
44. Clypeus *not* transversely impressed before the tip 45
Clypeus transversely impressed before the tip, so that the anterior margin appears interrupted.
Stigma extremely narrow, the radius originating from its basal one-third; base of discoidal cell fully twice as wide as the apex of the second discoidal cell .....(538) *Oncista* Förster.
Stigma more or less narrowed, the radius originating at or before the middle, never from the basal third; base of discoidal cell *not* twice as wide as the second discoidal cell at apex. .....(539) *Dysantes* Förster.
45. Face and clypeus medially *not* swollen 46
Face and clypeus medially much swollen .....(540) *Noëmon* Förster
46. Longer spur of hind tibiæ *not* attaining half the length of the tarsus; third joint of hind tarsi scarcely longer than the last joint; second abdominal segment quadrate .....(541) *Paraplesius* Förster.
Longer spur of hind tibiæ attaining half the length of the tarsus; third joint of the hind tarsi much longer than the last joint; second abdominal segment not quadrate.
Mesonotum and scutellum strongly punctured, but shining; metathorax with the petiolar area very wide with a median carina; first abdominal segment with a very deep long furrow...(542) *Trysiscampe* Förster.
Mesonotum and scutellum finely shagreened and finely punctured; metathorax with the petiolar area short, narrow, without a middle carina; first abdominal segment without a long furrow.
(543) *Nythophona* Förster.
47. Middle femora beneath, near the base, toothed.....(544) *Eolometis* Förster.
Middle femora beneath normal, not toothed.
Second abdominal segment *with* distinct thyridia..... 59
Second abdominal segment *without* thyridia at base or the same lying so close to the base as to be entirely invisible 48
48. Transverse median nervure in hind wings broken *at* or *below* the middle.... 49
Transverse median nervure in hind wings broken *above* the middle.
Mesonotum anteriorly trilobed; metathorax with the areola not longer than the petiolar area; transverse median nervure in hind wings broken only a little above the middle..... (545) *Polypystis* Förster.

Mesonotum *not* lobed; metathorax with the areola longer than the petiolar area; transverse median nervure in hind wings broken *far* above the middle ..... (546) *Xenomastes* Förster.

49. Metanotum completely areolated ..... (547) *Sychnoportus* Förster.
Metanotum *not* completely areolated.
Occipital margin *not* interrupted medially 50
Occipital margin interrupted medially ..... (548) *Asthenara* Förster.

50. Base of discoidal cell as wide or wider than the apex of the second discoidal cell 51
Base of discoidal cell not as wide as the apex of the second discoidal cell. (549) *Camporychus* Förster.

51. Areolet entirely wanting 52
Areolet distinct in position but open behind.
Transverse median nervure in front wings originating from *before* the basal nervure; base of discoidal cell only twice as wide as the apex of the hind middle humeral cell; areolet very small; spiracles of the first abdominal segment placed somewhat behind the middle. (550) *Trapezocora* Förster.
Transverse median nervure in front wings originating far *behind* the basal nervure; base of discoidal cell at least three times as wide as the apex of hind middle humeral cell; areolet very large, briefly petiolate, widely open behind; spiracles of the first abdominal segment placed before the middle ..... (551) *Rhigelus* Förster.

52. Clypeus with the anterior margin *not* semicircularly emarginate 53
Clypeus with the anterior margin semicircularly emarginate or impressed.
Metathorax very short, abruptly truncate behind, and bounded above by a transverse carina; flagellum shaggy from short stiff hairs, the first joint longer than the second ..... (552) *Cacotropa* Förster.

53. Metanotum more or less areolated 55
Metanotum *not* areolated 54

54. Spiracles of the first abdominal segment very prominent; second segment *with* distinct *lunulæ;* metasternum not margined; last joint of hind tarsi scarcely longer than the fourth, but distinctly shorter than the third ..... (553) *Philotymma* Förster.
Spiracles of the first segment not at all prominent, the second segment *without lunulæ;* metasternum margined in part; last joint of hind tarsi decidedly longer than the fourth and as long as the third. (554) *Scopesis* Förster.

55. First abdominal segment *with* lateral carinæ extending from the spiracles to apex of segment 56
First abdominal segment *without* lateral carinæ from the spiracles to apex of segment.
Second joint of hind trochanters normal ..... (555) *Syndipnus* Förster.
Second joint of hind trochanters beneath flat and produced outwardly beyond the insertion of the femur ..... (556) *Volucris* Davis.

56. Petiolar area of metathorax *without* a middle carina 57
Petiolar area of metathorax *with* a middle carina.
Teeth of mandibles of an equal length ..... (557) *Listrota* Förster.
Teeth of mandibles unequal, the lower tooth the longer. (558) *Tlemon* Förster.

57. Spiracular area sharply separated from the middle pleural area by a transverse carina 58
Spiracular area *not* separate from the middle pleural area by a transverse carina. (559) *Polyterus* Förster.

58. Clypeus anteriorly *with* a very fine, narrow, interrupted margin.
(560) *Atrestes* Förster.
Clypeus anteriorly *without* an interrupted margin.
Transverse median nervure in front wings originating *before* the basal nervure; base of discoidal cell twice as wide as the apex of the hind middle humeral cell ..... (561) *Campogenes* Förster.
Transverse median nervure in front wings originating far *behind* the basal nervure; base of the discoidal cell thrice as wide as the apex of the hind middle humeral cell ..... (562) *Aselasma* Förster.
59. Metanotum *not* completely areolated 60
Metanotum completely areolated 63
60. Clypeus medially *not* deepened dish-shaped, although sometimes transversely impressed anteriorly 61
Clypeus medially flat, deepened dish-shaped.
Transverse median nervure in hind wings broken a little above the middle; in front wings not quite interstitial with the basal nervure, the submedian cell slightly shorter than the median; mesonotal furrows deeply impressed anteriorly but converging and meeting at the middle of the mesonotum ..... (563) *Pantoporthus* Förster.
61. Last joint of hind tarsi shorter than the third, or no longer 62
Last joint of hind tarsi somewhat longer than the third.
(564) *Campoporus* Förster.
62. Clypeus *with* a transverse furrow at apex; metanotum without median carinæ; hind legs long, their tarsi thickened, the longer spur of the tibiæ longer than half the length of the basal tarsal joint; antennæ more than 30-jointed ..... (565) *Syntactus* Förster.
Clypeus normal, *without* a transverse furrow at apex; metanotum with two median, parallel, or nearly, carinæ; longer spur of hind tibiæ *not* or rarely half the length of the basal tarsal joint; antennæ 26-jointed, more in male ..... (566) *Calliphrurus* Förster.
63. Clypeus at apex *not* bidentate 64
Clypeus at apex bidentate ..... (567) *Boëthus* Förster.
64. Abdomen laterally *not* or very weakly compressed 65
Abdomen laterally strongly compressed ..... (568) *Saotis* Förster.
65. Stigma *not* longer than the marginal cell, usually shorter and triangular, or nearly 66
Stigma much lengthened and acuminate, longer than the marginal cell.
(569) *Tromopea* Förster.
66. Areolet entirely wanting 67
Areolet more or less present, but always open behind.
Metanotum areolated; clypeus much impressed on both sides at apex.
(570) *Atithasus* Förster.
Metanotum *not* areolated; clypeus *without* impressions on anterior margin, *not* separated ..... (571) *Hybristes* Förster.
67. Mandibles at apex bidentate 68
Mandibles at apex edentate ..... (572) *Exacrodus* Förster.
68. Lower tooth of the mandibles as long as the upper 69
Lower tooth of the mandibles longer than the upper.
Clypeus *with* a transverse impression before apex; longer spur of hind tibiæ longer than half the length of the basal tarsal joint.
(573) *Tachyporthus* Förster.
Clypeus with a transverse impression before apex, the anterior margin not at all interrupted; longer spur of hind tibiæ not half as long as the basal tarsal joint ..... (574) *Hyperallus* Förster.

69. Last joint of hind tarsi as long or longer than the third, or scarcely perceptibly shorter 70
Last joint of hind tarsi shorter than the third 71
70. Abdominal segments 3 and 4 narrower at apex than at base.
(575) *Hyperbatus* Förster.
Abdominal segments 3 and 4 fully as wide at apex as at base.
Clypeus *with* a transverse impression before apex; hind tarsi a little longer than the tibiæ ..... (576) *Scoparchus* Förster.
Clypeus *without* a transverse impression before apex; hind tarsi somewhat shorter than the tibiæ ..... (577) *Gemophaga* Förster.
71. Base of third discoidal cell as long or longer than the transverse median nervure 72
Base of third discoidal cell shorter than the transverse median nervure.
Second recurrent nervure uniting with the cubitus behind the transverse cubitus; first abdominal segment near the spiracles *without* long, deeply foveated furrows ..... (578) *Allocritus* Förster.
Second recurrent nervure almost interstitial; first abdominal segment near the spiracles *with* long, deeply foveated furrows.
(579) *Enœcetis* Förster.
72. Malar space longer than the width of the mandibles at base; longer spur of hind tibiæ scarcely more than one-third the length of the basal joint of tarsi ..... (580) *Synodites* Förster.
Malar space not longer than the width of the mandibles at base.
First three abdominal segments *not* rugulose 74
First three abdominal segments rugulose.
Segments 1 and 2 *without* a transverse impression 73
Segments 1 and 2 *with* a transverse impression ..... (581) *Spudæa* Förster.
73. Transverse median nervure in the hind wings broken *at* the middle; metathorax *with* the petiolar area normal *without* a middle carina; clypeus anteriorly, on both sides, very deeply impressed; second abdominal segment *without* distinct carinæ near the thyridia; dorsal carinæ of first segment obliterated at base ..... (582) *Rhinotorus* Förster.
Transverse median nervure in hind wings broken a little *below* the middle; metathorax with the petiolar area *with* a sharp median carina; second abdominal segment *with* a distinct shortened carina near thyridia; sole of tarsi clothed with long hairs; dorsal carinæ of first segment, especially basally, very prominent. ..... (583) *Camponastes* Förster.
74. First abdominal segment at apex *not* more than twice as wide as at base 75
First abdominal segment at apex more than twice as wide as at base.
Clypeus posteriorly at base *not* flattened; transverse cubital nervure and the second recurrent nervure almost interstitial.
(584) *Tantozelus* Förster.
Clypeus posteriorly at base flattened ..... (585) *Hypamblys* Förster.
75. Clypeus anteriorly *with* a slight transverse impression before apex, the anterior margin interrupted and fringed with strong erect hairs.
(586) *Phæstus* Förster.
Clypeus *not* fringed with erect bristles on the anterior margin.
Sutures between abdominal segments 1 and 2 *not* deep; clypeus with the anterior margins *not* deeply impressed on both sides 76
Sutures between segments 1 and 2, as well as between segments 2 and 3, deep; clypeus with the anterior margin very deeply impressed on both sides ..... (587) *Phagesorus* Förster.
76. Mesonotum scutellum and first three abdominal segments more or less coriaceous 77

Mesonotum, scutellum, and first three abdominal segments not coriaceous. (588) *Sarcorychus* Förster.

77. Occipital margin interrupted medially.....(589) *Apystus* Förster.
Occipital margin *not* interrupted medially.
First abdominal segment *with* carinæ extending from the spiracles to the apex 78
First abdominal segment *without* carinæ extending from the spiracles to the apex.....(590) *Dolioctonus* Förster.

78. Metanotum *with* more or less distinct carinæ..... 79
Metanotum *without* trace of carinæ; antennæ ringed with white. (591) *Barytarbes* Förster.

79. Basal joint of hind tarsi *not* thickened; longer spur of hind tibiæ fully half as long as the basal tarsal joint..... 80
Basal joint of hind tarsi somewhat thickened; longer spur of hind tibiæ *not* half as long as the basal tarsal joint.....(592) *Holmgrenia* Förster.

80. Mesonotum dull, finely shagreened 81
Mesonotum not shagreened.....(593) *Lathrophagus* Förster.

81. Clypeus with the anterior margin laterally more or less impressed, and more or less distinctly interrupted .....(594) *Campodorus* Förster.
Clypeus with the anterior margin laterally more or less distinctly transversely impressed, the front margin distinctly separated and more or less deeply emarginated.....(595) *Mesoleius* Holmgren.

Tribe V. BASSINI.

1855. *Tryphonides schizodonti* Holmgren, Svensk. Vet.-Akad. Handl., I, p. 98; II, 1856, p. 353.
1868. *Bassoidæ*, Family 14, Förster, Verh. d. naturh. Ver. pr. Rheinl., XXV, pp. 142 and 162.
1890. *Bassina*, Tribus, Thomson, Opus. Ent., XIV, p. 1463.
1894. *Bassini*, Tribe V, Ashmead, Proc. Ent. Soc. Wash., III, p. 277.
1895. *Bassini*, Tribe, Davis, Trans. Am. Ent. Soc., XXII, p. 17.
1900. *Bassini*, Tribe V, Ashmead, Smith's Insects of New Jersey, p. 579.

This group, with its sessile abdomen and in having two distinct apical spurs on the middle and hind tibiæ, as well as in venational characters, agrees with the *Ctenopelmini* and the *Tryphonini*, but from these tribes, as well as all the other tribes, it is at once distinguished by the mandibles, which are always *tridentate* at apex, never bidentate.

The species belonging to the group, whose parasitism is known, so far as authentic records go, seem to confine their attacks to the larvæ and puparia of Dipterous insects, and almost without exception to those in the family *Syrphidæ*.

The tribe is of small extent, only ten genera being known, but some of the species, and especially those in the typical genus *Bassus*, have a world-wide distribution. *Bassus lætatorius* Fabricius has been taken in Europe, Africa, Asia, Australia, New Zealand, Chatham Islands, Hawaii, Japan, the West Indies, and in North and South America.

All that is essential for distinguishing the genera may be found in the following table:

TABLE OF GENERA.

Basal abdominal segment *without* a transverse impression 2
Basal abdominal segment *with* a transverse impression.
Front wings *without* an areolet; metathorax short, with an apical transverse carina and a basal area, the spiracles small, round; transverse median nervure in hind wings broken below the middle.
(596) *Bassus* Gravenhorst.

2. Front wings *with* an areolet 5
Front wings *without* an areolet.
Face finely shagreened, alutaceous or coriaceous 4
Face entirely smooth, shining.
Antennæ 20-jointed or *less* 3
Antennæ more than 20-jointed.
Clypeus separated from the face; metathorax areolated; transverse median nervure in hind wings broken *at* or near the middle.
(597) *Promethes* Förster.

3. Clypeus very broad, the foveæ of same wider from each other than the distance to the eye margin ..... (598) *Bioblapsis* Förster.
(= *Trichomastix* Vollenhoven.)
Clypeus *not* very broad, the foveæ of same *not* wider from each other than the distance to the eye margin ..... (599) *Liopsis* Förster.

4. Metathorax *not* short, more or less areolated, the areola and the basal area usually confluent; first recurrent nervure, or the disco-cubital nervure, strongly curved, *not* angularly broken; transverse median nervure in hind wings broken at about the basal third.
(600) *Zootrephes* Förster.
Metathorax short, exareolated; disco-cubital nervure angularly broken and usually with a stump of a vein present; transverse median nervure in hind wings very obtusely angularly broken below the middle ..... (601) *Syrphoctonus* Förster.

5. Metathorax *not* at all areolated 6
Metathorax more or less areolated, or at least with a basal median area.
Metanotum rather long with two parallel longitudinal carinæ, the space between narrow, the areola and the basal area usually confluent; basal joint of hind tarsi elongate, the longer spur of the hind tibiæ short, not nearly half the length of the basal joint.
(602) *Phthorima* Förster.
Metanotum shorter, the areola broad, hexagonal; longer spur of hind tibiæ fully half the length of the basal joint of tarsi.
(603) *Aniarophron* Förster.

6. Second abdominal segment *with* two short median carinæ at base, the dorsal carinæ of the first segment strongly convergent posteriorly, the ventral cavity of same notched; hind legs elongate; disco-cubital nervure angularly bent near the middle, the transverse median nervure *not* interstitial, the submedian cell longer than the median ..... (604) *Enizemum* Förster.
Second abdominal segment *without* middle carinæ at base, the first *without* carinæ, or if present very short and widely separated, the ventral cavity of same *not* notched; transverse median nervure *interstitial*, or very nearly, with the basal nervure.
(605) *Homotropus* Förster.

Tribe VI. ORTHOCENTRINI.

1856. *Tryphonides prosopi* HOLMGREN (part), Kongl. Svensk. Acad. Handl., I, p. 98; II, 1856, pp. 305–352.
1868. *Orthocentroidæ*, Family 11, FÖRSTER, Verh. d. naturh. Ver. pr. Rheinl., XXV, pp. 142 and 159.
1894. *Orthocentrini*, Tribe VII, ASHMEAD, Proc. Ent. Soc. Wash., III, p. 277.
1897. *Orthocentrini*, Tribe, DAVIS, Trans. Am. Ent. Soc., XXIV, p. 219.

This tribe and the next, or the *Exochini*, at one time confounded together, are closely allied, both being composed of a number of minute or moderate sized insects, easily distinguished from all the other tribes by cephalic peculiarities and their stout, rather short legs, their femora being much swollen.

The head is subglobose, with the face, below the insertion of the antennæ, abnormally swollen, or highly or convexly elevated, giving these insects, when viewed from the side, quite a different aspect to all other Tryphonines, and which, in connection with their short legs and swollen femora, renders them easy of recognition.

The *Orthocentrini* are separated from the *Exochini* by the long scape or first joint of the antennæ, which is never short, or globose, as in the latter.

Förster's generic separation is as follows:

TABLE OF GENERA.

Ovipositor *not* projecting beyond the tip of the abdomen 3
Ovipositor projecting beyond the tip of the abdomen 2
2. Wings *without* an areolet .....(606) *Synoplus* Förster.
Wings *with* an areolet.
First joint of the flagellum shorter than the second.
(607) *Mnesidacus* Förster.
First joint of the flagellum as long as the second.(608) *Pierostigeus* Förster.
3. Metanotum *without* a complete areola; mesopleura *without* a ridge or rim on the front margin 4
Metanotum *with* an areola; mesopleura *with* a ridge or rim on the front margin. 6
4. Petiolar area without a median carina, the metanotum not at all areolated... 5
Petiolar area with a median carina .....(609) *Brephoctonus* Förster.
5. Cheeks *not* separated from the face by a furrow; metanotum *without* trace of carinæ .....(610) *Hypoleptus* Förster.
Cheeks separated from the face by a furrow; metanotum *with* or *without* a carina.
Metanotum *without* a trace of a carina; abdomen with the third segment usually the longest, and in female compressed from the second segment, as in a blade of a knife.....(611) *Neuroteles* Ratzeburg.
Metanotum *with* a single carina; abdomen with the third segment not longer than the second, and in female more or less compressed from the second or third segment; in male, flat .....(612) *Deleter* Förster.
6. Wings *without* an areolet, rarely appearing as if closed by a slender hyaline line 8
Wings *with* an areolet.
Face very high; mesothoracic furrows absent 7

Face much broader than high, humped; mesothoracic furrows distinct to the middle of the mesonotum.....(613) *Tapinops* Förster.

7. Flagellar joints in female usually wider than long, rarely as long as wide; third abdominal segment *with* a transverse impression before the middle.
(614) *Atmetus* Förster.

Flagellar joints all, or at least many, longer than wide; third abdominal segment *without* a transverse impression...(615) *Orthocentrus* Gravenhorst.

8. Mesopleura separated from the mesopectus by an abbreviated furrow; second abdominal segment *with* distinct *lunulæ;* stigma in male large, squarely truncate at apex; sheaths of ovipositor in female broad; the abscissa of the cubitus which lies between the cubital and discoidal cross veins fully three-fourths the length of the first abscissa of the radius.
(616) *Phænosemus* Förster.

Mesopleura *not* separated from the mesopectus by a furrow; second abdominal segment *without lunulæ;* stigma in male normal; sheaths of ovipositor in female narrow; the abscissa of the cubitus which lies between the cubital and discoidal cross veins scarcely half the length of the first abscissa of the radius.

Stigma narrow and long, the radius originating near its base.
(617) *Stenomacrus* Förster.

Stigma somewhat broad, the radius originating from the middle.
(618) *Camarotops* Förster.

Tribe VII. EXOCHINI.

1855. *Tryphonides prosopi* Holmgren, Kongl. Svensk. Vet.-Akad. Handl., I, p. 98; II, 1856, pp. 305–352.
1868. *Exochoida*, Family 12 Förster, Verh. d. naturh. Ver. pr. Rheinl., XXV, pp. 142 and 161.
1894. *Exochini*, Tribe VI, Ashmead, Proc. Ent. Soc. Wash., III, p. 277.
1897. *Exochini*, Tribe Davis, Trans. Am. Ent. Soc., XXIV, p. 206.
1900. *Exochini*, Tribe VI, Ashmead, Smith's Insects of New Jersey, p. 379.

The nearest allies of this tribe are the *Orthocentrini* and the *Tylecomini;* from the former it is separated by the short globose scape, from the latter by the swollen face.

Mr. Davis[1] attempts to retain Cresson's genus *Exochoides* for a species to which I gave the name *Ischyrocnemis carolina.*

Mr. Cresson's genus is clearly a synonym of *Alcocerus* Förster, and as originally described by him included only three species from Mexico, *without* an areolet in the front wings. *Exochoides texanus*, with an areolet, was not described until long afterwards, and can not now be considered the type of that genus. It was not one of the original species, and is here made a type of a new genus.

Twelve genera have been recognized, separable as follows:

TABLE OF GENERA.

Abdomen sessile or subsessile, the spiracles of first segment placed at or before the middle 4

Abdomen petiolate; the spiracles of first segment placed at or behind the middle.

Posterior tibiæ with 2 apical spurs; cheeks wanting or very short..... 2

[1] Trans. Am. Ent. Soc., XXIV, p. 206.

Posterior tibiæ with 1 apical spur; cheeks long; metathorax areolated; transverse median nervure in hind wings *not* broken.
(619) *Periope* Curtis = *Monoplectron* Holmgren = *Oligoplectron* Förster.

2. Wings *without* an areolet 3
Wings *with* an areolet.
Transverse median nervure in hind wings; metathorax punctate, areolated and *with* lateral carinæ ..... (620) *Ischyrocnemis* Holmgren.
(Type, *Ischyrocnemis göesi* Holmgren.)
Transverse median nervure in hind wings angularly broken a little above the middle; metathorax smooth, exareolated, *without* lateral carinæ.
(621) *Ischyrocnemopsis* Ashmead, new genus.
(Type, *Exochoides texanus* Cresson.)

3. Transverse median nervure in hind wings broken *below* the middle; metathorax smooth, exareolated; second flagellar joint in male shorter than the first.
(622) *Alcocerus* Förster = *Exochoides* Cresson.

4. Metanotum *with* areas at base; or with longitudinal carinæ 5
Metanotum *without* areas at base; the lateral carinæ present.
Wings *without* an areolet; the transverse median nervure in hind wings broken below the middle ..... (623) *Colpotrochia* Holmgren.
Wings *with* a pentagonal areolet ..... (624) *Strongylopsis* Brauns.

5. First joint of flagellum distinctly longer than the second 6
First joint of flagellum *not* or scarcely longer than the second.
Metanotum with six areas ..... (625) *Hyperacmus* Holmgren.

6. Second abdominal segment *without* a middle carina 7
Second abdominal segment *with* a middle carina ... (626) *Chorinæus* Holmgren.

7. Metanotum with the basal lateral area separated from the area dentipara by a sharp carina 8
Metanotum with the basal lateral area and the area dentipara *confluent*.
Wings *with* an areolet; metanotum with the basal and middle lateral areas wholly confluent; transverse median nervure in hind wings broken at basal third ..... (627) *Triclistus* Förster.
Wings *without* an areolet; metanotum with the basal and middle lateral areas more or less separated by a transverse carina; transverse median nervure in hind wings broken at basal fifth ... (628) *Amesolytus* Förster.

8. Vertex *not* separated from the occiput by a sharp carina 9
Vertex separated from the occiput by a sharp carina.
Front wings with an areolet; metanotum with five areas.
(629) *Metacœlus* Förster.

9. Metanotum with three middle areas .... (630) *Polyclistus* Förster = *Mima* Davis.
Metanotum with six areas and two middle areas ... (631) *Exochus* Gravenhorst.

Tribe VIII. TYLECOMNINI.

1868. *Trachydermatoidæ*, Family 13, Förster, Verh. d. naturh. Ver. pr. Rheinl., XXV, pp. 142 and 161.
1894. *Trachydermatini*, Tribe VI, Ashmead, Proc. Ent. Soc. Wash., III, p. 277.
1897. *Metopiini*, Tribe (part), Davis, Trans. Am. Ent. Soc., XXIV, p. 197.

This tribe was first separated by Förster under the name *Trachydermatoidæ;* while Davis has included it with the *Metopiini.*

Davis has made several serious blunders in his translations from Förster, and in some cases his tables are totally wrong. His *Trachy-*

dermatini[1] has nothing to do with this tribe, but refers to Förster's family *Trachynotoidæ*, treated in this paper as a tribe under the name *Nototrychini*, in the subfamily *Ophioninæ*.

The tribe *Tylecomnini* is intermediate between the *Exochini* and *Sphinctini*, but is easily distinguished by the characters made use of in my table of tribes.

Only five genera are known, four being peculiar to North America and one to Europe, separable as follows:

TABLE OF GENERA.

Eyes normal, *not* emarginate 2
Eyes emarginate.
Abdominal segments 1–3 *with* parallel dorsal carinæ; scutellum margined at sides ..... (632) *Pseudometopius* Davis.
2. Face transverse, the clypeus more or less separated 3
Face elongate, the clypeus *not* separated.
(633) *Tylecomnus* Holmgren = *Trachyderma* Gravenhorst.
3. Claws pectinate 4
Claws *not* pectinate.
Scutellum depressed; abdominal segments constricted at base; head with a spine between the antennæ ..... (634) *Thibetoides* Davis.
Scutellum elevated; abdominal segments and the head normal.
(635) *Lethades* Davis.
4. Scutellum elevated; abdominal segments 2–4 constricted at base; clypeus large, prominent ..... (636) *Catocentrus* Walsh.

Tribe IX. SPHINCTINI.

1868. *Sphinctoidæ*, Family 19, Förster, Verh. d. naturh. Ver. pr. Rheinl., XXV, 1868, pp. 143 and 170.
1894. *Sphinctini*, Tribe IX, Ashmead, Proc. Ent. Soc. Wash., III, p. 277.

This tribe is represented by a single genus *Sphinctus* Gravenhorst.

It comes nearest to the tribe *Tylecomnini*, so far as the characters of the legs and the venation of the front wings are concerned, but it is readily distinguished by the distinctly petiolated abdomen, the abdomen being long and narrowed into a distinct petiole anteriorly, the spiracles of same being prominent and placed *behind* the middle.

These characters, with the following, render the genus easy of recognition:

Submedian cell in front wings longer than the median, the areolet triangular, subsessile; transverse median nervure in the hind wings broken at or very near the middle; abdomen petiolate, rather strongly punctate.
(637) *Sphinctus* Gravenhorst.

[1] Trans. Am. Ent. Soc. XXIV, 1897, p. 195.

Tribe X. METOPIINI.

1856. *Tryphonides aspidopi* HOLMGREN, Kongl. Svensk. Akad. Handl., I, pp. 372–374.
1868. *Metopioidæ*, Family 10, FÖRSTER, Verh. d. naturh. Ver. pr. Rheinl., XXV, pp. 142 and 159.
1894. *Metopiini*, Tribe X, ASHMEAD, Proc. Ent. Soc. Wash., III, p. 277.
1897. *Metopiini*, Tribe, DAVIS (part) Trans. Am. Ent. Soc., XXIV, p. 197.
1900. *Metopiini*, Tribe X, ASHMEAD, Smith's Insects of New Jersey, p. 579.

This is a peculiar and interesting group, quite distinct from all the other tribes in several particulars.

It was first separated from other Tryphonids by Holmgren, who gave to it the name *Tryphonides aspidopi*. The tibial spurs are 1, 1, 1; the abdomen is elongate, the sides parallel or nearly, the segments coarsely punctate, the areolet large, lozengoidal, or diamond-shaped, the scutellum quadrangular, margined laterally, while the face is flat, scutiform, with sometimes a carina on its disk.

These characters render the group easily recognized.

Only two genera are known, one, *Cultrarius* Davis, being peculiar to North America; the other, *Metopius* Panzer, having a world-wide distribution.

TABLE OF GENERA.

Face flat, scutiform.
Head small, much narrower than the thorax; antennæ subclavate; abdomen fusiform, tapering off at apex; second joint of palpi normal; transverse median nervure in hind wings angularly broken *above* the middle. (638) *Cultrarius* Davis
Head not small, as wide, or nearly, as the thorax; antennæ filiform; abdomen elongate, the sides parallel or nearly; second joint of palpi abnormally swollen ..... (639) *Metopius* Panzer

Subfamily V. OPHIONINÆ.

1858. *Ophionida* HOLMGREN, Öfvers. Vets.-Akad. Förhl., XV, pp. 331–330.
1887. *Ophionidæ*, Familia, THOMSON, Opus. Ent., XI, p. 1047.
1887. *Ophioninæ*, Subfamily, CRESSON, Syn. Hym. North America, p. 43.
1900. *Ophioninæ*, Subfamily V, ASHMEAD, Smith's Insects of New Jersey, p. 580.

Most authorities on these insects have recognized this major group as distinct from other *Ichneumonidæ*, and as early as 1846, August Brullé called it: Deuxiéme type des Ichneumonides—Les Ophion.

Brullé, however, never properly defined it and had evidently very hazy ideas respecting it, since he incorrectly included in it the genus *Ospryncholus* Spinola, a genuine Cryptine, and two or three other genera belonging elsewhere.

Only typical forms appear to be readily placed, and the closest attention must be given to abdominal, metathoracic and certain venational differences before others can be placed with any degree of certainty; and even then, if one is not familiar with a large number of the

genera in the different tribes, he is apt to go astray. Most females, however, except certain forms at present placed in the tribe *Plectiscini*, seem to be easily placed, while many males belonging to several of the tribes are easily confused with those in different groups.

The true position of the tribe *Plectiscini*, which as at present constituted is evidently an unnatural group, is still doubtful. It has affinities allying it with the *Tryphoninæ*, *Cryptinæ*, and other of the subfamilies.

The subfamily may be divided into twelve groups or tribes, as follows:

TABLE OF TRIBES.

Second recurrent nervure joining the cubitus *behind* the transverse cubitus or interstitial with it; middle tibiæ always with *two* apical spurs 3

Second recurrent nervure joining the cubitus *before* the transverse cubitus, or it is entirely wanting (*Pharsalia* Cresson); if it joins the cubitus *behind* the transverse cubitus then the middle tibiæ have but a *single* apical spur 2

2. Middle tibiæ with *two* apical spurs; second recurrent nervure joining the cubitus *before* the transverse median nervure.

Antennæ short, clavate; mesosternum beneath flat; mesonotum *without* parapsidal furrows; metathorax areolated.

Tribe I. HELLWIGIINI.

Antennæ long, subsetaceous; mesosternum beneath not flat, declivous before the middle coxæ; mesonotum usually with distinct parapsidal furrows; metathorax rarely distinctly areolated, usually *without* areas or at most with one or more transverse carinæ.

Tribe II. OPHIONINI.

Middle tibiæ with only *one* apical spur; second recurrent nervure joining the cubitus *behind* the transverse cubitus or entirely wanting.

Tribe III. NOTOTRACHINI.

3. Front wings with the stigma large, broadly triangular or broadly ovate; metathorax not produced into a neck at apex 6

Front wings with the stigma long and narrow, most frequently lanceolate, rarely broad or broadly triangular, although frequently subovate 4

4. Metathorax at apex truncate or rounded, but never produced into a neck which extends beyond the insertion of the hind coxæ 5

Metathorax at apex produced into a more or less distinct neck which extends beyond the insertion of the hind coxæ; abdomen frequently strongly compressed or compressed toward apex, petiolate, the petiole long, the spiracles placed much behind the middle.

Mesonotum most frequently *with* distinct parapsidal furrows although sometimes without, or only delicately impressed, wanting anteriorly; areolet most frequently wanting; abdomen always long, strongly compressed with the petiole only slightly and gradually thickened posteriorly, never abruptly swollen at apex; hind tarsi usually more or less distinctly thickened, especially in males.

Tribe IV. ANOMALINI.

Mesonotum *without* parapsidal furrows; areolet often present, sometimes wanting; abdomen as a rule shorter and less strongly compressed, more fusiformly compressed; the petiole somewhat abruptly, con-

vexly swollen at apex, or at least not gradually thickened posteriorly; hind tarsi normal, very rarely thickened.

Tribe V. CAMPOPLEGINI.

5. Spiracles of first abdominal segment placed *before* the middle; transverse median nervure in hind wings broken *above* the middle, rarely *at* or *below* the middle; abdomen in males not ending in two spines, the claspers often large, broad.

Abdomen petiolate, rarely subsessile; areolet in front wings triangular, or oblique rhomboidal, the second abscissa of the radius most frequently strongly curved at its origin and forming with the first abscissa an acute angle (very straight and forming an obtuse angle); transverse median nervure in hind wings broken most frequently *above* the middle, rarely at or below the middle; thorax shining, most frequently impunctate; parapsidal furrows present, but deliicate; ovipositor exserted ..... Tribe VI. PANISCINI.

Abdomen sessile or subsessile; areolet in front wings, when present, rather large, rhomboidal, the second abscissa of radius straight, rarely slightly curved at its origin, and forming with the first an obtuse angle; transverse median nervure in hind wings broken *far above* the middle, very near the apex; thorax usually opaque or punctate, rarely smooth and shining; parapsidal furrows wanting or only slightly and vaguely defined anteriorly; ovipositor usually short, or not at all exserted ..... Tribe VII. BANCHINI.

Spiracles of first abdominal segment placed *at* or a little *beyond* the middle; transverse median nervure in hind wings straight, or broken *below* the middle; abdomen in males ending in two long spines; abdomen petiolate, polished, the ovipositor distinctly exserted, but never very long; areolet in front wings rather large, rhomboidal.

Tribe VIII. MESOCHORINI.

6. Middle vein in hind wings wanting or obliterated toward base; basal nervure distinctly thickened at apex or where it unites with the costa or parastigma ..... Tribe IX. PORIZONINI.

Middle vein in hind wings distinct, *not* obliterated toward the base.

Hind femora beneath armed with a strong tooth beyond the middle.

Tribe X. PRISTOMERINI.

Hind femora beneath simple, unarmed.

Head not small; clypeus neither convex nor compressed from the sides; hind tibiæ normal, *not* constricted at the base.

Tribe XI. CREMASTINI.

Head usually small; clypeus convex and usually compressed from the sides; hind tibiæ thickened and usually more or less constricted at base.

Tribe XII. PLECTISCINI.

Tribe I. HELLWIGIINI.

1868. *Hellwigioidæ*, Family 6, FÖRSTER, Verh. d. naturh. Ver. pr. Rheinl., XXV, pp. 141 and 149.

1887. *Helwigiina*, Tribus, THOMSON, Opus. Ent., XI, p. 1048.

1894. *Hellwigiini*, Tribe VI, ASHMEAD, Proc. Ent. Soc. Wash., III, p. 277.

The essential characters for the ready recognition of this tribe have been brought out prominently in my table of tribes and need not be

repeated here, the short clavate antennæ being found in no other tribe.

The group is of small extent and is represented by a single genus not yet found outside of the European fauna.

Antennæ short clavate; metanotum areolated ....(640) *Hellwigia* Gravenhorst.

Tribe II. OPHIONINI.

1868. *Ophionoidæ*, Family 7, Förster, Verh. d. naturh. Ver. pr. Rheinl., XXV, pp. 141 and 149.
1887. *Ophionina*, Tribus, Thomson, Opus. Ent., XI, p. 1048.
1894. *Ophionini*, Tribe VII, Ashmead, Proc. Ent. Soc. Wash., III, p. 277.
1900. *Ophionini*, Tribe II, Ashmead, Smith's Insects of New Jersey, p. 580.

To this tribe belong the genuine Ophiones—insects belonging to the genus *Ophion* and allies—distinguished from all the others, except those in the tribe *Hellwigiini*, by having the second recurrent nervure uniting with the cubitus *before* the first transverse cubitus.

The true *Ophionini* are, however, readily separated from the *Hellwigiini* by their long, filiform, or setaceous antennæ and by the flat mesosternum.

Twelve genera have been recognized, distinguishable as follows:

TABLE OF GENERA.

Front wings without an areolet.
Face normal, unarmed 2
Face armed with a tooth.
Disco-cubital nervure not angularly broken; transverse median nervure in hind wings angularly broken at the middle; abdomen petiolate.
(641) *Gravenhorstia* Boie = *Odontopsis* Förster.
2. Disco-cubital nervure usually angularly broken *with* a stump of a vein or a trace of such a vein 3
Disco-cubital nervure *not* angularly broken, straight or bent, *without* a trace of a stump of a vein 4
3. Second abdominal segment with the spiracles placed at the middle; metanotum *not* completely areolated, usually with one or two transverse carinæ; claws pectinate.
Labium abnormally lengthened 12
Labium normal, not lengthened.
Transverse median nervure in front wings interstitial, or nearly, with the basal nervure, in the hind wings obtusely angularly broken *at* or *near* the middle; first abcissa of radius normal, *not* swollen at base ..... (642) *Ophion* Gravenhorst.
Transverse median nervure in front wings *not* interstitial with the basal nervure, originating a little before it, in hind wings broken *below* the middle at the basal third, or at least far below the middle; first abcissa of radius thickened or swollen towards the base. (Hawaii.)
(643) *Pleuroneurophion* Ashmead, new genus.
(Type, *Pleuroneurophion hawaiensis* Ashmead, manuscript.)
4. Transverse cubital nervure straight, in a pointed angle with the cubitus, the latter originating from the apex of the disco-cubital cell.
Claws pectinate 5
Claws simple, *not* pectinate 11

5. Disco-cubital cell *with* one or more dark-colored blisters..... 10
Disco-cubital cell normal, *without* dark-colored blisters.
Transverse median nervure in hind wings broken *above* the middle..... 6
Transverse median nervure in hind wings broken *at* or *above* the middle . 7
6. Clypeus anteriorly subangularly pointed; median and submedian cells in front wings equal; ocelli not large, separated from each other and the eyes; eyes not extending clearly to the base of the mandibles, always with a space between.....(644) *Thyreodon* Brullé.
Clypeus anteriorly *not* subangularly pointed; median cell longer than the submedian; ocelli large, touching each other or very close and also close to the eye margin; eyes very large, extending clear to the mandibles and emarginate within, opposite the antennæ.
(645) *Athyreodon* Ashmead, new genus.
(Tpye, *Athyreodon thoracicus* Ashmead, manuscript.)
7. Clypeus truncate, or very slightly rounded anteriorly.
Submedian cell as long or a little longer than the median, rarely a little shorter; first recurrent nervure *not* interstitial, originating *before* the discoidal nervure; metathorax with one or two transverse carinæ. 9
Submedian cell a little shorter than the median; first recurrent nervure interstitial or very nearly with the discoidal or second transverse median nervure; metathorax short, with a transverse carina near base, the posterior face rugulose, smooth or coriaceous..... 8
8. Abdomen longer than the head and thorax united, but never twice as long.
Disco-cubital nervure originating from, or *interstitial* with, the discoidal nervure; transverse median nervure in hind wings broken at a right angle much *below* the middle; abdomen subcompressed, fusiform, the ovipositor very short, *not* projecting beyond the tip of the abdomen; posterior face of metathorax rugose. (Hawaii.)
(646) *Banchogastra* Ashmead, new genus.
(Type, *Banchogastra nigra* Ashmead, manuscript.)
Disco-cubital nervure originating a little *before* the discoidal nervure, never interstitial with it; transverse median nervure in hind wings obtusely angularly broken at or near the middle; abdomen strongly compressed, the ovipositor as long or nearly as long as the abdomen; posterior face of metathorax smooth or nearly. (Hawaii.)
(647) *Pycnophion* Ashmead, new genus.
(Type, *Pycnophion molokaiensis* Ashmead, manuscript.)
9. Abdomen fully twice as long as the head and thorax united or even still longer.
(648) *Eremotylus* Förster.
10. Transverse median nervure in hind wings broken far *below* the middle.
(649) *Enicospilus* Curtis.
11. Transverse median nervure in hind wings straight, *not* broken; metanotum *with* two basal areas..... (650) *Ophionopterus* Brullé.
Transverse median nervure in hind wings broken near the middle; metanotum *without* areas.....(651) *Remisia* Cameron.
12. Submedian cell a little longer than the median, the transverse median nervure in hind wings broken slightly *above* the middle; head buccate; abdomen rather thick and stout, subcompressed toward apex.
(652) *Agathophiona* Westwood.

Tribe III. NOTOTRACHINI.

1868. *Trachynotoidæ*, Family 2, Förster, Verh. d. naturh. Ver. pr. Rheinl., XXV, pp. 140 and 147.
1887. *Trachynotina*, Tribus, Thomson, Opus. Ent., XI, pp. 1048.

1894. *Trachynotini*, Tribe II, ASHMEAD, Proc. Ent. Soc. Wash., III, p. 277.
1897. *Trachydermatini* DAVIS, Trans. Am. Ent. Soc., XXIV, p. 195.
1900. *Nototrachini*, Tribe III, ASHMEAD, Smith's Insects of New Jersey, p. 580.

This group is the only one in the subfamily *Ophioninæ* having but a *single* apical spur to the middle tibiæ, all the others being armed with two spurs. It also contains a genus with only one recurrent nervure—as in the family *Braconidæ*—namely, *Pharsalia* Cresson.

This curious genus is extremely rare and is, without doubt, identical with *Ophionellus* Westwood described from Mexico, and placed in the family *Evaniidæ*.

Only three genera fall into this tribe as follows.

TABLE OF GENERA.

Second recurrent nervure present, distinct 2
Second recurrent nervure wanting.
Metathorax long, sloping off posteriorly and produced into a slight neck beyond the insertion of hind coxæ, coarsely rugose, exareolated, but with a median longitudinal sulcus.....(653) *Pharsalia* Cresson = *Ophionellus* Westwood.
2. Metanotum exareolated; antennæ slender, filiform; second recurrent nervure received *before* the transverse cubital nervure.
(654) *Nototrachys* Marshall = *Trachynotus* Gravenhorst.
Metanotum areolated at base; antennæ somewhat thickened; second recurrent nervure received *behind* the transverse cubital nervure.
(655) *Eugnomus* Förster.

Tribe IV. ANOMALINI.

1868. *Anomaloidæ*, Family 1, FÖRSTER, Verh. d. naturh. Ver. pr. Rheinl., XXV, pp. 140 and 145.
1887. *Anomalina* THOMSON, Opus. Ent., XI, p. 1048.
1894. *Anomalonini*, Tribe I, ASHMEAD, Proc. Ent. Soc. Wash., III, p. 277.
1900. *Anomalini*, Tribe IV, ASHMEAD, Smith's Insects of New Jersey, p. 580.

This tribe, as well as those which are to follow, has two apical spurs on the middle tibiæ and two recurrent nervures in the front wings. The second recurrent nervure joins the cubitus *behind* the first transverse cubitus, or it is at the most interstitial, but never joins the cubitus before the first transverse cubitus.

These characters readily separate this and the following tribes from the *Helwigiini*, the *Ophionini*, and the *Nototrachini*.

The *Anomalini* are, however, separated from all the other tribes, except the *Campoplegini*, by the metathorax being produced at apex into a distinct neck that extends beyond the insertion of the hind coxæ. From the *Campoplegini* they are separated by the much longer and more strongly compressed abdomen, by the petiole being only slightly and gradually thickened posteriorly, never abruptly swollen, and by the hind tarsi being most frequently, although not always, distinctly incrassated or much thickened, especially in the males.

Sixteen genera fall into this tribe, distinguishable by the aid of the following table:

TABLE OF GENERA.

Front wings *without* an areolet; hind femora beneath normal, unarmed 2
Front wings *with* an areolet; hind femora beneath toward apex *armed* with a tooth; abdomen long, strongly compressed .....(656) *Ephosoma* Cresson.

2. Claws pectinate 9
Claws simple, *not* pectinate.
Labrum prominent, more or less projecting 8
Labrum *not* prominent, entirely covered by the clypeus.
Transverse median nervure in hind wings straight, *not* broken 3
Transverse median nervure in hind wings distinctly broken 4

3. Disco-cubital nervure interstitial *with* the discoidal nervure, the third discoidal cell therefore pointed at base; second discoidal cell not twice as wide at apex as at base; hind tibiæ lengthened.
(657) *Agrypon* Förster.
Disco-cubital nervure *not* interstitial with the discoidal nervure, the third discoidal cell not pointed at base; second discoidal cell twice as wide at apex as at base, or nearly; hind tibiæ short.(658) *Atrometus* Förster.

4. Second recurrent nervure interstitial or *very nearly*, with the transverse cubitus, the first abscissa of cubitus wanting or very short 6
Second recurrent nervure *not* interstitial, the first abscissa of the cubitus distinct 5

5. Discoidal cell at base narrower than the length of the transverse median nervure, or the width of second discoidal cell at base; transverse median nervure in hind wings broken *above* the middle.
Eyes hairy; mesonotal furrows wanting.
(659) *Therium Curtis*=*Trichomma* Wesmael.
Eyes bare; mesonotal furrows distinct .....(660) *Labronychus* Förster.
Discoidal cell at base as wide or wider than the length of the transverse median nervure.
Clypeus anteriorly broadly curved outwardly and rather deeply emarginate so as to appear bilobed; transverse median nervure in hind wings obtusely angularly broken *above* the middle.
(661) *Schizoloma* Wesmael=*Schizopoma* Förster.
Clypeus quite differently formed, not bilobed; transverse median nervure in hind wings broken *at* or a little *below* the middle.
(662) *Anomalon* Gravenhorst.

6. Base of third discoidal cell as wide or wider than the length of the transverse median nervure 7
Base of third discoidal cell shorter, *not* so wide as the length of the transverse median nervure.
Clypeus anteriorly produced into a point .....(663) *Laphyctes* Förster.
Clypeus anteriorly rounded, *not* pointed .....(664) *Barylypa* Förster.

7. Submedian cell longer than the median, the transverse median nervure originating *beyond* the basal nervure.
Postscutellum *with* a middle carina; clypeus anteriorly normal, or at most subtriangular; transverse median nervure in hind wings broken at about the middle; metanotum without a middle sulcus.
(665) *Sympratis* Förster.
Postscutellum rugose; clypeus anteriorly triangularly acute.
(666) *Acanthostoma* Kriechbaumer.

Submedian and median cells equal, or very nearly, the transverse median nervure being interstitial or nearly with the basal nervure; postscutellum normal ..... (667) *Erigorgus* Förster.

8. Clypeus at apex truncate; basal joint of hind tarsi about twice as long as the second; transverse median nervure in hind wings broken before the middle ..... (668) *Exochilum* Wesmael.

Clypeus at apex rounded; basal joint of hind tarsi about four times as long as the second ..... (669) *Heteropelma* Wesmael.

9. Frons normal, unarmed 10

Frons medially armed with a sharp ridge, which below becomes more or less cone-shaped; transverse median nervure in hind wings broken *below* the middle ..... (670) *Aphanistes* Förster.

10. Scutellum laterally highly and sharply margined; transverse median nervure in hind wings broken *above* the middle, without a stump of a nervure ..... (671) *Camposcopus* Förster.

Scutellum laterally *not* highly margined; transverse median nervure in hind wings broken *above* the middle, with a stump of a vein which extends forward toward the margin of the wing.

(672) *Habronyx* Förster.

Tribe V. CAMPOPLEGINI.

1868. *Campoplegoidæ*, Family 8, Förster, Verh. d. naturh. Ver. pr. Rheinl., XXV, pp. 141 and 150.

1887. *Campoplegina*, Tribus, Thomson, Opus. Ent., XI, p. 1049.

1894. *Campoplegini*, Tribe VIII, Ashmead, Proc. Ent. Soc. Wash., III, p. 277.

1890. *Campoplegini*, Tribe V, Ashmead, Smith's Insects of New Jersey, p. 581.

The insects falling in this tribe, in metathoracic and venational characteristics, are most closely allied to the *Anomalini*, and many of them are easily confused with those of that tribe, since there is no sharp divisional character known.

The differences noted in the mesonotum (usually the absence of parapsidal furrows), the shorter, less distinctly (rarely strongly) compressed abdomen, the shape of the petiole, and the normally thickened, rarely incrassated, hind tarsi, must therefore be depended upon to separate them.

Sixty-five genera have been recognized in the group, most of which occur in our fauna. At present many of these genera are represented by described species wrongly placed in *Limneria* and allied genera.

The following table will enable the student to recognize most of the genera:

TABLE OF GENERA.

Metathoracic spiracles linear, elliptic or strongly ovate 2

Metathoracic spiracles round or broadly short-oval 5

2. Front wings *with* an areolet 3

Front wings *without* an areolet.

Eyes more or less emarginate within ..... (673) *Charops* Holmgren.

3. Abdomen *not* strongly compressed from the sides of the second segment 4

Abdomen strongly compressed from the sides of the second segment; areolet large, sessile, or petiolate ..... (674) *Campoplex* Gravenhorst.

4. Tibial spars very long, hardly shorter than the first joint of tarsi.
(675) *Echthronomas* Förster.
Tibial spars distinctly shorter that the first joint of tarsi.
(676) *Zachresta* Förster.
5. Clypeus distinctly separated or at least separated by deep-grooved lines at the sides 6
Clypeus *not* at all separated.
Front wings *without* an areolet; eyes subemarginate within; claws armed with stout, stiff bristles.....(677) *Bosmina* Cameron.
Front wings *with* an areolet; eyes normal, not at all emarginate within.
(678) *Amorphota* Förster.
6. Eyes bare..... 9
Eyes either faintly or distinctly hairy; face in female narrowed anteriorly... 7
7. Wings *with* an areolet..... 8
Wings *without* an areolet.
Metathorax completely areolated, the areola hexagonal; first abdominal segment striate, smooth only at base; eyes very large, extending to base of mandibles; sheaths of ovipositor thickened medially.
(679) *Thymaris* Förster.
8. Eyes indistinctly hairy; metathorax areolated, the areola and the petiolar area distinctly separated; face narrowed in both sexes; petiole not smooth; ovipositor very short, not extending beyond tip of abdomen.
(680) *Symplecis* Förster.
Eyes distinctly hairy; metathorax *not* areolated, or if areolated the areola and the petiolar area confluent, ovipositor prominent, projecting beyond tip of abdomen.
Metathorax areolated, but with the areola and the petiolar area confluent; transverse median nervure in front wings interstitial with the basal nervure; petiole smooth.....(681) *Cymodusa* Holmgren.
Metathorax *not* areolated; transverse median nervure in front wings originating before the origin of the basal nervure; petiole *not* smooth.
(682) *Olethrodotis* Förster.
9. Clypeus anteriorly truncate or slightly rounded, *never* pointed or lengthened, *without* a median tooth..... 10
Clypeus anteriorly pointed or lengthened, *with* a median tooth; areolet distinctly petiolated; transverse median nervure in hind wings *not* distinctly broken; metathoracic spiracles short oval.
(683) *Sagarites* Holmgren.
10. Abdomen not much compressed, but gradually fusiformly thickened toward apex 16
Abdomen, especially toward apex, much compressed, *not* fusiformly thickened.
Areolet entirely wanting..... 15
Areolet present..... 11
11. Abdomen strongly compressed, entirely smooth, the sutures of the segments very fine; female.....(684) *Angitia* Holmgren.
Abdomen not entirely smooth, the sutures of the segments distinct.
Metathorax exareolate or with the areola *not* completely closed by carinæ, open behind..... 12
Metathorax areolated, or with the areola completely closed by carinæ.
Claws simple.....(685) *Rhythmonotus* Förster.
Claws pectinate .....(686) *Trathala* Cameron.
12. Transverse median nervure in hind wings *not* broken, or broken *below* the middle 13

Transverse median nervure in hind wings broken *at* or *above* the middle; areolet petiolate; transverse median nervure in front wings interstitial with the basal nervure; inner spur of hind tibiæ very long.
(687) *Casinaria* Holmgren.

13. Disco-cubital nervure *not* angularly broken, *without* a stump of a vein..... 14
Disco-cubital nervure angularly broken, *with* a stump of a vein.
Metanotum broadly longitudinally impressed, the areola and petiolar area confluent..... (688) *Campotrephus* Förster.

14. Joints 4 and 5 of hind tarsi of an *equal* length; claws pectinate; metathorax long, sloping from base of scutellum and produced much beyond the insertion of hind coxæ; abdomen very long.
(689) *Horogenes* Förster.
Joints 4 and 5 of hind tarsi of an *unequal* length.
Metathorax *without* carinæ; longer spur of hind tibiæ in female nearly as long as the basal joint of their tarsi..... (690) *Alcima* Förster.
Metathorax short, *with* delicate carinæ; longer spur of hind tibiæ about one-third shorter than the basal joint; claws with strong teeth at base.
(691) *Hyposoter* Förster.

15. Metathorax exareolated; abdomen very elongate.....(692) *Podogaster* Brullé.

16. Malar furrow *not* deep, wanting or very indistinct..... 17
Malar furrow deep, distinct..... (693) *Gnathochorisis* Förster.

17. Front wings *with* an areolet..... 23
Front wings *without* an areolet.
Basal joint of hind tarsi more than one-third the length of tibiæ and *not* distinctly thicker than the following joints..... 18
Basal joint of hind tarsi not more than one-third the length of tibiæ and distinctly thicker than the following joints.
(694) *Eripternus* Förster.

18. Metathorax with the areola *closed* anteriorly..... 19
Metathorax with the areola *open* anteriorly.....(695) *Nepiesta* Förster.

19. Head quadrate or cubical..... 20
Head transverse, not cubical.
Claws toothed .....(696) *Zaporus* Förster.

20. Transverse median nervure in the hind wings *not* broken..... 21
Transverse median nervure in the hind wings broken.
Transverse median nervure in hind wings broken *below* the middle; third joint of the maxillary palpi *not* longer than the fourth; disco-cubital nervure *without* a stump of a vein.....(697) *Gonotypus* Förster.
Transverse median nervure in hind wings broken at the middle; third joint of the maxillary palpi longer than the fourth; disco-cubital nervure with a stump of a vein.....(698) *Dioratica* Förster.

21. Ovipositor *not* projecting beyond the tip of the abdomen 22
Ovipositor prominent, always projecting beyond the tip of the abdomen.
Marginal cell very broad, the angle formed by the two abscissæ of the radius almost a right angle.....(699) *Phædroctonus* Förster.
Marginal cell not very broad, the angle formed by the two abscissæ of the radius obtuse; claws pectinate.....(700) *Dioctes* Förster.

22. Metathorax with the basal lateral and the middle lateral areas completely separated.....(701) *Eriborus* Förster.
Metathorax with the basal lateral and the middle lateral areas confluent.
(702) *Nythobia* Förster.

23. Head transverse, *not* cubical, the temples not broad..... 26
Head quadrate, or cubical, the temples broad, as broad or broader than the eyes..... 24

24. Ovipositor extending beyond the tip of the abdomen 25
Ovipositor *not* extending beyond the tip of the abdomen.
Metathorax with the areola and the petiolar area confluent; transverse median nervure in hind wings *not* broken ...(703) *Olesicampa* Förster.
25. Transverse median nervure in hind wings straight, *not* broken; metathorax with the basal lateral and the middle lateral areas separated, the spiracles rather long, ovate; clypeus anteriorly bluntly toothed; claws pectinate or *with* several teeth basally..(704) *Rhimphoctona* Förster.
Transverse median nervure in hind wings broken *below* the middle; metathorax with the basal lateral and the middle lateral areas *not* or very indistinctly separated; clypeus anteriorly slightly rounded or medially slightly angulate; claws *without* teeth basally.
(705) *Pyracmon* Holmgren.
26. Radius distinctly angularly broken 27
Radius curved, *not* or scarcely angularly broken.
Claws *without* teeth.....(706) *Diadegma* Förster.
Claws *with* teeth.
Second abdominal segment with the thyridia lying close on its base.
(707) *Sinophorus* Förster.
Second abdominal segment with the thyridia lying somewhat away from its base.....(708) *Omoborus* Förster.
27. Spiracles of the first abdominal segment *not* prominent..... 28
Spiracles of the first abdominal segment prominent.....(709) *Ecphora* Förster.
28. Spiracles of the second abdominal segment placed distinctly *behind* or beyond the middle..... 29
Spiracles of the second abdominal segment placed *at* or *before* the middle... 31
29. Metathorax *not* coarsely rugulose, *with* carinæ, the basal lateral and the middle lateral areas sharply separated; ovipositor very prominent, long.. 30
Metathorax coarsely rugulose *without* carinæ, and with only the spiracular area apparent; claws pectinate or at least basally; ovipositor projecting somewhat beyond tip of the abdomen.....(710) *Anepheres* Förster.
30. Discoidal cell at base fully as wide or somewhat wider than the length of the transverse median nervure; longer spur of hind tibiæ longer than the second joint of their tarsi.....(711) *Idechthis* Förster.
Discoidal cell at base not so wide as the length of the transverse median nervure; longer spur of hind tibiæ *not* so long as the second joint of their tarsi.....(712) *Lathrostizus* Förster.
31. Transverse median nervure in hind wings angularly broken 32
Transverse median nervure in hind wings *not* angularly broken..... 38
32. Metathorax with the areola closed by a sharp carina and completely separated from the petiolar area..... 37
Metathorax with the areola and the petiolar area confluent, not separated.
Discoidal cell at base not twice as wide as the second discoidal at apex. 33
Discoidal cell at base twice or nearly twice as wide as the second discoidal cell at apex; ovipositor not projecting beyond tip of abdomen.
(713) *Lathroplex* Förster.
33. Second abdominal segment *not* twice as long as wide 34
Second abdominal segment twice as large as wide.....(714) *Omorgus* Förster.
34. Ovipositor projecting beyond the tip of the abdomen..... 35
Ovipositor *not* projecting beyond the tip of the abdomen.
Metathorax with the petiolar area at least twice as long as the areola and strongly excavated, the surrounding carinæ very sharply elevated; fifth joint of hind tarsi distinctly shorter than the third.
(715) *Pantropa* Förster.

Metathorax with the petiolar area *not* twice as long as the areola and *not* strongly excavated, the surrounding carinæ neither sharp nor much elevated; spurs of hind tibiæ nearly equal in length, but not quite half the length of the basal joint; fifth tarsal joint as long as the third ..... (716) *Asinamora* Förster.

35. Postpetiole pear-shaped; head seen from in front *not* rounded 36
Postpetiole *not* pear-shaped; head seen from in front rounded.
(717) *Nemeritis* Holmgren.

36. Areolet distinctly petiolate; metathorax with the basal area lengthened, rectangular ..... (718) *Synetæris* Förster.
Areolet sessile or subsessile; metathorax with the basal area very short, scarcely visible ..... (719) *Spudastica* Förster.

37. Stigma narrow from the middle to the base, and from the middle to the apex equally pointed and narrowed; areolet sessile.
(720) *Dolophron* Förster.
Stigma wide, obliquely truncate at apex; areolet sessile. (721) *Dimophora* Förster.

38. First abdominal segment *with* a sharp carina extending from each spiracle to apex of segment 39
First abdominal segment *without* a sharp carina extending from each spiracle to apex of segment 42

39. Second abdominal segment *not* twice as long as wide at the middle 40
Second abdominal segment twice as wide as long at the middle.
(722) *Nepiera* Förster.

40. Metathorax with the spiracular and middle lateral areas *separated* by a sharp carina; longer spur of hind tibiæ a little longer than half the length of the basal joint of tarsi 41
Metathorax with the spiracular and middle lateral areas *not* separated by a sharp carina; longer spur of hind tibiæ about three-fourths the length of the basal joint of tarsi ..... (723) *Hypothereutes* Förster.

41. The angle formed by the two abscissæ of the radius nearly a right angle; transverse median nervure in front wings originating far *beyond* the origin of the basal nervure; externo-median nervure in hind wings forming a *curve* with the transverse cubitus; ovipositor *not* exserted.
(724) *Phobocampa* Förster.
The angle formed by the two abscissæ of the radius very obtuse; transverse median nervure in front wings interstitial, or almost, with the basal nervure; externo-median nervure in hind wings forming *no* curve with the transverse cubitus, but an angle; second abdominal segment at apex *not* wider than long ..... (725) *Ischnoscopus* Förster.

42. Head seen from in front downward strongly lengthened 43
Head seen from in front downward *not* strongly lengthened 45

43. Externo-median nervure in hind wings *not* broken 44
Externo-median nervure in hind wings straight, but broken at the origin of the transverse median nervure ..... (726) *Rhexineura* Förster

44. Labial palpi strongly lengthened; last joint of hind tarsi *longer* than the third; ovipositor very long; spiracles of the second segment placed slightly beyond the middle ..... (727) *Bathyplectes* Förster.
Labial palpi *not* strongly lengthened; last joint of hind tarsi *not* longer than the third; ovipositor not longer than half the length of the abdomen; spiracles of second segment *not* placed beyond the middle.
(728) *Canidia* Holmgren.

45. Ovipositor prominent or very distinctly projecting beyond the tip of the abdomen 46
Ovipositor *not* or only slightly projecting beyond the tip of the abdomen, at the most subexserted 48

46. Abdomen in female only moderately compressed, *not* wholly smooth, the sutures distinct 47
Abdomen wholly smooth, the sutures of segments very fine, male (female abdomen strongly compressed, see p. 91) ..... (684) *Angitia* Holmgren.
47. Face in female narrower than the vertex, the eyes converging somewhat anteriorily toward the mouth; petiole a little longer than the hind coxæ ..... (729) *Meloboris* Holmgren.
Face in female *not* narrower than the vertex, the eyes *not* or very slightly converging anteriorly; petiole very distinctly longer than the hind coxæ.
Stigma wide ..... (730) *Tranosema* Förster.
Stigma *not* wide, narrow.
Postpetiole *without* lateral carinæ ..... (731) *Campoletis* Förster.
Postpetiole *with* distinct lateral carinæ ..... (732) *Limneria* Holmgren.
48. Recurrent nervure received by the areolet *before* the middle; antennæ ringed with white ..... (733) *Callidora* Förster.
Recurrent nervure received by the areolet *beyond* or behind the middle; antennæ *not* ringed with white, although sometimes with the flagellum pale toward the base 49
49. Last joint of hind tarsi shorter than the third; longer spur of hind tibiæ *not* two-thirds the length of the basal joint of tarsi 50
Last joint of hind tarsi as long as the third; longer spur of hind tibiæ about two-thirds the length of the basal joint of tarsi. (734) *Holcocremnus* Förster.
50. Metathorax at the most incompletely aerolated, with only the spiracular areas distinguishable by faint carinæ ..... (735) *Anilastus* Förster.
Metathorax distinctly or completely aerolated ..... (736) *Ameloctonus* Förster.

Tribe VI. PANISCINI.

1900. *Paniscini*, Tribe VI, ASHMEAD, Smith's Insects of New Jersey, p. 582.

This tribe is here characterized for the first time. It approaches nearest to the tribes *Mesochorini* and the *Banchini*. Förster placed most of the genera included in it among his family *Ophionoidæ*, a position not tenable, since the second recurrent nervure joins the cubital vein *beyond* the transverse cubitus and *not* before it, as in all genuine *Ophionini*.

From the *Mesochorini* it is separated by the position of the spiracles of the first abdominal segment, the different venation of the front wings, and the totally different genital characters of the males.

The characters made use of in my table of tribes ought to readily distinguish these insects, but other characters not mentioned there are the different facies of the head, the larger eyes, which are subemarginate or sinuate within, not distinctly entire, and the larger and more prominent ocelli.

Six genera have been placed in it, separable as follows:

TABLE OF GENERA.

Front wings *with* an areolet 2
Front wings *without* an areolet.
Scutellum convex, *not* margined laterally except at sides anteriorly or basally ..... (737) *Opheltoideus* Ashmead.
Type, *Opheltoideus johnsoni* Ashmead, manuscript.

2. Scutellum more or less margined laterally; cheeks and temples not broad.... 3
Scutellum *not* margined; cheeks and temples broad; second recurrent nervure joining the areolet beyond its middle.....(738) *Ophelles* Holmgren.
3. Transverse median nervure in hind wings broken *above* the middle; teeth of mandibles of an unequal length; clypeus separated 4
Transverse median nervure in hind wings broken *below* the middle; spiracles of first abdominal segment placed at or a little behind the middle; abdomen subcompressed; teeth of mandibles equal; clypeus *not* separated.
(739) *Cidaphus* Förster.
4. Upper tooth of mandibles longer than the lower; metathoracic spiracles elongate or linear; scape at apex deeply emarginate; second abscissa of radius curved at base.
Submedian cell longer than the median, the transverse median nervure uniting with the median vein beyond the origin of the basal nervure; disco-cubital nervure broken by a stump of a vein, or at least with a trace of one, rarely without .....(740) *Paniscus* Gravenhorst.
Submedian and median cells equal or very nearly, the transverse median nervure most frequently interstitial with the basal nervure; disco-cubital nervure *not* broken by a stump of a vein.
(741) *Parabates* Förster=*Parabatus* Thomson.
Upper tooth of mandibles shorter than the lower; metathoracic spiracles round; scape at apex only slightly emarginate; second abscissa of radius straight, *not* curved at base.....(742) *Absyrtus* Holmgren.

Tribe VII. BANCHINI.

1868. *Banchoidæ*, Family 9, Förster, Verh. d. naturh. Ver. pr. Rheinl., XXV, pp. 141 and 157.
1894. *Banchini*, Tribe IX, Ashmead, Proc. Ent. Soc. Wash., III, p. 277.
1900. *Banchini*, Tribe VII, Ashmead, Smith's Insects of New Jersey, p. 582.

The insects falling in this tribe, so far as the position of the spiracles of the first abdominal segment is concerned, agree with the *Paniscini*, but may be readily separated by the differences noted in my table of tribes: The sessile abdomen, the venation of the front wings, the straight second abscissa of the radius, which is never strongly curved at its origin, and by the absence of the parapsidal furrows.

To this tribe I have ventured to remove the genus *Lapton* Nees, placed by European authorities with the *Pimplini*, since it clearly belongs here and no where else.

Rhynchobanchus Kriechbaumer is placed here doubtfully, as a synonym of *Semnophrys* Förster, from the description alone.

The thirteen genera belonging to the tribe are separable as follows:

TABLE OF GENERA.

Front wings *with* an areolet 4
Front wings *without* an areolet.
Transverse cubitus present 3
Transverse cubitus wanting 2
2. Abdomen compressed at the sides; disco-cubital nervure angularly broken.
(743) *Tropistes* Gravenhorst.
Abdomen *not* compressed at the sides; disco-cubital nervure *not* angularly broken .....(744) *Ithagenes* Förster.

3. Abdomen subcompressed at apex, the ovipositor subexserted; disco-cubital nervure *not* broken by a stump of a vein.
   Transverse median nervure *not* interstitial, the median cell longer than the submedian; mouth parts lengthened ..... (745) *Lapton* Nees.
4. Disco-cubital nervure *not* angularly broken, *without* a stump of a vein 6
   Disco-cubital nervure angularly broken, *with* a stump of a vein, or at least a trace of one 5
5. Metathorax *without* a distinctly separated petiolar area; mesonotum *not* trilobed.
   Head very broad, the forehead with a horn between the antennæ.
   (746) *Semnophrys* Förster. ? = *Rhynchobanchus* Kreichbaumer.
   Head not very broad, the forehead normal, without a horn.
   (747) *Exetastes* Gravenhorst.
6. Areolet sessile; mouth parts normal 7
   Areolet petiolate; mouth parts abnormal, the labium very elongate, forked at apex 11
7. Mesonotum *without* parapsidal furrows, the metathorax *without* a distinctly separated petiolar area 8
   Mesonotum *with* parapsidal furrows, the metathorax *with* a large, distinctly separated petiolar area; second recurrent nervure joining the areolet at its hind angle; clypeus narrow, transverse; ovipositor prominent.
   (748) *Xenochesis* Förster.
8. Areolet quadrangular.
   Last joint of maxillary palpi normal 9
   Last joint of maxillary palpi abnormal, knobbed; scutellum ending in a spine ..... (749) *Corynephanes* Wesmael.
9. Abdomen toward apex gradually acuminate, or pointed, with oblique furrows on segments 2 and 3 10
   Abdomen toward apex more or less compressed and widened ventrally; no oblique furrows on segments 2 and 3.
   Head normal, the labrum not elongate; claws in female pectinate.
   Scutellum at apex armed with a thorn ..(750) *Cidaphurus* Förster.
   Scutellum simple, unarmed ..... (751) *Banchus* Gravenhorst.
10. Claws in female with one or two teeth near the base .(752) *Ceratosoma* Cresson.
11. Mesonotum *without* parapsidal furrows; transverse median nervure in front wings *not* interstitial, the submedian cell slightly longer than the median ..... (753) *Agathobanchus* Ashmead, new genus.
    (Type, *Banchus æquatus* Say.)
    Mesonotum *with* parapsidal furrows; transverse median nervure in front wings interstitial with the basal nervure ..... (754) *Agathilla* Westwood,

Tribe VIII. MESOCHORINI.

*1868. *Mesochoroidæ*, Family 20, Förster, Verh. d. naturh. Ver. pr. Rheinl., XXV, pp. 143 and 170.
1892. *Mesochorini*, Tribe, Ashmead, Ent. News, III, p. 106.
1894. *Mesochorini*, Tribe X, Ashmead, Proc. Ent. Soc. Wash., III, p. 277.
1900. *Mesochorini*, Tribe VIII, Ashmead, Smith's Insects of New Jersey, p. 583.

The position of this tribe is somewhat uncertain. It comes evidently nearest to the *Paniscini*, although it is placed here after the *Banchini*.

The abdomen is distinctly petiolate and the tribe is at once separated from both of the above-mentioned tribes by the position of the

spiracles of the first abdominal segment, which are situated *at* or *beyond* the middle, never *before* the middle, and by the rather large rhomboidal areolet of the front wings.

The abdomen in the males terminates in two long, slender spines, a character found in no other tribe.

Only three genera are known, and all have been found in our fauna.

TABLE OF GENERA.

Vertex of head *not* narrowed, the lateral ocelli distant from the margin of the eye. 2
Vertex of head narrowed, the ocelli large, the lateral close to the margin of the eye.
Claws pectinate ..... (755) *Plesiophthalmus* Förster.
2. Claws pectinate; first abdominal segment *with* lateral carinæ extending backward from the spiracles; transverse median nervure in hind wings broken.
(756) *Astiphromma* Förster.
Claws simple; first abdominal segment *without* lateral carinæ from the spiracles; transverse median nervure in hind wings *not* broken.
(757) *Mesochorus* Gravenhorst.

Tribe IX. PORIZONINI.

1868. *Porizonoidæ*, Family 3, Förster, Verh. d. naturh. Ver. pr. Rheinl., XXV, pp. 141 and 147.
1894. *Porizonini*, Tribe III, Ashmead, Proc. Ent. Soc. Wash., III, p. 277.
1900. *Porizonini*, Tribe IX, Ashmead, Smith's Insects of New Jersey, p. 583.

With this tribe begins a series of tribes easily separated from those previously defined by the shape of the stigma, which is large and broad, either triangular or ovate, but never narrow-lanceolate, although otherwise approaching nearest to, or showing affinities with, the *Anomalini* and the *Campoplegini*.

Dr. Förster called these tribes families and separated them upon very slight characters. For example, the tribe *Porizonini* was separated from the three which follow by the middle vein in the hind wings being wanting or obliterated at its base or origin, while the basal nervure is distinctly thickened at its apex or where it unites with the costa or parastigma.

In our fauna are several species described under the genus *Cremastus*, with the above characters, and which evidently belong to Förster's genus *Temelucha*, in this tribe.

The genus *Orthopelma* Taschenberg, placed by European authorities in the tribe *Hemitelini*, is evidently identical with *Pröedrus* Förster, and is placed here on account of the position of the spiracles of the first abdominal segment.

Nineteen genera have been recognized in this tribe and are tabulated below:

TABLE OF GENERA.

First abdominal segment with the spiracles normal, *not* prominent 2
First abdominal segment with the spiracles very prominent ... (758) *Probles* Förster.
2. Spiracles of first abdominal segment placed *behind* the middle, the abdominal segments not of an equal width throughout 3

Spiracles of the first abdominal segment placed *before* the middle, the abdominal segments of an equal width throughout, or nearly.
(759) *Orthopelma* Taschenberg=*Prodrus* Förster.

3. Hind tarsi much lengthened, the basal joint shorter than the two following united; all femora and tibiæ swollen 4
Hind tarsi *not* much lengthened, the basal joint somewhat longer than the two following united; *not* all the femora and tibiæ swollen 5

4. Hind tibiæ hardly as long as the basal joint of tarsi or clearly shorter.
(760) *Baryenemis* Förster.
Hind tibiæ fully as long or longer than the basal joint of tarsi.
(761) *Porizon* Gravenhorst.

5. Frons *not* narrowed; eyes sometimes large, but *not* semiglobose 6
Frons narrowed; eyes very large, semi-globose.
Metathoracic spiracles placed somewhat far from the metapleura.
(762) *Allophrys* Förster.

6. Second discoidal cell entirely or almost entirely closed at apex 7
Second discoidal cell, by a break in the transverse nervure, quite open at apex.
Discoidal transverse nervure wanting ..... (763) *Sathropterus* Förster.
Discoidal transverse nervure present ..... (764) *Aneuclis* Förster.

7. Hind femora and tibiæ *not* thickened; metathorax with the petiolar area, if present, *longer* than half the length of the metanotum 8
Hind femora and tibiæ somewhat thickened; metathorax long, with the petiolar area shorter than half the length of the metanotum.
(765) *Leptopygus* Förster.

8. Metanotum areolated 9
Metanotum *not* areolated, rugose or rugulose ..... (766) *Gonolochus* Förster.

9. Metathoracic spiracles very close to the pleural carina 10
Metathoracic spiracles somewhat distant from the pleural carina.
Maxillary palpi abnormally lengthened, extending nearly to the middle coxæ ..... (767) *Dolichopselephus* Ashmead.
Maxillary palpi normal; metanotum long ..... (768) *Temelucha* Förster.

10. Mesonotum *with* deep parapsidal furrows; carinæ inclosing the petiolar area very sharp 11
Mesonotum *without* parapsidal furrows 12

11. Antennæ stout, 25-jointed, joints 14 to 20 wider than long; cubital transverse nervure in hind wings a little longer than the first abscissa of the median vein; ovipositor very short ..... (769) *Epistathmus* Förster.
Antennæ *not* stout, 31-jointed, the penultimate joint wider than long; cubital transverse nervure in hind wings shorter than the first abscissa of the median vein; ovipositor longer than the abdomen.
(770) *Diaparsis* Förster.

12. Antennæ shortened, 20-jointed or less 13
Antennæ lengthened, more than 20-jointed ..... (771) *Thersilochus* Holmgren.

13. Maxillary palpi not unusually long 14
Maxillary palpi very long ..... (772) *Heterocola* Förster.

14. Metanotum with the median lateral areas *not* smooth 15
Metanotum with the median lateral areas smooth ..... (773) *Ischnobatis* Förster.

15. Antennæ more than 13-jointed 16
Antennæ 13-jointed or less ..... (774) *Phradis* Förster.

16. Antennæ stout, the last joint longer than the two preceding joints united.
(775) *Entomus* Förster.
Antennæ not especially stout.
Stigma wide; base of discoidal cell longer than the apex of the second discoidal cell; hind wings with the first abscissa of radius much longer than the cubital tranverse nervure ..... (776) *Isurgus* Förster.

Stigma rather narrow; base of discoidal cell *not* or hardly longer than the apex of the second discoidal cell; hind wings with the first abscissa of radius as long or somewhat longer than the cubital transverse nervure. (777) *Astrenis* Förster.

Tribe X. PRISTOMERINI.

1868. *Pristomeroidæ*, Family 4, Verh. d. naturh. Ver. pr. Rheinl., XXV, pp. 141 and 149.
1894. *Pristomerini*, Tribe IV, Ashmead, Proc. Ent. Soc. Wash., III, p. 277.
1900. *Pristomerini*, Tribe X, Ashmead, Smith's Insects of New Jersey, p. 584.

This tribe differs from the foregoing by having the middle vein in the hind wings *distinct*, entire, *not* obliterated toward the base. In this character it agrees with the *Cremastini* and the *Plectiscini*, but is separated from both by the hind femora being armed with a strong tooth beneath, a little beyond the middle or toward their apices.

Only two genera have been recognized, one being characterized here for the first time, as follows:

TABLE OF GENERA.

Metanotum completely areolated, the median and the petiolar areas always separated; stigma large, wide; areolet wanting.
Hind femora considerably swollen, with a large tooth beneath a little beyond the middle, followed by some small or minute teeth; metanotum with the areola hexagonal; transverse median nervure in hind wings slightly angularly broken *below* the middle .....(778) *Pristomerus* Holmgren.
Hind femora scarcely swollen, with a tooth beneath near the apex; metanotum with the areola pentagonal; transverse median nervure in hind wings straight, *not* broken .....(779) *Pristomeridia* Ashmead, new genus. (Type, *Porizon agilis* Cresson.)

Tribe XI. CREMASTINI.

1868. *Cremastoidæ*, Family 5, Förster, Verh. d. naturh. Ver. pr. Rheinl., XXV, pp. 141 and 149.
1887. *Cremastina*, Tribus, Thomson, Opus. Ent., XI, p. 1048.
1894. *Cremastini*, Tribe V, Ashmead, Proc. Ent. Soc. Wash., III, p. 277.
1900. *Cremastina*, Tribe XI, Ashmead, Smith's Insects of New Jersey, p. 584.

Differs from the *Pristomerini* in having simple, unarmed hind femora, and from the *Plectiscini*, in the character of the head, which is larger, by the clypeus being neither convex nor compressed from the sides, and by the normally formed hind tibiæ.

Most of the species placed in our lists under the genus *Cremastus* do not belong to it, but should be placed in the genus *Temelucha* Förster, in the tribe *Porizomini*.

Only two genera have been recognized, as follows:

TABLE OF GENERA.

Head not wider than the thorax; clypeus distinctly separated from the face; radius originating from the middle of the stigma .....(780) *Cremastus* Gravenhorst.
Head wider than the thorax; clypeus separated from the face at the sides only; radius originating from *behind* the middle of the stigma..(781) *Demophorus* Thomson.

Tribe XII. PLECTISCINI.

1868. *Plectiscoidæ*, Family 22, Förster, Verh. d. naturh. Ver. pr. Rheinl., XXV, pp. 143 and 170.
1871. *Plectiscoidæ* Förster, Verh. d. naturh. Ver. pr. Rheinl., XXVII, p. 71.
1888. *Plectiscina*, Tribus, Thomson, Opus. Ent., XII, p. 1170.
1894. *Plectiscini*, Tribe XI, Ashmead, Proc. Ent. Soc. Wash., III, p. 277.
1897. *Plectiscini*, Tribe, Davis, Trans. Am. Ent. Soc., XXIV, p. 240.
1900. *Plectiscini*, Tribe XII, Ashmead, Smith's Insects of New Jersey, p. 585.

This tribe, as at present defined, is scarcely a natural minor group, since it comprises several discordant genera, with affinities allying them to genera in the *Cryptinæ*, the *Tryphoninæ*, and the *Pimplinæ*. Davis, without stating his reasons for so doing, placed the group with the *Tryphoninæ*. This is clearly an unnatural position for the majority of the genera, the only genus which could be removed to that group being *Pammicra* Förster, and I have tabulated that with the tribe *Tryphonini*. To me this tribe, as at present defined, comes nearest to the *Porizonini*, and is here placed at the end of the Ophionid series as less liable to create a disturbing element in the present arrangement of the subfamilies and tribes than if placed elsewhere.

Thirty-one genera are placed in this tribe, separable as follows:

TABLE OF GENERA.

Labrum *not* or scarcely exserted 4
Labrum more or less widely exserted.
  Metanotum *without* areas 2
  Metanotum *with* areas, or at least always with an areola 3
2. Front wings *without* an areolet ..... (782) *Adelognathus* Holmgren.
  Front wings *with* an areolet ..... (783) *Synæma* Förster.
3. Labrum at apex *deeply* emarginate; areolet in front wings *absent*; abdominal segments two and three, quite smooth ..... (784) *Notomeris* Förster.
  Labrum at apex *not* emarginate; areolet in front wings *present;* abdominal segments two and three, *not* smooth ..... (785) *Cnemischys* Förster.
4. Ovipositor most frequently prominent, *not* hook-like, curved at apex 5
  Ovipositor *not* prominent, but hook-like, curved at apex.
    Front wings *without* an areolet ..... (786) *Grypocentrus* Ruthe.
    Front wings *with* an areolet ..... (787) *Campothreptus* Förster.
5. Front wings *with* an areolet 6
  Front wings *without* an areolet 12
6. Head with the vertex not especially broad, the cheeks *not* buccate; areolet not transverse 7
  Head with the vertex broad, the cheeks buccate; areolet transverse, broadly sessile ..... (788) *Macrochasmus* Thomson.
7. Face *not* narrowed toward the mouth 8
  Face narrowed toward the mouth.
    Clypeus convex, separated from the face by a faint furrow. (789) *Catastenus* Förster.
    Clypeus almost flat or very feebly convex ..... (790) *Symplecis* Förster.
8. Metanotum areolated 9
  Metanotum *not* areolated ..... (791) *Aperileptus* Förster.

9. Clypeus convex and at the sides anteriorly more or less compressed 11
Clypeus quite flat.
Cheeks separated from the face by a deep furrow; metanotum with 3 or 5 areas 10
Cheeks *not* separated from the face by a deep furrow; metanotum with 6 areas; antennæ ending in a club ..... (792) *Holomeristus* Förster.
10. Clypeus transverse; metanotum with 3 areas at base ..... (793) *Entypoma* Förster.
Clypeus subrhomboidal; metanotum with 5 areas at base.
(794) *Blapticus* Förster.
11. Face separated from the clypeus by quite a broad sharp furrow, but without a transverse furrow, the clypeus very small, striate, much compressed from the sides, with large lateral foveæ ..... (795) *Dialipsis* Förster.
Face separated from the clypeus by a transverse furrow.
Abdomen distinctly, longly petiolate and compressed toward apex, the petiole and second segment basally finely rugulose or coriaceous; face smooth, polished, not tubercular ..... (796) *Plecticus* Gravenhorst.
Abdomen subsessile, depressed, polished, in outline oval; face punctate and medially tubercular ..... (797) *Cyrtocentrus* Provancher.
12. First joint of the flagellum as long as or longer than the second 13
First joint of the flagellum shorter than the second.
Second flagellar joint in male emarginate ..... (798) *Miomeris* Förster.
Second flagellar joint in male simple ..... (799) *Aniseres* Förster.
13. Flagellar joints 5–7, in male strongly emarginate; metathorax at apex perpendicularly truncate; hind coxæ granulated.
(800) *Helectes* Haliday = *Idioxenus* Förster.
Flagellar joints 5–7 in male *not* emarginate; metathorax in female not truncate posteriorly; hind coxæ *not* granulated.
Metanotum *not* separated into two divisions by an impressed cross line before the middle 14
Metanotum separated into two divisions by an impressed cross line before the middle ..... (801) *Dicolus* Förster.
14. Vertex *not* separated from the occiput by a transverse ridge, open at the middle 15
Vertex separated from the occiput by a transverse ridge 16
15. Stigma broad; third flagellar joint emarginate ..... (802) *Apoclima* Förster.
Stigma narrow; third flagellar joint simple ..... (803) *Ateleute* Förster.
16. Stigma *not* narrow 17
Stigma very narrow ..... (804) *Polyaulon* Förster.
17. Metanotum at base distinctly areolated 19
Metanotum at base *not* distinctly and regularly areolated.
Antennæ 30-jointed or more 18
Antennæ less than 30-jointed ..... (805) *Hemiphanes* Förster.
18. Abdomen very strongly compressed from the fourth segment.
(806) *Myriarthus* Förster.
Abdomen flat, *not* compressed from the sides, but spatulate.
(807) *Megastylus* Schiödte.
19. Last tarsal joint normal 20
Last tarsal joint very much thickened ..... (808) *Symphylus* Förster.
20. Transverse median nervure in hind wings distinctly broken 21
Transverse median nervure in hind wings *not* broken.
First flagellar joint longer than the second; ovipositor projecting beyond the tip of abdomen ..... (809) *Eusterinx* Förster.
First flagellar joint equal to the second or very slightly shorter; ovipositor *not* projecting beyond the tip of abdomen ..... (810) *Pantisarthrus* Förster.

21. First abscissa of the radius quite straight, forming with the second a sharp angle; transverse median nervure in hind wings broken, with a distinct process.....(811) *Entelechia* Förster.

First abscissa of the radius distinctly curved and *not* forming a sharp angle with the second; transverse median nervure in hind wings broken, *without* a process.

Hind femora and tibiæ thickened; external median area prominently toothed.....(812) *Gnathochorisis* Förster.

Hind femora and tibiæ *not* thickened; external median area *not* prominently toothed.....(813) *Proclitus* Förster.

Family XXVII. ALYSIIDÆ.

1811. *Ichneumonides adsciti* Nees (part) Der Ges. naturf. Fr. z. Berl. Mag., V, p. 3.
1815. *Alysiada* Leach, Edinb. Encyclop., IX, p. 143.
1835. *Exodontes* Wesmael, Nouv. Mém. Acad. Sci. Brux., IX, p. 11.
1838. *Braconidæ*, Family 4 (part), Haliday, Ent. Mag., V, p. 4.
1839. *Ichneumonidæ*, Family 6 (part), Haliday, Hym. Synop., p. ii.
1887. *Exodontes*, Div. V, Cresson, Syn. Hym. North America, p. 62.
1888. *Exodontes* Marshall, Species Hym. des Braconides, I, p. 67.
1900. *Alysiidæ*, Family LXXVII, Ashmead, Smith's Insects of New Jersey, p. 585.

This family is composed of a great number of minute, or at least small-sized, ichneumon flies that attack almost exclusively the larvæ of Dipterous insects.

It has been treated by most authorities as a group, or two groups, in the family *Braconidæ*, with which the majority of the species agree in their venational characters—the front wings being without a costal cell and having but a single recurrent nervure, the first.

In 1894 I, however, described my genus *Lysiognatha*, an insect agreeing closely with the *Alysiinæ* in its cephalic, mandibular, and other characters, but differing from all known genera in that group by having *two* distinct recurrent nervures. This discovery upset the division between the *Ichneumonidæ* and the *Braconidæ*, based upon the number of the recurrent nervures, and I am therefore of the opinion that the *Alysiinæ*, *Dacnusinæ*, and the *Lysiognathinæ* should be treated as a distinct family from the *Ichneumonidæ* and the *Braconidæ*, since the family is readily distinguished from both by the peculiar attachment of the mandibles.

The three subfamilies noted may be separated as follows:

TABLE OF SUBFAMILIES.

Front wings with only *one* recurrent nervure 2

Front wings with *two* recurrent nervures..... Subfamily I. LYSIOGNATHINÆ.

2. Front wings with *three* cubital cells, or if with two only the *first* transverse cubitus is wanting; apterous forms occasionally..... Subfamily II. ALYSIINÆ.

Front wings with *two* cubital cells, the *second* transverse cubitus wanting, the first transverse cubitus always present; no apterous forms.

Subfamily III. DACNUSINÆ.

Subfamily I. LYSIOGNATHINÆ.

1895. *Lysiognathinæ*, Subfamily I, Proc. Ent. Soc. Wash., III, p. 277.

This subfamily is separated from the *Alysiinæ*, with which it agrees in having *three* cubital cells, by having *two* distinct recurrent nervures.

It is represented at present by a single genus distinguished as follows:

Head subquadrate, seen from in front wider than long, the vertex bilobed; clypeus narrowly transverse; mandibles widely separated, bidentate at apex, and spreading wide open as in *Alysia;* abdomen sessile, in outline oblong-oval, subcompressed at apex and ending in a prominent ovipositor; second cubital cell in front wings small, oblique, subrhomboidal, similar to the areolet in *Pimpla.*

(814) *Lysiognatha* Ashmead.

Subfamily II. ALYSIINÆ.

1862. *Alysioidæ*, Family 25, Förster, Verh. d. naturh. Ver. pr. Rheinl., XIX, pp. 229 and 263.
1885. *Alysiides* Marshall, Tr. Ent. Soc. Lond., p. 11.
1887. *Alysiinæ* Cresson, Syn. Hym. North America, p. 62.
1888. *Alysiidæ* Marshall, Species des Hym. des Braconides, I, p. 67.
1900. *Alysiinæ*, Subfamily II, Ashmead, Smith's Insects of New Jersey, p. 585.

The wings in this tribe have only *one* recurrent nervure and three cubital cells, the latter being the only character to distinguish it from the *Dacnusinæ.* In it are included all wingless or subapterous forms.

Two minor groups or tribes have been recognized, distinguished by venational characters, as follows:

TABLE OF TRIBES.

Winged forms 2
Wingless forms ..... Tribe II. Allœini
2. Front wings with a large, distinct stigma, which is triangular, oval, or subovate, never linear or narrowly lanceolate; hind wings *with* a recurrent nervure, and also most frequently with a radius ..... Tribe I. Alysiini.
Front wings with the stigma linear or narrowly lanceolate, never broad; hind wings *without* a recurrent nervure and usually *without* a radius.
Tribe II. Allœni.

Tribe I. ALYSIINI.

In this tribe are placed all winged forms having a large, distinct, triangular, oval, or subovate stigma, never with a linear or narrowly-lanceolate stigma, and always having a more or less distinct recurrent nervure in the hind wings.

Twenty-seven genera, with these characters, are tabulated below:

TABLE OF GENERA.

Second abscissa of radius shorter than the first transverse cubitus, very rarely as long or a little longer 2
Second abscissa of radius *much* longer than the first transverse cubitus 13
2. Second transverse cubitus always distinct 3
Second transverse cubitus incomplete or subobsolete.
(815) *Asyntactus* Marshall.

3. Second abdominal segment *with* a distinct transverse impressed line, usually indicated by a difference in the sculpture, whereby the segment is separated into two divisions 4
Second abdominal segment *without* a transverse impressed line 5
4. Recurrent nervure received by the first cubital cell; stigma large oval, the radius originating from beyond its middle; third and following abdominal segments distinctly separated ..... (816) *Trachyusa* Ruthe.
Recurrent nervure received by the second cubital cell; second discoidal cell *not* completely closed at apex; third and following segments closely united, indistinctly separated ..... (817) *Symphanes* Förster.
5. Recurrent nervure received by the second cubital cell 6
Recurrent nervure *interstitial* or received by the first cubital cell 8
6. Second discoidal cell completely closed 7
Second discoidal cell open at apex; first joint of the flagellum longer than the second ..... (818) *Pentapleura* Förster.
7. Radius originating from *before* the middle of the stigma.
(819) *Hypostropha* Förster.
Radius originating from the *middle* of the stigma; first and second joints of flagellum subequal; subdiscoidal nervure originating from or a little above the middle of the discoidal nervure ..... (820) *Epiclista* Förster.
Radius originating from *beyond* the middle of the stigma; subdiscoidal nervure interstitial ..... (821) *Goniarcha* Förster.
8. Radius originating from *beyond* the middle of the stigma 9
Radius originating from *before* the middle of the stigma. (822) *Tamycarpa* Förster.
9. Discoidal nervure oblique or angulate, the subdiscoidal nervure *not* interstitial 10
Discoidal nervure straight, the subdiscoidal nervure *interstitial* or nearly; spiracles of metathorax small, round ..... (823) *Cratospila* Förster.
10. Spiracles of metathorax very small, punctiform 11
Spiracles of metathorax very large ..... (824) *Alysia* Latreille.
11. First joint of the flagellum somewhat longer than the second 12
First joint of the flagellum distinctly shorter than the second.
Scutellum conical, the postscutellum armed with a spine or tubercle; wings maculate, the second cubital cell narrow.
(825) *Hoplitalysia* Ashmead, new genus.
(Type, *Hoplitalysia slossonæ* Ashmead, manuscript.
Scutellum at the most convex; wings not maculate, the second cubital cell normal ..... (826) *Idiasta* Förster.
12. Recurrent nervure interstitial ..... (827) *Anarcha* Förster.
Recurrent nervure received by the first cubital cell ..... (828) *Strophæa* Förster.
13. First joint of the flagellum scarcely so long as the second or clearly *shorter* .. 16
First joint of the flagellum always somewhat *longer* than the second.
Second discoidal cell present 14
Second discoidal cell *absent* ..... (829) *Opisendra* Förster.
14. Stigma *not* unusually thickened 15
Stigma very large and unusually thickened, the recurrent nervure received by the second cubital cell.
Abdomen with three segments, as in *Œnone* Haliday, the second the largest; marginal cell not quite extending to tip of wing; second discoidal cell open at lower apical angle .... (830) *Œnonogastra* Ashmead, new genus.
(Type, *Mesocrina microrhopalæ* Ashmead.
Abdomen with the normal number of segments; marginal cell extending to tip of wing ..... (831) *Prosapha* Förster.

15. Radius originating *before* the middle of the stigma.
Recurrent nervure received by the first cubital cell..(832) *Acrobela* Förster.
Recurrent nervure received by the second cubital cell.
(833) *Orthostigma* Ratzeburg.
Radius originating at or a little beyond the middle of the stigma.
(834) *Mesocrina* Förster.
16. Marginal cell closed *before* the tip of the wing..... 17
Marginal cell closed at the tip of the wing..... 19
17. Recurrent nervure received by the *second* cubital cell 18
Recurrent interstitial or received by the first cubital cell.
Recurrent nervure received by the *first* cubital cell; subdiscoidal nervure originating far *below* the middle of the discoidal nervure; mesonotal furrows entirely wanting.....(835) *Homophyla* Förster.
Recurrent nervure distinctly *interstitial;* subdiscoidal nervure interstitial or nearly; mesonotal furrows distinct.....(836) *Mesothesis* Förster.
18. Anal cell in hind wings *not* extending beyond the middle of the median cell.
(837) *Misophthora* Förster.
Anal cell in hind wings extending beyond the middle of the median cell.
(838) *Adelura* Förster.
19. Second discoidal cell completely closed.
Submedian cell closed *just* behind the basal nervure; radial cell in hind wings normal, *not* divided by a transverse nervure..... 20
Submedian cell closed *far* behind the basal nervure; radial cell in hind wings divided into two by a transverse nervure..(839) *Idiolexis* Förster.
20. First abscissa of radius forming with the second nearly a straight line; mesonotal furrows absent; subdiscoidal nervure originating from *below* the middle of the discoidal nervure.....(840) *Aclisis* Förster.
First abscissa of radius forming with the second a strong angle; mesonotal furrows distinct, uniting at about half the length of the mesonotum or a little beyond, and thence as a deep sulcus toward the scutellum, the middle lobe usually with a median grooved line; subdiscoidal nervure interstitial or nearly.....(841) *Phænocarpa* Förster.

Tribe II. ALLŒINI.

This tribe is composed of all wingless and subapterous Alysiids, and winged forms having a linear or lanceolate stigma, the hind wings being *without* a recurrent nervure.

Twenty-two genera have been recognized, distinguishable as follows:

TABLE OF GENERA.

Fully winged 3
Wingless or with abbreviated wings 2
2. Wingless.
Head large; viewed from above, bilobed; second joint of flagellum much longer than the first .....(842) *Chasmodon* Haliday.
Subapterous or with abbreviated wings.
Wings *without* a distinct venation; head subglobose; first joint of flagellum longer than the second .....(843) *Panerema* Förster.
Wings *with* a distinct venation, the submedian cell confluent with the second discoidal; head, transverse; male.....(844) *Allaea* Haliday.
3. First cubital and first discoidal cells separated 5
First cubital and first discoidal cells confluent, the first abscissa of the cubitus absent..... 4

4. Second abscissa of the radius *longer* than the first transverse cubitus; second discoidal cell wanting ..... (845) *Aphæreta* Förster.
Second abscissa of the radius *shorter* than the first transverse cubitus.
Maxillary palpi 4, labial palpi 3, jointed ..... (846) *Syncrasis* Förster.
Maxillary palpi 3, labial palpi 2, jointed ..... (847) *Phænolyta* Förster.
5. First transverse cubital nervure present, the first and second cubital cells separated 6
First transverse cubital nervure wanting, the first and second cubital cells confluent.
Second discoidal cell present ..... (848) *Synaldis* Förster.
6. Stigma *linear*, not at all thickened 9
Stigma somewhat thickened or narrowly lanceolate.
Second abscissa of the radius very much longer than the transverse cubitus; second discoidal cell wanting, or open at apex; rarely closed 7
Second abscissa of the radius hardly longer than the first transverse cubitus; second discoidal cell closed, the subdiscoidal nervure interstitial; female (see p. 106) ..... (844) *Allæa* Haliday.
7. First joint of the flagellum shorter than the second; marginal cell closed at apex of wing.
Second discoidal cell wanting or open at apex 8
Second discoidal cell distinct, closed at apex; first abscissa of radius distinct ..... (849) *Kahlia* Ashmead,[1] new genus.
(Type, *Kahlia flavipes* Ashmead, manuscript.)
8. First abscissa of radius wanting, the second cubital cell therefore contiguous to the stigma or sessile; second discoidal cell present but open at apex.
(850) *Sathra* Förster.
First abscissa of radius very distinct, the second cubital cell widely separated from the stigma or petiolate; second discoidal cell entirely absent or only partially formed ..... (851) *Isobara* Förster.
9. First joint of the flagellum distinctly longer than the second 11
First joint of the flagellum *not* longer than the second, usually shorter 10
10. Recurrent nevure *interstitial* or received by the *first* cubital cell; second discodial cell entirely wanting ..... (852) *Spanista* Förster.
Recurrent nervure received by the *second* cubital cell.
Mesopleura with a smooth, transverse impression; antennæ about 50-jointed ..... (853) *Dapsilartha* Förster.
Mesopleura with a crenate, transverse impression; antennæ 17 to 24 jointed.
(854) *Ischnocarpa* Förster.
11. First and second abscissæ of the radius forming a strong or an obtuse angle .. 12
First and second abscissæ of the radius forming almost a straight line.
(855) *Anisocyrta* Förster.
12. Recurrent nervure received by the *second* cubital cell 13
Recurrent nervure received by the *first* cubital cell or *interstitial* 18
13. Metathoracic spiracles very small, punctiform 14
Metathoracic spiracles moderately large, round, distinct.
Subdiscoidal nervure originating much *below* the middle of the discoidal nervure ..... (856) *Dinotrema* Förster.
14. Cubitus *not* abbreviated immediately behind the transverse cubital nervure. 15
Cubitus abbreviated immediately behind the transverse cubital nervure; subdiscoidal nervure wanting ..... (857) *Coloboma* Förster.
15. Antennæ more than 13-jointed 16
Antennæ 13-jointed ..... (858) *Spanomeris* Förster.
16. Stigma *not* thickened and scarcely distinguishable from the wing border; subdiscoidal nervure originating from or *below* the middle of the discoidal nervure 17

[1] In honor of Prof. Hugo Kahl.

Stigma linear but somewhat thickened and readily distinguishable from the wing border; subdiscoidal nervure distinct, originating from *above* the middle of the discoidal nervure.....(859) *Delocarpa* Förster.

17. Vertex concave; thorax compressed laterally.....(860) *Dipiesta* Förster.
Vertex convex; thorax not compressed laterally.....(861) *Aspilota* Förster.

18. Second discoidal cell open; marginal cell closed *before* the apex of the wing. (862) *Heterolexis* Förster.
Second discoidal cell closed; marginal cell closed at the apex of the wing. (863) *Grammospila* Förster.

Subfamily III. DACNUSINÆ.

1862. *Dacnusoida*, Family XXVI, Förster, Verh. d. Naturh. Ver. pr. Rheinl., XIX, pp. 229 and 273.
1885. *Dacnusides* Marshall, Trans. Ent. Soc. Lond., p. 11.
1887. *Dacnusinæ*, Subfamily, Cresson, Syn. Hym. North America, p. 63.
1888. *Dacnusida*, Tribe XXIV, Marshall, Species des Hym. des Braconides, I, p. 67.
1900. *Dacnusinæ*, Subfamily III, Ashmead, Smith's Insects of New Jersey, p. 586.

The insects falling in this subfamily have the same habits as the *Alysiinæ* and exhibit scarcely any structural difference; the only character yet pointed out to separate them from the preceding being the difference of venation in the front wings.

The *Dacnusinæ* have only *two cubital cells* while the Alysiinæ have *three*, except in one or two cases where the first transverse cubitus is absent, so that the student must be careful not to place these in this subfamily. In all genuine Dacnusines the *first transverse cubitus is always present.* He must also bear in mind that there are no apterous females in this group.

Twenty-five genera have been recognized, separable as follows:

TABLE OF GENERA.

First cubital and first discoidal cells separated, distinct..... 2
First cubital and first discoidal cells confluent.....(864) *Aphanta* Förster.

2. Abdomen *not* strongly rugulose; segments 2 and 3 *not* connate, flexible; postscutellum normal..... 3
Abdomen strongly rugulose; segments 2 and 3 connate, not flexible; postscutellum armed with a spine or thorn. (865) *Symphya* Förster = *Œnone* Haliday.

3. Eyes bare..... 4
Eyes hairy.
Stigma short, thick, the radius originating from its middle. (866) *Chænusa* Haliday.
Stigma lengthened, linear, the radius originating from *before* its middle. (867) *Chorebus* Haliday.

4. Recurrent nervure not joining the second cubital cell..... 5
Recurrent nervure joining the second cubital cell just behind the transverse cubitus.....(868) *Exotela* Förster.

5. Labial palpi 4-jointed..... 6
Labial palpi 3-jointed.
Stigma linear; marginal cell *not* extending to tip of wing, the second discoidal cell closed, the subdiscoidal nervure originating *below* the middle of the discoidal nervure.....(869) *Ametria* Förster.

6. Radius angularly broken; second cubital cell petiolate, the first abscissa of the radius distinct 7
Radius *not* angularly broken; second cubital cell sessile, the first abscissa of the radius wanting ..... (870) *Agonia* Förster
7. Second abdominal segment *without* a median cross line, usually quite smooth. 8
Second abdominal segment *with* an incomplete median cross line or depression, the surface anteriorly to same wrinkled.
Stigma rather thick, as wide as the first abscissa of the radius is long; first joint of flagellum much longer than the second.
(871) *Epimicta* Förster.
8. Stigma very thick and wider than the first abscissa of the radius is long 9
Stigma *not* especially thickened and also *not* wider than the first abscissa of radius is long 10
9. Radius terminating not far from the tip of the wing...(872) *Pachysema* Förster.
Radius terminating very far from the tip of the wing.
(873) *Brachystropha* Förster.
10. Stigma short, not extending to half the length of the marginal cell..... 11
Stigma elongate, extending to half or more than half the length of the marginal cell 14
11. Head quadrate, or much elongate, the abdomen elongate, compressed..... 12
Head transverse, or transverse-quadrate, wider than the thorax, the abdomen less elongate, not much compressed; stigma triangular..... 13
12. Head much elongate; abdomen in female strongly compressed, sword-shaped; mesonotum *without* parapsidal furrows, or at most represented by an elongate fovea.....(874) *Chaenon* Curtis = *Copidura* Schiödte.
Head quadrate; abdomen in female only compressed at apex; mesonotum *with* parapsidal furrows, which converge and usually meet at the middle and thence as a deep furrow to the scutellum.
(875) *Calinius* Nees.
13. Radius originating a little *before* the middle of the stigma and extending to the apex of the wing, the first abscissa of the radius long, twice the length of the first abscissa of the cubitus; first cubital cell about thrice as long as the first discoidal cell; second discoidal cell wanting .....(876) *Provancheria* Ashmead,[1] new genus
(Type, *Eubadizon gracilis* Provancher.)
Radius originating a little *behind* the middle of the stigma and joining the costa a little before the tip of the wing, the first abscissa *not* or scarcely as long as the first abscissa of the cubitus; first cubital cell only a little longer than the first discoidal; second discoidal cell present; abdomen scarcely longer than the head and thorax united.
(877) *Polemon* Giraud.
14. Recurrent nervure joining the first cubital cell 15
Recurrent nervure interstitial with the first transverse cubitus.
Mesonotum *without* parapsidal furrows or the same only slightly indicated anteriorly; abdomen short, subpetiolate .....(878) *Mesora* Förster.
15. First and second abscissæ of the radius of an *unequal* length..... 16
First and second abscissæ of the radius of an equal length.
(879) *Isomerista* Förster.
16. Transverse cubitus, the second abscissa of the cubitus, and the recurrent nervure of an *unequal* length 17
Transverse cubitus, the second abscissa of the radius, and the recurrent nervure of an *equal* length .....(880) *Trisisa* Förster.
17. Stigma *not* always linear, or of an equal breadth or thickness throughout; metanotum *not* thickly hairy, always rugose or wrinkled..... 18

[1] In honor of Abbe L. Provancher.

Stigma linear, of an equal thickness throughout, or very imperceptibly thickened toward hip; metathorax and first segment of abdomen thickly hairy.

Marginal cell extending almost to the tip of wing.
(881) *Tanystropha* Förster.

Marginal cell shorter, *not* nearly extending to tip of wing.
(882) *Rhizarcha* Förster.

18. Marginal roundly widened; second abscissa of the radius *not* equally and regularly curved, therefore *not* forming a perfect segment of a circle. 19

Marginal cell narrower; second abscissa of the radius quite regularly curved, forming a perfect segment of a circle.

Second discoidal cell closed.....(883) *Gyrocampa* Förster.

Second discoidal cell open .....(884) *Synelix* Förster.

19. Second discoidal cell completely closed..... 20

Second discoidal cell open at apex or entirely absent.

Antennæ in female with *more* than 20 joints.....(885) *Dacnusa* Haliday.

Antennæ in female with *less* than 20 joints.

Second discoidal cell absent.....(886) *Coloneura* Förster.

Second discoidal cell present but *open* behind; parapsidal furrows wanting or indicated only anteriorly .....(887) *Stiphrocera* Förster.

20. Marginal cell long and wide, extending to the apex of the wing; first joint of flagellum a little longer than the second ....(888) *Liposcia* Förster.

Family LXXVIII. BRACONIDÆ.

1811. *Ichneumon adsciti* Nees (part), Der Ges. naturf. Fr. z. Berl. Mag., V, p. 3.
1811. *Bracones*, Family I, Der Ges. naturf. Fr. z. Berl. Mag., V, p. 3.
1838. *Braconidæ*, Family IV, Haliday (part), Ent. Mag., V, p. 4.
1885. *Braconidæ*, Family, Marshall (part), Trans. Ent. Soc. Lond., p. 1.
1887. *Braconidæ* Cresson (part). Syn. Hym. North America, p. 53.
1900. *Braconidæ*, Family LXXVIII, Ashmead, Smith's Insects of New Jersey, p. 586.

This family is here restricted to the Braconids having the mandibles normally attached, as in the Ichneumonids, and touching or overlapping each other when closed, never attached to the sides of the face and spreading wide open as in the *Alysiidæ*.

In structure and habits the *Braconidæ* are nearest related to the *Ichneumonidæ*, but are easily separated by having only *one* recurrent nervure, or none, and by the absence of a real articulation, except in the subfamily *Aphidiinæ*, between the second and third abdominal segments. From the *Evaniidæ* and the *Stephanidæ* they may be readily distinguished by the absence of a distinct costal cell in the front wings and by cephalic and abdominal peculiarities. The group, through the subfamily *Spathiinæ* and the *Stephanidæ*, is connected with the *Orysside*, and will account for the arrangement of the subfamilies in this work.

Fifteen distinct subfamilies have been recognized, arranged, and tabulated, as follows:

TABLE OF SUBFAMILIES.

Clypeus emarginate or impressed anteriorly, forming with the mandibles a semicircular opening; articulation between segments 2 and 3 rigid, connate.. 12

Clypeus *not* emarginate or impressed anteriorly, the mandibles when closed fitting close to it and leaving *no* semicircular opening; very rarely with a slight opening in some *Opiinæ*.

Head with the cheeks rarely margined, the temples and the occiput always *immargined* 8

Head with the cheeks, temples, and the occiput *margined*.

Abdomen *not* distinctly segmented, without sutures, or at most with 2 or 3 superficial sutures, the dorsum convex, the venter usually strongly concave; spiracles of first segment rounded, placed very near the base.. 7

Abdomen normal, with the usual sutures 2

2. Abdomen sessile, the spiracles of first segment placed much *before* the middle. 5

Abdomen petiolate or petioliform, the spiracles placed *at* or a little *behind* the middle.

Subdiscoidal nervure in front wings originating from the base of the discoidal nervure, or at least *below* its middle; all abdominal segments *not* flexible 3

Subdiscoidal nervure usually interstitial or originating *above* the middle of the discoidal nervure; all abdominal segments flexible.

Subfamily I. APHIDIINÆ.

3. Front wings with *three* cubital cells 4

Front wings with *two* cubital cells or less.

Stigma very long and narrow, lanceolate; marginal cell acutely pointed at apex, the submedian cell shorter than the median; hind coxæ very long and slender; abdomen inserted high up on the metathorax.

Subfamily II. PAXYLOMMINÆ.

Stigma large, broad, oblong, or subovate; marginal cell most frequently very short, sometimes absent, the submedian cell as long or longer than the median; hind coxæ normal; abdomen inserted normally.

Subfamily III. EUPHORINÆ.

4. Stigma large, broad, subtriangular; second cubital cell wider than long or subquadrate; mesonotal furrows, as a rule, shallow, *not* deeply or sharply impressed, and converging and meeting in a depression before attaining the base of the scutellum; tibial spurs distinct, but not especially long.

Subfamily IV. METEORINÆ.

5. Front wings with *two* cubital cells..... 6

Front wings with *three* cubital cells; anal cell most frequently divided by a transverse nervure or a stump of a nervure.

Head small, transverse, the temples narrow or flat; abdomen elongate and slender, the sides parallel or nearly, or somewhat strongly compressed, usually longer than the head and thorax united; tibial spurs *not* short, long or very long.....Subfamily V. MACROCENTRINÆ.

Head usually large, quadrate or subquadrate, the temples broad; abdomen rarely much longer than the head and thorax united, most frequently shorter, ovate or oval; tibial spurs short, stout.

Subfamily VI. HELCONINÆ.

6. Mesonotum, except in *Centistes* Haliday, with sharply defined parapsidal furrows, the furrows usually punctate and converging and uniting *at* or before attaining the base of the scutellum; tibial spurs either well developed or short; hind coxæ large, much larger than the anterior and middle pairs .....Subfamily VII. BLACINÆ.

7. Front wings with *two* cubital cells ..... Subfamily VIII. SIGALPHINÆ.
   Front wings with *three* cubital cells ..... Subfamily IX. CHELONINÆ.
8. Hind wings most frequently with two marginal cells and often with a discoidal cell; if with only one marginal cell, the marginal cell in the front wings is wanting or incomplete, or at most feebly indicated; mesonotum with or without furrows; subdiscoidal nervure in hind wings never present, the median cell usually more or less contracted at the middle 10
   Hind wings with only one marginal cell, the radius most frequently wanting; mesonotal furrows usually complete; marginal cell in front wings always present.
      Hind wings always *without* a subdiscoidal nervure and without a discoidal cell 11
      Hind wings *with* a more or less distinct subdiscoidal nervure and also frequently with a discoidal cell 9
9. Thorax with distinct and complete parapsidal furrows which converge and meet before the base of the scutellum and then extend as a single furrow to the scutellar fovea; marginal cell usually very narrow, pointed.
   Subfamily X. AGATHIDINÆ.
10. Mesonotum *with* distinct and complete parapsidal furrows which converge and meet a little before attaining the base of the scutellum, but which do not extend to the scutellar fovea; front wings with *three* cubital cells, the second very large, as long or longer than the first; marginal cell complete, the second abscissa of the radius reclivate and extending to the apex of the wing ..... Subfamily XI. CARDIOCHILINÆ.
    Mesonotum *without* parapsidal furrows; front wings with *two* or *three* submarginal cells, rarely with only one, the second always small, triangular or subquadrate, often open behind; marginal cell most frequently wanting or incomplete, very rarely complete ..Subfamily XII. MICROGASTERINÆ.
11. Front wings with the anal cell divided by a transverse nervure or a stump of a vein, the marginal cell very short; hind wings *without* a recurrent nervure, the radius usually present ..... Subfamily XIII. ICHNEUTINÆ.
    Front wings with the anal cell *not* divided by a transeverse nervure, the marginal cell long, never very short; hind wings with the recurrent nervure sometimes present, the radius most frequently wanting.
    Subfamily XIV. OPIINÆ.
12. Head posteriorly with the occiput, temples and cheeks *immargined;* hind wings with the submedian cell very short, the recurrent nervure always absent 13
    Head posteriorly with the occiput, temples and cheeks *margined* (very rarely with the cheeks immargined); hind wings with the submedian cell *not* very short, the recurrent nervure most frequently present 14
13. Front wings with *three* cubital cells, the subdiscoidal nervure originating *below* the middle of the discoidal nervure .....Subfamily XV. BRACONINÆ.
14. Front wings with the subdiscoidal nervure never interstitial and always originating *below* the middle of the discoidal nervure; mesonotal furrows usually present and extending to the base of the scutellum, or very near it; hind tibial spurs *not* very short; apterous forms occasionally.
    Subfamily XVI. RHOGADINÆ.
    Front wings with the subdiscoidal nervure *interstitial* or originating *above* the middle of the discoidal nervure; mesonotal furrows usually converging and uniting before attaining the scutellum, frequently arcuate or wanting; all tibial spurs minute; apterous or subapterous forms rare.
    Subfamily XVII. SPATHIINÆ.

Subfamily I. APHIDIINÆ.

1838. *Aphidiidæ*, Family V, HALIDAY, Ent. Mag., V, p. 4.
1839. *Ichneumonidæ*, Family VI (part), HALIDAY, Hym. Synop., p. ii.
1840. *Flexiliventres*, Div. VI, WESTWOOD, Intro. Mod. Class. Ins., II, Synop., p. 65.
1862. *Aphidioidæ*, Family IV, FÖRSTER, Verh. d. naturh. Ver. pr. Rheinl., XIX, pp. 228 and 247.
1885. *Aphidiides* MARSHALL, Trans. Ent. Soc. Lond., p. 10.
1887. *Aphidiinæ* CRESSON, Syn. Hym. North America, pp. 54 and 63.
1888. *Aphidiidæ*, Tribe XXV, MARSHALL, Species des Hym. des Braconides, I, p. 67.
1900. *Aphidiinæ*, Subfamily I, ASHMEAD, Smith's Insects of New Jersey, p. 586.

Following the views of most writers on the *Braconidæ*, I have here included this group among the genuine Braconids as a subfamily, although I am much inclined to agree with Haliday, and treat it as of family rank equivalent to the *Alysiidæ*, since the flexibility of the abdomen is quite characteristic and found in no other group. The species, in habitus, recall some of the small species of genuine Ichneumonids found in the subfamily *Ophioninæ*.

The species are susceptible of tribal division as follows:

TABLE OF TRIBES.

Hind wings *with* a basal nervure, the median cell complete, or at least indicated by hyaline veins ..... Tribe I. APHIDIINI.
Hind wings *without* a basal nervure, the median cell incomplete or entirely absent. Tribe II. TRIOXINI.

Tribe I. APHIDIINI.

This tribe is here defined for the first time, and is readily recognized by the hind wings having a distinct basal nervure, the median cell complete.

Nine genera fall into this tribe, distinguishable as follows:

TABLE OF GENERA.

First discoidal cell complete, separated from the second cubital cell, the first abscissa of the cubitus present 2
First discoidal cell confused with the first cubital cell or *not* existing, the first abscissa of the cubitus wanting 3
2. Front wings with *three* cubital cells.
Mesonotal furrows complete, antennæ more than 11-jointed; abdomen rounded, subpetiolate ..... (889) *Toxares* Haliday.
Mesonotal furrows incomplete, wanting posteriorly; antennæ in both sexes 11-jointed; abdomen lanceolate ..... (890) *Ephedrus* Haliday.
Front wings with one cubital cell ..... (891) *Praon* Haliday.
3. First discoidal and first cubital cells confluent, but closed at apex by the recurrent nervure and the transverse cubitus uniting, the disco-cubital cell therefore present 4
First discoidal and first cubital cells absent; no disco-cubital cell 6
4. Recurrent nervure strongly curved, not forming a straight line with the transverse cubital nervure; abdomen lanceolate 5

Recurrent nervure straight, *not* curved, and forming a straight line with the transverse cubital nervure; abdomen rounded.
(892) *Monoctonus* Haliday.

5. Metathorax much hump-shaped ..... (893) *Colonotus* Förster.
Metathorax normal.
Radius much elongated, inclosing more than two-thirds of the marginal cell..... (894) *Aclitus* Förster.
Radius abbreviated, inclosing scarcely one-third of the marginal cell.
(895) *Aphidius* Nees.

6. Second discoidal cell present, complete.
Head transverse, the temples narrow; subdiscoidal nervure originating *above* the middle of the discoidal nervure..... (896) *Dixertus* Förster.
Head oblong, the temples broad, full; subdiscoidal nervure originating from the middle of the discoidal nervure..... (897) *Dyscritus* Marshall.

Tribe II. TRIOXINI.

The species falling in this tribe have *no* basal nervure in the hind wings, and the venation of the front wings is less developed, the cubital cells and most of the discoidal cells being absent.

Seven genera have been characterized, as follows:

TABLE OF GENERA.

Radius or marginal vein *not* entirely absent 2
Radius or marginal vein entirely absent..... (898) *Paralipsis* Förster.
2. Transverse cubital nervure in front wings absent..... 3
Transverse cubital nervure in front wings present..... (899) *Lysiphlebus* Förster.
3. Second discoidal cell entirely absent or incomplete..... 4
Second discoidal cell distinct.
Postmarginal vein longer than the radius; female abdomen *without* prongs at apex..... (900) *Lipolexis* Förster.
Postmarginal vein shorter than the radius; female abdomen *with* prongs at apex..... (901) *Trioxys* Haliday.
4. Submedian cell *not* closed at apex, confluent with the second discoidal cell, the transverse median nervure absent.
Post-marginal vein shorter than the radius in both sexes; female *with* horn-like appendages or prongs at tip of abdomen..... (901) *Trioxys* Haliday.
Post-marginal vein longer than the radius; female *without* prongs at tip of abdomen..... (900) *Lipolexis* Förster.
Submedian cell closed at apex, the transverse median nervure distinct; second discoidal cell entirely absent..... (902) *Adialytus* Förster.

Subfamily II. PAXYLOMMINÆ.

1862. *Pachylommatoidæ*, Family XIII, Förster, Verh. d. naturh. Ver. pr. Rheinl., XIX, pp. 228 and 247.
1894. *Pachylommatinæ*, Subfamily, Ashmead, Proc. Ent. Soc. Wash., III, p. 54.
1896. *Pachylommaninæ* Szépligeti, Termes. Füzetek, XIX, p. 310.

This group is of small extent, and on account of the peculiar shape of the head, the venation of the wings, and its abdominal peculiarities is probably one of the most remarkable groups in the family *Braconidæ*.

By many authorities it was formerly included in the family *Evaniidæ*, although it has not a single character in common with any now placed in that family. The abdomen is attached somewhat above the insertion of the hind coxæ, but *not* on the dorsum of the metathorax, has a distinct ventral fold, and so far as the flexibility of the segments is concerned, as well as in its thoracic characters, comes nearest to the *Aphidiidæ*.

In other characters it resembles certain Ichneumonids belonging to the subfamily *Ophioninæ*. The clypeus is prominent, subrostriform, with two large, deep spiracles; the antennæ are 13-jointed, the scape and pedicel being subglobose, and equal or nearly in size; the front wings have a large, lanceolate stigma, two cubital cells, and a long, narrow, acutely pointed marginal cell; the hind coxæ are very long and almost cylindrical, while the abdomen is longly petiolated.

The tribe is based upon the genus *Paxylomma* De Brébisson, changed by Förster to *Pachylomma*. I do not believe anyone has the right to change a generic name, whether correctly or incorrectly formed, and I here restore the original spelling and call the group *Paxylommina*.

Three genera have been recognized, as follows:

TABLE OF GENERA.

First joint of hind tarsi scarcely one-third longer than the four following joints united, or of an equal length 2

First joint of hind tarsi twice as long as the four following joints united..... 3

2. Second cubital cell longly petiolated, the radius divided into three abscissæ.
(903) *Paxylomma* De Brébisson=*Pachylomma* Förster.

Second cubital cell sessile, or at the most subsessile, the radius divided into two abscissæ.....(904) *Eupachylomma* Ashmead.

3. Second cubital cell sessile, the radius divided into two abscissæ.
(905) *Eurypterna* Förster.

Subfamily III. EUPHORINÆ.

1862. *Euphoroidæ*, Family 15, Förster, Verh. d. naturh. Ver. pr. Rheinl., XIX, pp. 228 and 250.

1885. *Euphorides* Marshall, Trans. Ent. Soc. Lond., p. 10.

1887. *Euphorinæ*, Subfamily, Cresson, Syn. Hym. North Amer., pp. 54 and 55.

1888. *Euphoridæ*, Tribe XIII, Marshall, Species des Hym. des Braconides, I, p. 66.

1900. *Euphorinæ*, Subfamily III, Ashmead, Smith's Insects of New Jersey, p. 588.

In having a distinctly petiolated abdomen this subfamily agrees with both the *Paxylommina* and the *Meteorinæ*. From the former it is separated by the venation of the front wings, the large and broad stigma, and usually by the short marginal cell. The marginal cell is sometimes long, but is broader and entirely different from that in the *Paxylommina;* the coxæ are normal, never long, cylindrical, while the abdomen is attached normally. From the *Meteorinæ* it is distinguished by having at the most but two cubital cells.

TABLE OF GENERA.

First cubital and first discoidal cells confluent, *not* separated, the first abscissa of the cubitus absent 2

First cubital and first discoidal cells distinctly separated, the first abscissa of the cubitus present 6

2. Head abnormal, *with* a prominent bilobed frontal ledge, each lobe with a small tubercle within 5

Head normal, *without* a prominent frontal ledge 3

3. First joint of antennæ normal, not elongate 4

First joint of antennæ abnormal, much elongate.

Antennæ 16-jointed, joints 2 and 3 much elongate, the scape not longly hairy beneath ..... (906) *Streblocera* Westwood.

Antennæ 18-jointed, joints 2 and 3 not much elongate, the scape longly hairy beneath ..... (907) *Eutanycerus* Förster.

4. Marginal cell *not* elongate, but shortened, never longer than the stigma, often shorter; maxillary palpi 6-jointed.

(908) *Perilitus* Ne s = *Microctonus* Förster *nec* Wesmael.

Marginal cell elongate, extending to the tip of the wing, or nearly, always much longer than the stigma .. (909) *Microctonus* Wesmael = *Syntretus* Förster.

5. Marginal cell longer than the large stigma, the second discoidal cell incomplete; ovipositor prominent ..... (910) *Cosmophorus* Ratzeburg.

6. Antennæ more than 10-jointed, *not* clavate 7

Antennæ 10-jointed, geniculate clavate; joints 1 and 3 elongate.

(911) *Eustalocerus* Förster = *Rhopalophorus* Haliday.

7. Petiole of abdomen normal, *not* greatly elongate 8

Petiole of abdomen greatly elongate.

(912) *Wesmælia* Förster = *Gamosecus* Provancher.

8. Mesothoracic furrows distinct, complete 9

Mesothoracic furrows entirely absent or at the most only indicated anteriorly. 10

9. Transverse cubitus always emerging from the distinctly elongate first abscissa of the radius; marginal or radial cell ample, pointed at apex; ovipositor prominent.

Metathorax distinctly areolated; head nearly cubical; eyes normal; hind coxæ *not* elongate ..... (913) *Dinocampus* Förster.

Metathorax *not* areolated; head transverse, viewed from in front short, wider than long; eyes very large; hind coxæ elongate.

(914) *Myiocephalus* Marshall = *Loxocephalus* Förster.

Transverse cubitus emerging either direct from the stigma or from the very short first abscissa of the radius; marginal cell very short.

(915) *Peristenus* Förster.

10. First and second discoidal cells absent or incomplete; at most with only the cubitus present 11

First and second discoidal cells present, distinct.

Marginal cell *long*, extending to the tip of the wing; posterior face of metathorax areolated ..... (916) *Euphoridea* Ashmead, new genus.

(Type, *Euphoridea claripennis* Ashmead, manuscript.)

Marginal cell *very short*, shorter or no longer than the stigma; metathorax exareolated; maxillary palpi 5-jointed ..... (917) *Euphorus* Nees.

11. Marginal cell obliterated ..... (918) *Euphoriella* Ashmead, new genus.

(Type, *Labeo incertus* Ashmead.)

Subfamily IV. METEORINÆ.

1862. *Perilitoidæ*, Family 16, Förster, Verh. d. naturh. pr. Rheinl., XIX, pp. 228, 253.
1885. *Perilitides* Marshall, Trans. Ent. Soc. Lond., p. 10.
1887. *Meteorinæ*, Subfamily Cresson, Syn. Hym. North America, pp. 55 and 60.
1888. *Meteoridæ*, Tribe XIV, Species des Hym. des Braconides, I, p. 66.
1900. *Meteorinæ*, Subfamily IV, Ashmead, Smith's Insects of New Jersey, p. 588.

This group was at one time confused with the *Euphorinæ*, but may be easily separated by the venation of the front wings; all the species falling in it having *three* distinct cubital cells, never less.

Many of the species also bear a superficial resemblance to some in the next subfamily, or the *Macrocentrinæ*, and the greatest attention must be given to the abdominal characters before they can be separated.

TABLE OF GENERA.

Hind wings with the marginal cell normal, not widened toward apex and not divided by a transverse nervure 2

Hind wings with the marginal cell broadened toward apex and divided by a more or less distinct transverse nervure.

Hind tarsi usually white ..... (919) *Zemiotus* Förster.

2. Front wings with the transverse median nervure either interstitial with the basal nervure or jointing the median vein *beyond* it, the submedian cell therefore as long or longer than the median 3

Front wings with the transverse median nervure joining the median vein *before* the origin of the basal nervure, the submedian cell therefore shorter than the median ..... (920) *Protelus* Förster.

3. First abscissa of the radius much longer than the second; petiole of abdomen long and slender, of a uniform thickness throughout 4

First abscissa of the radius always shorter than the second; petiole of abdomen neither especially long nor slender, widened at apex.

(921) *Meteorus* Haliday = *Perilitus* Förster.

4. Mesonotal furrows distinct; first cubital cell *not* confluent with the first discoidal cell ..... (922) *Sapotrichus* Holmgren.

Mesonotal furrows wanting; first cubital cell confluent with the first discoidal cell ..... (923) *Aridelus* Marshall.

Subfamily V. MACROCENTRINÆ.

1862. *Macrocentroidæ*, Family 22, Förster, Verh. d. naturh. Ver. pr. Rheinl., XIX, pp. 229 and 256.
1885. *Macrocentrides* Marshall, Trans. Ent. Soc. Lond., p. 10.
1887. *Macrocentrinæ*, Subfamily, Cresson, Syn. Hym. North America, p. 61.
1888. *Macrocentridæ* Marshall, Species des Hym. des Braconides, I, p. 67.
1900. *Macrocentrinæ*, Subfamily V, Ashmead, Smith's Insects of New Jersey, p. 589.

Distinguished from the *Euphorinæ* by the elongate, *sessile*, not petiolate, abdomen, and from the *Helconinæ* by the characters made use of in my table of subfamilies.

Two tribes have been recognized.

TABLE OF TRIBES.

Hind tibial spurs very *short*, much less than half the length of the basal joint of tarsi; ovipositor very long, longer than body ..... Tribe I. MACROCENTRINI.

Hind tibial spurs very *long*, the inner spur being half as long as the basal joint of tarsi (or even longer); ovipositor short, usually much shorter than the abdomen. Tribe II. ZELINI.

Tribe I. MACROCENTRINI.

The totally different shape of the abdomen, the longer ovipositor, and the very short hind tibial spurs, readily distinguish this tribe.

Five genera have been recognized, one—the first—being found only in Africa; the others in the European and American faunæ.

TABLE OF GENERA.

Radius with only two abscissæ 5

Radius with three abscissæ.

Palpi very long; second joint of hind trochanters usually crowned with minute spines 2

Palpi much shorter; second joint of hind trochanters normal, without minute spines 4

2. Median and submedian veins normal, the marginal cell not abnormally large, the radius not extended to apex of the wings 3

Median and submedian veins incrassated before the transverse median nervure, the marginal cell abnormally large, the radius extending to the apex of the wing; first discoidal cell petiolate. (Africa.)
(924) *Dicranoneura* Kriechbaumer.

3. Submedian cell in front wings *not* longer than the median, the transverse median nervure interstitial 4

Submedian cell in front wings always longer than the median.

First discoidal cell sessile; radius in the hind wings distinct.
(925) *Macrocentrus* Curtis.

First discoidal cell petiolate; radius in the hind wings absent.
(926) *Amicoplidea* Ashmead, new genus.
(Type, *Zele pallidiventris* Provancher.)

4. First discoidal cell sessile; second cubital cell scarcely half as wide at apex as at base; radius in the hind wings distinct ..... (927) *Amicoplus* Förster.

5. The second cubital cell triangular; median and submedian cells of an equal length ..... (928) *Microtypus* Ratzeburg.

Tribe II. ZELINI.

The very much longer hind tibial spurs, the compressed or subcompressed abdomen, and the short ovipositor readily distinguish this tribe.

The compressed shape of the abdomen cause these insects to be frequently mistaken for Ophionines, in the tribe *Paniscini*, although the venation is quite distinct. I often find our larger species, belonging to the genus *Zele*, confused in collections with *Paniscus*.

TABLE OF GENERA.

Hind wings with the marginal cell normal, *not* divided by a transverse nervure.

Marginal cell long and narrow, lanceolate; second cubital cell subquadrate, slightly narrowed above, subsessile with the stigma, the first abscissa of the radius scarcely developed; claws cleft. (Africa.)

(929) *Neophylax* Ashmead, new genus.

(Type, *Neophylax snyderi* Ashmead, manuscript.)

Marginal cell normal, not much narrowed; second cubital cell longer than wide, petiolate, the first abscissa of the radius distinct; claws simple.

(930) *Zele* Haliday.

Hind wings with the marginal cell divided into two cells by a transverse nervure.

(931) *Homolobus* Förster.

Subfamily VI. HELCONINÆ.

1862. *Helconoidæ*, Family 21, Förster, Verh. d. naturh. Ver. pr. Rheinl., XIX, pp. 229 and 255.

1885. *Helcontide* Marshall (part), Trans. Ent. Soc. Lond., p. 10.

1887. *Helconinæ*, Subfamily Cresson (part), Syn. Hym. N. A., pp. 54, 55, and 61.

1888. *Helcontidæ*, Tribe XIX, Marshall (part), Species des Hym. des Braconides, I, p. 67.

1900. *Helconinæ*, Subfamily VI, Ashmead Smith's Insects of New Jersey, p. 590.

This subfamily is allied to the *Macrocentrinæ*, but is easily separated by the larger, more quadrate head, the temples being broad, not narrow or flat, by the shape of the abdomen, and by the short, stout, tibial spurs, which are quite characteristic and very distinct from those found in the subfamily *Macrocentrinæ*.

In it is included the singular genus *Cenocælius* Haliday, at one time classified with the *Evaniidæ*, on account of the abdomen being attached high up on the posterior truncature of the metathorax, as in *Evania*. It is, however, a true Braconid in all other characters, venation of front and hind wings, and in its economy.

Two tribes are recognized, as follows:

TABLE OF TRIBES.

Head with a deep frontal excavation above the insertion of the antennæ, the front ocellus placed in the excavation; abdomen most frequently longer than the head and thorax united, rarely shorter; posterior femora usually somewhat incrassated and often armed with a tooth, or teeth, beneath..... Tribe I. Helconini.

Head at the most with a shallow frontal excavation, the front ocelli *not* placed in the depression; abdomen not as long as the head and thorax united, oblong-oval or ovate; posterior femora rarely much incrassated, and always simple, unarmed. Tribe II. Diospilini.

Tribe I. HELCONINI.

This tribe represents Förster's family *Helconoidæ*, or Marshall's tribe *Helcontides*, and is readily distinguished by the characters pointed out above, the frontal excavation, the position of the front ocellus being characteristic.

The group, taken as a whole, attack wood-boring coleopterous larvæ.

Seven genera belong to the tribe, two of which are found in the Tropics.

TABLE OF GENERA.

Abdomen attached to the metathorax normally 2
Abdomen attached to the metathorax far *above* the hind coxæ 7
2. Hind femora beneath with one or more teeth 3
Hind femora beneath simple, unarmed 4
3. Hind femora beneath armed with many small teeth; recurrent nervure joining the second cubital cell ..... (932) *Euscelinus* Westwood.
Hind femora beneath armed with one tooth; recurrent nervure joining the first cubital cell ..... (933) *Helcon* Nees.
4. Recurrent nervure joining the first cubital cell.
Second cubital cell *longer* than wide; clypeus at apex truncate 5
Second cubital cell *not* longer than wide; clypeus at apex rounded 6
5. Basal joint of hind tarsi *not* longer than joints 2–4 united; median cell in hind wings not shorter than the costal cell ..... (934) *Gymnoscelis* Förster.
Basal joint of hind tarsi longer than joints 2–4 united; median cell in hind wings much shorter than the costal cell.
(935) *Eumacrocentrus* Ashmead, new genus.
(Type, *Gymnoscelis americana* Cresson.)
6. Submedian and median cells of an equal length; second cubital cell petiolate and a little shorter along the radius than along the cubitus.
(936) *Aspicolpus* Wesmael.
Submedian cell distinctly longer than the median; second cubital cell sessile or subsessile, longer along the radius than along the cubitus.
(937) *Schauinslandia* Ashmead, new genus.
(Type, *Schauinslandia femorata* Ashmead, manuscript.)
7. Recurrent nervure interstitial or joining the first cubital cell; first discoidal cell largely petiolate; second cubital cell not large.
(938) *Cenocœlius* Haliday.

Tribe II. DIOSPILINI.

1862. *Diospiloidæ*, Family 23, Förster, Verh. d. naturh. Ver. pr. Rheinl., XIX, pp. 229 and 257.
1887. *Diospilinæ*, Subfamily, Cresson, Syn. Hym. North America, p. 61.
1888. *Diospilidæ*, Tribe XXI, Marshall, Species des Hym. des Braconides, I, p. 67.

This tribe is usually treated as a distinct subfamily, as the bibliography shows, but it is too closely allied to the genuine Helconines to retain such a rank and it is here reduced to tribal value. It is scarcely separable from the *Helconini*, and I should not be surprised to find that the characters I have used to separate it from that tribe will prove valueless with new discoveries.

The Rev. T. A. Marshall treats *Taphæus* Wesmael as a synonym of *Diospilus* Haliday, but I agree with Thomson in believing both good genera.

TABLE OF GENERA.

First discoidal cell *not* petiolate, touching the parastigma 2
First discoidal cell petiolate, remote from the parastigma 4
2. Clypeus anteriorly truncate, or very slightly rounded; four terminal joints in male antennæ *not* thicker than the preceding 3
Clypeus anteriorly pointed medially, with a large deep fovea on each side; four terminal points in male antennæ thicker than the preceding.
(939) *Aspigonus* Wesmael.
3. Submedian and median cells equal; second cubital cell narrowed above; thorax fully thrice as long as wide ..... (940) *Diospilus* Haliday.
Submedian cell longer than the median; second cubital cell quadrate; thorax about twice as long as wide ..... (941) *Taphæus* Wesmael.
4. Second cubital cell either quadrangular or subquadrate, *not* small, rarely confluent with the first.
First and second cubital cells distinct, *not* confluent 5
First and second cubital cells more or less confluent.
(942) *Anostenus* Förster.
5. Metanotum completely areolated; first abdominal segment striate; hind wings with the recurrent nervure distinct ..... (943) *Dolops* Marshall.
Metanotum *not*, or very obsoletely, areolated.
Metanotum *not* elongate; first and second abdominal segments smooth; recurrent nervure in hind wings wanting ... (944) *Dyscoletes* Westwood.
Metanotum elongate; first and second abdominal segments striate.
(945) *Lelutha* Cameron.

Subfamily VII. BLACINÆ.

1862. *Blacoidæ*, Family 18, Förster, Verh. d. naturh. Ver. pr. Rheinl., XIX, pp. 229 and 254.
1885. *Blacides* Marshall, Trans. Ent. Soc. Lond., p. 10.
1887. *Blacinæ*, Subfamily, Cresson, Syn. Hym. North America, p. 54.
1888. *Blacidæ*, Tribe XVI, Marshall (part), Species des Hym. des Braconides, I., p. 16.
1900. *Blacinæ*, Subfamily VII, Ashmead, Smith's Insects of New Jersey, p. 590.

This subfamily is also treated somewhat differently from Förster and Marshall, since I have included as components of it groups placed elsewhere by these authors—the so-called *Calyptinæ* and the genus *Orgilus* Haliday, the latter having heretofore been considered a component of the *Agathidinæ*.

Both, however, have very little affinity with the *Agathidinæ*, and are in every way much more closely allied to the *Helconinæ*, from which they are separated by having only *two* cubital cells in the front wings; otherwise they are identical.

The three tribes recognized in this subfamily are characterized in the table below:

TABLE OF TRIBES.

Front wings with the second discoidal cell completely closed at apex, and most frequently, but not always, *with* the anal cell divided by one or more transverse nervures or stumps of nervures; first abscissa of radius oblique 2
Front wings with the second discoidal cell open at apex, the anal cell *not* divided by

transverse nervures or stumps of nervures; first abscissa of the radius straight, perpendicular, forming with the second an acute right angle.

Tribe I. BLACINI.

2. Second abscissa of radius straight, *not* at all arcuate and forming with the transverse cubitus almost a straight line; tibial spurs long; anal cell *not* divided.

Tribe II. ORGILINI.

Second abscissa of radius *always* more or less arcuate or curving slightly upwards and never forming a straight line with the transverse cubitus; tibial spurs short; anal cell most frequently divided or with traces of stumps of veins, rarely normal ..... Tribe III. CALYPTINI.

Tribe I. BLACINI.

1900. *Blacini*, Tribe III, ASHMEAD, Smith's Insects of New Jersey, p. 590.

The species falling in this tribe always have the second discoidal cell open at the apex, the first abscissa of the radius is straight or perpendicular and forms an acute angle with the second abscissa, while the anal cell is never divided by a transverse nervure, the submedian vein being without a trace of such a nervure.

Five genera may be distinguished in this group, as follows:

TABLE OF GENERA.

First discoidal cell sessile, the cubitus emerging from the parastigma 2

First discoidal cell petiolate, the cubitus emerging from the basal nervure.

(946) *Pygostolus* Haliday.

2. Metathorax normal, the scutellum rounded or obtuse at apex, never toothed. 3

Metathorax with a very obtuse angular ridge toward apex, the hind angles of the posterior face toothed; scutellum triangular in male, acutely toothed at apex ..... (947) *Goniocormus* Förster.

3. Submedian cell always much longer than the median.

First cubital and first discoidal cells distinctly separated 4

First cubital and first discoidal cells confluent, the first abscissa of the cubitus absent ..... (948) *Neoblacus* Ashmead, new genus.

(Type, *Neoblacus rufipes* Ashmead, manuscript.)

4. Female antennæ at the most 17-jointed, in male 19-jointed; subdiscoidal nervure forming a curve with the discoidal nervure ..... (949) *Blacus* Nies.

Female antennæ more than 17-jointed, in male more than 19-jointed; subdiscoidal nervure forming an obtuse angle with the discoidal nervure.

(950) *Ganychorus* Haliday.

Tribe II. ORGILINI.

1900. *Orgilini*, Tribe II, Ashmead, Smith's Insects of New Jersey, p. 590.

This tribe is based upon the genus *Orgilus* Haliday, which, by all other recent writers, has always been placed in the subfamily *Agathidinæ*, where it is clearly a disturbing element, its relation to these insects being merely superficial.

The genus clearly belongs in this group and comes nearest to the genus *Eubadizon*, with which Hartig united it as early as 1837.

The *Orgilini* are distinguished from the *Calyptini* by the straightness of the second abscissa of the radius, which is never arcuate, as in

the latter tribe, by the absence of any trace of a dividing nervure in the anal cell and by the longer tibial spurs.

Four genera are placed in the tribe, as follows:

TABLE OF GENERA.

Marginal cell neither large nor extending to tip of the wing, the radius reaching the costal margin much before the tip 2

Marginal cell large, extending to the tip of the wing.

(951) *Hymenochaonia* Dalle Torre.

2. First abscissa of the radius much shorter than the transverse cubitus, the marginal cell *not* very broad at base; subdiscoidal nervure originating usually *below* the basal third of the discoidal nervure 3

First abscissa of the radius long, nearly as long as the transverse cubitus, the marginal cell therefore very broad at base; subdiscoidal nervure originating from the basal third of the discoidal nervure.

(952) *Oresimus* Ashmead, new genus.

(Type, *Eubadizon maculiventris* Cresson.)

3. Submedian cell *not* longer than the median, equal or a little shorter, the transverse median nervure *interstitial* or nearly with the basal nervure.

(953) *Orgilomorpha* Ashmead, new genus.

(Type, *Gangchorus gelichiæ* Ashmead.)

Submedian cell usually somewhat longer than the median, the transverse median nervure uniting with the median vein *beyond* the origin of the basal nervure ..... (954) *Orgilus* Haliday.

Tribe III. CALYPTINI.

1862. *Brachistoidæ*, Family 17, Förster, Verh. d. naturh. Ver. pr. Rheinl., XIX, pp. 229 and 253.

1862. *Liophronoidæ*, Family 19, Förster, Verh. d. naturh. Ver. pr. Rheinl., XIX, pp. 229 and 254.

1885. *Cryptides* Marshall, Trans. Ent. Soc. Lond., p. 10.

1887. *Calyptinæ*, Subfamily Cresson, Syn. Hym. North America, pp. 54–55.

1900. *Calyptini*, Tribe I, Ashmead, Smith's Insects of New Jersey, p. 590.

This tribe is distinguished from the former by the second abscissa of the radius being always more or less arcuate, never straight, and never forming a straight line with the transverse cubitus; by the anal cell being most frequently divided by transverse nervures or traces of nervures, rarely normal; and by the short tibial spurs.

The group is closest allied to the next, or the *Sigalphinæ* through the genus *Calyptus* Haliday.

There has been the greatest confusion in regard to some of the names of the genera placed in this group and I am by no means satisfied that I have correctly identified the genera.

Nees's original description of *Leiophron* could apply only to a form similar to *Centistes* Haliday, although he afterwards included other forms. Förster's conception of this genus was, therefore, evidently correct and may yet prevail.

The species placed in *Leiophron* by American students belong to the genus *Brachistes* Wesmael, as defined in my table.

Seven genera have been recognized, separable as follows:

TABLE OF GENERA.

Mesonotum *with* two distinct furrows 2
Mesonotum *without* furrows entire.
First discoidal cell petiolate; metanotum with a transverse apical carina.
(955) *Centistes* Haliday=*Liophron* Nees (Förster).
2. Abdomen with only three visible dorsal segments, the others, if present, retracted and invisible 6
Abdomen with more than three dorsal segments, usually 6 to 8 segments.
Anal cell in front wings *with* one or two transverse nervures or stumps of nervures between its base and apex 4
Anal cell in front wings *without* a trace of such nervures 3
3. First discoidal cell sessile, the cubitus originating from the base of the parastigma.
Abdomen elongate, longer than the head and thorax united, the sides parallel or nearly; first joint of flagellum *longer* than the scape and pedicel united, and a little longer than the second .....(956) *Eubadizon* Nees.
Abdomen oblong-oval, *not* or scarcely longer than the head and thorax united, the sides *not* parallel; first joint of the flagellum shorter than the scape and pedicel united, and *not* longer than the second.
(957) *Brachistes* Wesmael.
4. First cubital and first discoidal cells separated, the first abscissa of the cubitus never obliterated 5
First cubital and first discoidal cells *confluent*, the first abscissa of the cubitus wanting or obliterated .....(958) *Sirrhizus* Förster.
5. First abscissa of the radius *very* short, shorter than the transverse median nervure; second discoidal cell open at the lower apical angle.
(959) *Leiophron* Nees (Marshall) ? =*Ancylus* Haliday.
First abscissa of the radius *not* short, as long or longer than the transverse median nervure; second discoidal cell closed.
First abscissa of the radius distinctly longer than the transverse median nervure; first joint of the flagellum longer than the globose scape and pedical united; metanotum not longer than wide; abdomen not longer than the thorax, scarcely so long.
(960) *Allurus* Förster? =*Ancylocentrus* Förster? =*Liophron* Authors. (part).
First abscissa of the radius *not* longer than the transverse cubitus; first joint of the flagellum *not* longer than the scape and pedicel united, usually a little shorter; mesonotum longer than wide; abdomen as long as the head and thorax united, or at least longer than the thorax.
(961) *Brachistes* Wesmael=*Liophron* Authors. (part)=*Calyptus* Authors. (part).
6. Anal cell usually with a slight oblique nervure toward the base; metonotum with a short median carina connected with an apical transverse carina.
(962) *Calyptus* Haliday=*Brachistes* Wesmael (part).

Subfamily VIII. SIGALPHINAE.

1818. *Bassi*, Family 11, Nees, Berl. Mag., VII, p. 243.
1818. *Sigalphi*, Family 1, Nees, Berl. Mag., VII, p. 247.
1862. *Sigalphoida*, Family 8, Förster, Verh. d. naturh. Ver. pr. Rheinl., XIX, pp. 228 and 242.
1885. *Sigalphides* Marshall, Trans. Ent. Soc. Lond., p. 10.
1887. *Sigalphina*, Subfamily, Cresson, Syn. Hym. North America, pp. 55 and 58.

1888. *Sigalphidæ*, Tribe IX, MARSHALL, Species des Hym. des Braconides, I, p. 66.
1900. *Sigalphinæ*, Subfamily VIII, ASHMEAD, Smith's Insects of New Jersey, p. 591.

This subfamily, and the following, is remarkable for its abdominal peculiarities, the segments being connate, sometimes without any trace of sutures, or at most with two or three (rarely four) indistinct sutures, forming a carapace above, and deeply concave beneath.

The species belonging in this subfamily differ from the next, or the *Chelonina*, by having, at the most, only *two* cubital cells in the front wings; otherwise they are indistinguishable.

Försteria Szépligeti, I have not seen, but seems to differ from *Polydegmon* Förster only in having no tooth on the hind coxæ and in having the abdomen at apex entire.

Eight genera fall into this group:

TABLE OF GENERA.

Abdomen *not* segmented, composed of a single carapace 4
Abdomen composed of 3 visible segments 2
Abdomen with 5 visible segments, the fourth and fifth *not* entirely concealed.
Marginal cell closed; anal cell *with* a transverse nervure; antennæ multiarticulate. (963) *Allodorus* Förster.
Marginal cell open at apex; anal cell *without* a transverse nervure; antennæ 12-jointed ..... (964) *Episigalphus* Ashmead, new genus.
(Type, *Episigalphus minutessimus* Ashmead, manuscript.)
2. Marginal cell closed.
Mesonotum *with* parapsidal furrows 3
Mesonotum *without* parapsidal furrows, smooth, highly polished. (965) *Liosigalphus* Ashmead, new genus.
(Type, *Liosigalphus politus* Ashmead, manuscript.)
3. Hind coxæ with a tooth above; second abdominal segment longer than the third, the transverse lines approaching the base laterally; hind margin of third segment notched ..... (966) *Polydegmon* Förster.
Hind coxæ *without* a tooth above.
Second abdominal segment shorter than the third, the transverse lines *not* approaching the base laterally; hind margin of third segment not notched; scutellum normal; head as wide as the thorax. (967) *Sigalphus* Latreelle.
Second abdominal segment longer than the third.
Scutellum normal; head as wide as the thorax. (968) *Försteria* Szépligeti.
Scutellum bidentate; head small, narrower than the thorax. (969) *Fornicia* Brullé.
4. Transverse median nervure interstitial; first discoidal cell sessile; apex of abdomen with a deep median emargination, the ovipositor prominent; apex of male abdomen unarmed ..... (970) *Schizoprymnus* Förster.
Transverse median nervure *not* interstitial; first discoidal cell petiolate; apex of abdomen *without* or with only a slight emargination, the ovipositor prominent; apex of male abdomen usually armed with two spines or teeth ..... (971) *Urosigalphus* Ashmead.

Subfamily IX. CHELONINÆ.

1818. *Cheloni*, Family 11, Nees, Berl. Mag., VII, p. 260.
1862. *Chelonoidæ*, Family 9, Verh. d. Naturh. Ver. pr. Rheinl., XIX, pp. 228 and 243.
1885. *Chelonides* Marshall, Trans. Ent. Soc. Lond., p. 10.
1887. *Chelonina*, Subfamily, Cresson, Syn. Hym. North Amer., pp. 54–55.
1888. *Chelonidæ*, Tribe X, Marshall, Species des Hym. des Braconides, I, p. 66.
1900. *Chelonina*, Subfamily IX, Ashmead Smith's Insects of New Jersey, p. 591.

Allied to the *Sigalphina* and separated from them by having *three* cubital cells in the front wings; otherwise they are identical.

The tribe is represented by eight genera, all found in the United States, except *Trachypetus* Guérin, which is tropical.

All may be easily recognized by the use of the following table:

TABLE OF GENERA.

Wingless species 7
Winged.
First cubital and first discoidal cells *separated*, not confluent; eyes bare 2
First cubital and first discoidal cells *confluent*, the first abscissa of the cubitus absent or incomplete; abdomen not segmented; eyes hairy.
(972) *Chelonus* Jurine.
2. Recurrent nervure joining the *first* cubital cell or interstitial with the first transverse cubitus 3
Recurrent nervure joining the *second* cubital cell 4
3. Abdomen not segmented; first discoidal cell petiolate.
Second cubital cell subtriangular, the second abscissa of the radius usually shorter than the first; submedian cell longer than the median; abdomen at apex not bidentate ..... (973) *Ascogaster* Wesmael.
Second cubital cell oblong-quadrate, the second abscissa of the radius at least three or four times longer than the first; submedian cell *not* longer than the median; abdomen at apex bidentate.
(974) *Gastrotheca* Guérin.
Abdomen 3-segmented; first discoidal cell sessile or subsessile.
(975) *Phaneratoma* Wesmael.
4. Abdomen *not* elongate clavate, oval or oblong-oval, with from 3 to 4 segments.. 5
Abdomen elongate clavate, with 2 segments, the first long, petioliform; antennæ very long, filiform, about twice the length of the body.
(976) *Trachypetus* Guérin.
5. Abdomen normal, not tumid, the lateral margins of segments *not* extending over the sides beneath; ovipositor prominent or subexserted; clypeus *not* prominent 6
Abdomen tumid, the lateral margins of the segments extending over the sides beneath; clypeus prominent; second cubital cell longer than wide.
(977) *Sphæropyx* Illiger.
6. Second cubital cell *wider* than long; joints 1 and 2 of maxillary palpi dilated, the last two very small, shorter than the second.
(978) *Tetrasphacropyx* Ashmead.
Second cubital cell *longer* than wide; maxillary palpi normal, the last two joints elongate, as long or a little longer than the second.
(979) *Acampsis* Wesmael.
7. Abdomen with 3 or 4 segments ..... (979) *Acampsis* Wesmael.

Subfamily X. AGATHIDINÆ.

1885. *Agathides* MARSHALL, Trans. Ent. Soc. Lond., p. 10.
1887. *Agathinæ*, Subfamily CRESSON, Syn. Hym. North America, pp. 54 and 59.
1888. *Agathididæ*, Tribe XII, MARSHALL, Species des Hym. des Braconides, I, p. 66.
1900. *Agathidinæ*, Subfamily X, ASHMEAD, Smith's Insects of New Jersey, p. 592.

This subfamily represents quite a distinct group, but with affinities allying it to the *Cardiochilinæ* and the *Microgasterinæ*, the three evidently having had a common origin.

The short, very narrow, pointed marginal cell is characteristic of the group, and this character, with the others given in my table of subfamilies, renders the group easily recognized.

Förster made of the group two distinct families, *Agathidoidæ* and *Eumicrodoidæ*, based merely upon a difference in the shape of the head.

I believe, with Mr. Marshall, that both groups are too closely allied to warrant such a separation; but since both groups may be easily separated by the character used by Förster, their separation is maintained as a matter of convenience, in the sense of tribes.

The groups are thus distinguished:

TABLE OF TRIBES.

Head rostriform, the malar space, or the space between the eyes and the mandibles, very long ..... Tribe I. AGATHIDINI.
Head normal, not rostriform, the malar space never very long, *sometimes* entirely wanting, the eyes extending to base of mandibles ..... Tribe II. MICRODINI.

Tribe I. AGATHIDINI.

1862. *Agathidoidæ*, Family II, FÖRSTER, Verh. d. Naturh. Ver. pr. Rheinl., XIX, pp. 228 and 245.
1900. *Agathidini*, Tribe I, ASHMEAD, Smith's Insects of New Jersey, p. 592.

The shape of the head alone must be depended upon to distinguish this tribe.

Six genera fall into this minor group, separable as follows:

TABLE OF GENERA.

Areolet present, never wholly wanting, triangular or quadrate 2
Areolet wholly wanting ..... (980) *Braunsia* Kriechbaumer.
2. Areolet triangular, often petiolate 5
Areolet quadrate, the outer nervure, or the second transverse cubitus, most frequently broken by a stump of a vein 3
3. Frontal excavation large, with a sharp edge on each side, not separated at the middle; between the antennæ at the base are two stout knobs.
Lateral edges of the frontal cavity *not* continued to the lateral ocelli; ovipositor long 4
Lateral edges of the frontal cavity extending to the lateral ocelli; ovipositor not very prominent ..... (981) *Disophrys* Förster.

4. Scape *not* long, scarcely more than twice as long as thick; legs normal. (982) *Cremnops* Förster.
   Scape long, stout, fully three times as long as thick; legs, especially the hind pair, robust ..... (983) *Megagathis* Kriechbaumer.
5. Frontal excavation not large, *without* a sharp edge on each side; no knobs between the antennæ.
   Maxillary palpi in female abnormal, the three penultimate joints short, compressed, lenticular; claws cleft ..... (984) *Troticus* Serville.
   Maxillary palpi normal; claws simple ..... (985) *Agathis* Latreille.

Tribe II. MICRODINI.

1862. *Eumicrodoidæ*, Family 12, FÖRTSTER, Verh. d. naturh. Ver. pr. Rheinl., XIX, pp. 228 and 246.
1900. *Microdini*, Tribe II, ASHMEAD, Smith's Insects of New Jersey, p. 592.

This tribe differs from the preceding in having a normally shaped head, and by the much shorter malar space, which is sometimes wholly wanting; otherwise the groups are identical.

Fifteen genera have been recognized, distinguishable as follows:

TABLE OF GENERA.

First cubital and first discoidal cells *separated*, never confluent, the first abscissa of the cubitus distinct 11
First cubital and first discoidal cells *confluent*, the first abscissa of the cubitus more or less completely obliterated.
   Maxillary palpi 5 or 6 jointed 2
   Maxillary palpi 4-jointed.
      Areolet triangular; parapsidal furrows meeting at the middle of the mesonotum ..... (986) *Cenostomus* Förster.
2. Labium *very* long and slender; maxillary palpi 6-jointed 3
   Labium *not* very long 4
3. Labium extending to the middle of the mesonotum; mandibles falcate, *with* a small tooth within ... (987) *Agathirsia* Westwood=*Paragathis* Ashmead.
   Labium *not* so long; mandibles falcate, edentate, acute at tips, *without* a tooth within ..... (988) *Agathona* Westwood.
4. Maxillary palpi normal, 5-jointed, *not* much lengthened 5
   Maxillary palpi abnormally lengthened, extending to the base of the abdomen. (989) *Aenigmostomus* Ashmead, new genus.
   (Type, *Microdus longipalpus* Cresson.)
5. Forms slender, elongate, the ovipositor always long 8
   Forms rather stout, robust, the ovipositor very short or only slightly exserted. 6
6. Hind wings *without* a closed discoidal cell; inner spur of hind tibiæ about one-third the length of the basal joint of tarsi; second joint of maxillary palpi dilated or thickened; areolet triangular, subtrapezoidal or petiolate 7
   Hind wings *with* a closed discoidal cell; inner spur of hind tibiæ longer than half the length of the basal joint of tarsi; palpi normal; areolet triangular, usually petiolate ..... (990) *Crassomicrodus* Ashmead, new genus.
   (Type, *Microdus fulvescens* Cresson.)
7. Eyes normal, not nearly extending to the base of the mandibles, the malar space distinct, broad.

Areolet triangular, usually petiolate; claws simple.
(991) *Epimicrodus* Ashmead, new genus.
(Type, *Microdus diversus* Cresson.)
Areolet sessile, quadrate; claws cleft (Siam).
(992) *Chromomicrodus* Ashmead, new genus.
(Type, *Chromomicrodus abbotti* Ashmead, manuscript.)
Eyes very large, extending close to the base of the mandibles, the malar space obsolete; areolet triangular or subtrapezoidal, not petiolate.
(993) *Zelomorpha* Ashmead, new genus.
(Type, *Zelomorpha arizonensis* Ashmead.)

8. Hind wings *without* a closed discoidal cell, inner spur of hind tibiæ never half as long as the basal joint of tarsi; maxillary palpi normal.
Areolet incomplete or wanting 10
Areolet complete 9

9. Areolet tetragonal or trapezoidal; subdiscoidal nervure in hind wings originating *at* or *below* the middle of the discoidal nervure, rarely very slightly above; metathorax areolated; abdomen with oblique or transverse impressed furrows ..... (994) *Brachyrhopalum* Kriechbaumer.
Areolet triangular and usually petiolate; subdiscoidal nervure in hind wings originating *far* above the middle of the discoidal nervure; metathorax not areolated ..... (995) *Microdus* Latreille.

10. Subdiscoidal nervure in hind wings entirely absent, the transverse median nervure straight; metathorax short, exareolated (Australia).
(996) *Orgiloneura* Ashmead, new genus.
(Type, *Orgiloneura antipoda* Ashmead, manuscript.)

11. Areolet wider than long, trapezoidal; first abscissa of the radius thrice as long as the second; marginal cell very wide 14
Areolet quadrate or nearly; first abscissa of the radius not nearly thrice as long as the second, most frequently shorter; marginal cell narrow 12

12. Maxillary palpi 6-jointed; first abscissa of the radius usually shorter than the second; hind wings normally celled 13
Maxillary palpi 4-jointed; first abscissa of the radius longer than the second; hind wings with a discoidal cell and two marginal cells.
(997) *Snellenius* Westwood.

13. Mesonotum *without* furrows or the furrows are indistinctly defined; metanotum *not* areolated, at the most with two median longitudinal carinæ; claws simple ..... (998) *Earinus* Wesmael.
Mesonotum *with* deep furrows which are crenulate anteriorly; metanotum areolated; claws cleft ..... (999) *Pseudagathis* Kriechbaumer.

14. Maxillary palpi 5-jointed; abdomen narrow, subcompressed and acute at apex, the first segment long, petioliform, coarsely rugulose, the sides parallel.
(1000) *Meteoridea* Ashmead, new genus.
(Type, *Meteoridea longiventris* Ashmead, manuscript.)

Subfamily XI. CARDIOCHILINÆ.

1887. *Toreurinæ*, subfamily, CRESSON, Syn. Hym. North America, p. 61.
1900. *Cardiochilinæ*, Subfamily XI, ASHMEAD, Smith's Insects of New Jersey, p. 592.

Cardiochiles Nees (with three or four synonyms) was included by Förster and other European authorities in the subfamily *Microgasterinæ*. In 1887, the Rev. T. A. Marshall, who furnished generic tables of the *Braconidæ* for Mr. Cresson's synopsis of the Hymenoptera

of North America, separated Say's genus *Toxoneuron* from other Braconids as a distinct subfamily under the name of *Toxoneurinæ*, the distinguished divine evidently being unaware at that time of the identity of that genus with *Cardiochiles* Nees.

The group is a good one, intermediate between the *Agathidinæ* and the *Microgasterinæ*, and readily distinguished by the venational characters employed in my table of subfamilies.

The following are the essential characters for its recognition:

Front wings with *three* cubital cells, the marginal cell elongate, the third abscissa of the radius reclivate, the second cubital cell longer than wide; hind wings with two marginal cells; mesonotum with distinct furrows converging and meeting posteriorly; metathorax areolated, the areola lozengoidal, rarely indistinct; antennæ 16-jointed.....(1001) *Cardiochiles* Nees.

Subfamily XII. MICROGASTERINÆ.

1862. *Microgasteroidæ*, Family 10, Verh. d. naturh. Ver. pr. Rheinl., XIX, pp. 228 and 244.
1885. *Microgasterides* Marshall, Trans. Ent. Soc. Lond., p. 10.
1887. *Microgasterinæ*, Subfamily, Cresson, Syn. Hym. N. A., pp. 54–59.
1888. *Microgasteridæ* Marshall, Species des Hym. des Braconides, I, p. 66.
1900. *Microgasterinæ*, Subfamily XII, Ashmead, Smith's Insects of New Jersey, p. 592.

This is a large and most difficult group, its nearest allies being the *Agathidinæ* and the *Cardiochilinæ*.

The absence of parapsidal furrows and the rather full characters employed in my table of subfamilies will, however, render the group easily recognized.

The group is probably susceptible of tribal divisions. *Neoneurus* and *Elasmosoma* will fall together; then *Miraæ* and allies; and finally the genuine Microgasterines, *Apanteles*, *Microgaster*, etc.

Plumarius Philippi, described from South America, is unknown to me in nature, but evidently, judging from the figure and description, belongs to this group. *Cotesia* Cameron, is also unknown to me; it may yet prove to be identical with *Apanteles* Förster.

The genera at present recognized may be distinguished by the characters made use of in the following table:

TABLE OF GENERA.

Marginal cell completely closed.....
Marginal cell incomplete or wholly wanting.....
2. Areolet oblique, rhomboidal; antennæ 17-jointed, the joints of the flagellum with fascicles of long hairs.....(1002) *Plumarius* Philippi
Areolet subquadrate; antennæ 16-jointed, normal.
(1003) *Neoneurus* Haliday=*Ecclites* Förster

3. Marginal cell for the most part entirely absent or at most with only the first abscissa of the radius present 6
   Marginal cell not entirely wanting, the radius present but not extending to the costa, but forming a well-defined, although open, cell 4
4. Radius *not* geniculate; metanotum *not* strongly areolated 5
   Radius geniculate; metanotum sometimes areolated.
      Areolet incomplete, but in position, subquadrate; hind portion of the cubitus interstitial with the fore part; antennæ in female 13–14 jointed, in male 14–16 jointed; metanotum not areolated.
      (1004) *Elasmosoma* Ruthe.
      Areolet wanting or open behind, not subquadrate in position; hind portion of the cubitus emerging from the first discoidal cell; antennæ 21-jointed; metanotum strongly areolated ..... (1005) *Dirrhope* Förster.
5. Hind portion of the cubitus emerging from the first discoidal cell; antennæ 20-jointed ..... (1006) *Acœlius* Haliday.
6. Front wings with *three* cubital cells, the second (or areolet) and the third *never* confluent 14
   Front wings *without* cubital cells, or at most with *two* only, in the latter case the second and third being *confluent* 7
7. Front wings with *two* cubital cells, the areolet confluent with the third; the discoidal cells usually distinct and separated; mesonotum normal 8
   Front wings *without* cubital cells, and the first and second discoidal cells are obliterated or confluent; mesonotum with a large fovea in front of the scutellum; antennæ 21-jointed; hind coxæ very long, subcylindrical.
   (1007) *Cœlothorax* Ashmead.
8. Antennæ, in both sexes, 14-jointed; hind wings without a radius.
   (1008) *Mirax* Haliday.
   Antennæ 17-jointed ..... (1009) *Cotesia* Cameron.
   Antennæ 18-jointed.
      Clypeus entirely separated from the face by a grooved line or furrow between the clypeal foveæ 12
      Clypeus *not* separated from the face by a grooved line or furrow between the clypeal foveæ 9
9. Metathorax quite differently formed, *without* a transverse apical carina 10
   Metathorax short, truncate posteriorly, the truncature bounded superiorly by a transverse carina, the face *with* a distinct petiolar area.
   (1010) *Parapanteles* Ashmead, new genus.
   (Type, *Apanteles aletiæ* Riley.)
10. Metathorax *with* a distinct median longitudinal carina (rarely nearly obliterated by the coarseness of the sculpture), areolated, or at least with a distinct areola or median area 11
    Metathorax *without* a trace of a median carina or an areola, smooth, alutaceous, or shagreened, and rarely with a slight median depression.
       Second abdominal segment *without* lateral grooved lines.
       (1011) *Protapanteles* Ashmead.
       Second abdominal segment *with* distinct lateral grooved lines, which converge anteriorly.
11. Metanotum with a distinct median longitudinal carina (rarely nearly obliterated by the coarseness of the sculpture).
       Second abdominal segment *not* separated from the third by a deep transverse furrow; ovipositor never prominent, at the most subexserted, the hypopygium plow-share shaped ..... (1012) *Apanteles* Förster.

Second abdominal segment separated from the third by a deep transverse furrow; ovipositor always long or prominently exserted.
(1013) *Pseudapanteles* Ashmead.

Metanotum areolated or at least with a distinct areola or median area; ovipositor always long or prominently exserted....(1014) *Urogaster* Ashmead.

12. Metathorax *with* a distinct median longitudinal carina (rarely nearly obliterated by the coarseness of the sculpture), areolated, or at least with a distinct areola or median area..... 13

Metathorax *without* a trace of a median carina or an areola, smooth alutaceous or shagreened. (see p. 131).....(1111) *Protapanteles* Ashmead.

13. Metathorax with a median carina longitudinal carina (rarely nearly obliterated by the coarseness of the sculpture).

Ovipositor hidden, *never* prominently exserted....(1012) *Apanteles* Förster.

Ovipositor long or *always* prominently exserted.
(1013) *Pseudapanteles* Ashmead.

Metathorax areolated, or at least with a distinct areola or median area; ovipositor always long or prominently exserted...(1014) *Urogaster* Ashmead.

14. Clypeus entirely separated from the face 18

Clypeus *not* entirely separated from the face 15

15. Metathorax with a prominent median longitudinal carina or the surface very coarsely rugose 16

Metathorax *without* such a carina, but with a more or less distinct median area or areola.

Front wings with the areolet very small; second abdominal segment much shorter than the third ...(1015) *Hypomicrogaster* Ashmead, new genus.
(Type, *Microgaster zonarius* Say.)

16. Second abdominal segment separated from the third by a deep, transverse furrow, *not* trilobed..... 17

Second abdominal segment *not* separated from the third by a deep, transverse furrow, and trilobed by two nearly parallel longitudinal grooved lines or furrows; ovipositor at most subexserted, not prominent.
(1016) *Diolcogaster* Ashmead, new genus.
(Type, *Microgaster melligaster* Provancher.)

17. Mesopleural furrow long and crenulate; abdomen elongate, the sides parallel; plate of first segment oblong, quadrate, as wide as the second segment; ovipositor long; last joint of tarsi long and stout; the pulvillus large, longer than the claws .....(1017) *Hygroplitis* Thomson.

Mesopleural furrow wanting or shallowly impressed and smooth; abdomen not especially long, the sides arcuate, never parallel; plate of first segment trapezoidal; ovipositor exserted; last joint of tarsi and the pulvillus normal .....(1018) *Microgaster* Latreille.

18. Hind tibial spurs very long, the inner spur fully two-thirds the length of the basal joint of the tarsi; plate of first abdominal segment very narrow, linear.....(1019) *Protomicroplitis* Ashmead.
(Type, *Protomicroplitis Germani* Ashmead, manuscript.)

Hind tibial spurs short, the inner spur scarcely one-third the length of the basal joint of the tarsi; plate of first segment variable.
(1020) *Microplitis* Förster.

Subfamily XIII. ICHNEUTINÆ.

1862. *Ichneutoidæ*, Family 20, Förster, Verh. d. naturh. Ver. pr. Rheinl., XIX, pp. 229 and 256.
1885. *Ichneutides* Marshall, Trans. Ent. Soc. Lond., p. 10.
1887. *Ichneutinæ*, Subfamily, Cresson, Syn. Hym. North America, p. 61.
1888. *Ichneutidæ*, Tribe XVII, Marshall, Species des Hym. des Braconides, I, p. 66.
1900. *Ichneutinæ*, Subfamily XIII, Ashmead, Smith's Insects of New Jersey, p. 594.

With this group begins a series of subfamilies quite distinct from the preceding and closest allied to those which are to follow, or Wesmael's *Clyclostomi*.

The *Ichneutinæ* and the *Opiinæ* closely resemble each other and agree fairly well in the venation of the hind wings; the former is, however, easily separated from the latter by the venation of the front wings, the marginal cell being very short, while the anal cell is divided by a transverse nervure or a stump of a nervure.

The species belonging to this group whose parasitism is known all attack the larvæ of various saw-flies (*Tenthredinoidea*).

Only three genera fall into this group, all found in our fauna.

TABLE OF GENERA.

Hind wings with the radius absent 2
Hind wings with the radius present 3

First abscissa of the radius much shorter than the second, the latter being much *longer* than the first transverse cubitus; first joint of the flagellum longer than the scape; maxillary palpi 5-jointed, the end penultimate joints subequal; ocelli normal.....(1021) *Ichneutes* Nees.

2. First abscissa of the radius as long as the second, the second *shorter* than the first transverse cubitus; first joint of the flagellum *not* longer than the scape; maxillary palpi 4-jointed, the last joint much longer than the preceding; ocelli normal.....(1022) *Ichneutidea* Ashmead, new genus.
(Type, *Ichneutes abdominalis* Cresson.)

First abscissa of the radius either much shorter or longer than the second, the second usually a little shorter than the first transverse cubitus; maxillary palpi 5-jointed; ocelli abnormal, the frons being short and the front ocellus placed far anteriorly between the antennæ .....(1023) *Proterops* Wesmael.

Subfamily XIV. OPIINÆ.

1862. *Opioidæ*, Family 24, Förster, Verh. d. naturh. Ver. pr. Rheinl., XIX, pp. 229 and 258.
1885. *Opiides* Marshall, Trans. Ent. Soc. Lond., p. 11.
1887. *Opiinæ*, Subfamily, Cresson, Syn. Hym. North America, pp. 54 and 61.
1888. *Opiidæ*, Tribe XXII, Marshall, Species des Hym. des Braconides, I, p. 67.
1900. *Opiinæ*, Subfamily XIV, Ashmead, Smith's Insects of New Jersey, p. 594.

This tribe is composed of a great number of minute species, parasitic on Dipterous larvæ, and particularly on leaf-mining species. It is separated from the *Ichneutinæ* by the marginal cell being long, never

short, usually extending to or very near the tip of the wing, and by the undivided anal cell.

A few of the species have a more or less distinct mouth opening and may be easily confused with small species in the subfamily *Braconinæ*, the venation of the hind wings alone separating them.

TABLE OF GENERA.

Second cubital cell short, as broad, or nearly, as long 2
Second cubital cell *not* short, much longer than broad 4
2. Second abdominal segment *without* curved transverse furrows 3
Second abdominal segment *with* two curved transverse furrows.
(1024) *Gnamptodon* Haliday.
3. Abdomen with more than 3 visible segments.
(1025) *Mesotages* Förster ? = *Hedylus* Marshall.
Abdomen with 3 visible segments above; head transverse quadrate, the temples broad; second abscissa of the radius a little shorter than the first transverse cubitus ..... (1026) *Sulydus* Du Buysson.
4. Second abscissa of the radius *much* longer than the first transverse cubitus; stigma most frequently narrow or lanceolate 11
Second abscissa of the radius shorter, *not* or scarcely longer than the first transverse cubitus; stigma most frequently broad, ovate or triangular.
Marginal cell completely closed 5
Marginal cell open at apex ..... (1027) *Lytacra* Förster.
5. Clypeus *not* horned 6
Clypeus horned ..... (1028) *Rhinoplus* Förster.
6. Mouth *not* completely closed, a more or less distinct opening between the clypeus and the mandibles 10
Mouth completely closed, the mandibles fitting close to the clypeus 7
7. Recurrent nervure received by the second cubital cell 8
Recurrent nervure received by the first cubital cell or interstitial with the first transverse cubitus ..... (1029) *Zeteles* Förster.
8. Clypeus *not* separated from the face by a sharp elevated line, but by a more or less deeply impressed line, *not* thickly hairy 9
Clypeus separated from the face by a sharp elevated line, and thickly hairy.
(1030) *Chilotrichia* Förster.
9. Radius originating somewhat *before* the middle of the stigma, rarely from the middle.
Stigma narrow, elongate; first abscissa of the radius rarely half as long as the second, the marginal cell extending to the apex of the wing.
(1031) *Biosteres* Förster.
Stigma large, triangular ..... (1032) *Trigonospilus* Ashmead, new genus.
(Type, *Trigonospilus Hopkinsi* Ashmead, manuscript.)
Radius originating far *beyond* the middle of the stigma.
(1033) *Stenospilus* Förster.
10. Radius originating near, or somewhat beyond, the middle of the stigma, the latter large, thick, ovate or subtriangular ..... (1034) *Diachasma* Förster.
Radius originating at about the basal third of the stigma.
(1035) *Rhabdospilus* Förster.
11. Radius *not* originating from the base of the stigma 12
Radius originating from the base of the linear stigma ..... (1036) *Eurytenes* Förster.

12. Recurrent nervure interstitial or received by the second cubital cell..... 14
Recurrent nervure received by the first cubital cell.
Mesonotal furrows much abbreviated or entirely absent..... 13
Mesonotal furrows complete. Second discoidal cell open.
(1037) *Holconotus* Förster.
13. Stigma broad; transverse median nervure in hind wings, *with* a trace of a recurrent nervure.....(1038) *Apodesmia* Förster.
Stigma narrow; transverse median nervure in hind wings *without* a trace of a recurrent nervure .....(1039) *Allotypus* Förster.
14. Second abdominal segment *without* a transverse impressed line..... 15
Second abdominal segment *with* a transverse impressed line, the second and third segments subequal.
Stigma lanceolate; second cubital cell sessile...(1040) *Phædrotoma* Förster.
15. Face *without* long hairs, at the most sparsely pubescent..... 16
Face densely clothed with long hairs; stigma lanceolate; second cubital cell subpetiolate .....(1041) *Eutrichopsis* Förster.
16. Radius *not* originating beyond the middle of the stigma 17
Radius originating beyond the middle of the stigma..(1042) *Therobolus* Förster.
17. Mandibles *not* emarginate on the underside..... 19
Mandibles emarginate on the underside.
Mouth completely closed..... 18
Mouth more or less open.
First joint of the flagellum longer than the second; second cubital cell subsessile, the marginal cell extending to the tip of the wing.
(1043) *Hypocynodus* Förster.
18. Marginal cell long, closed at or near the tip of the wing; stigma lanceolate, the radius originating *before* the middle, the second abscissa of the radius about twice as long as the first transverse cubitus.
(1044) *Hypolabis* Förster.
Marginal cell short, closed much before the tip of the wing.
(1045) *Cryptonastes* Förster.
19. Second abscissa of the radius much *shorter* than the third..... 20
Second abscissa of the radius as long as the third.
Stigma narrowed or linear, the radius originating from its basal third or *before* the middle, the first abscissa short but distinct; second discoidal cell closed.....(1046) *Biophthora* Förster.
20. Mouth more or less open; submedian cell most frequently longer than the median, rarely equal..... 21
Mouth closed; submedian and median cells equal or nearly; stigma lanceolate; second discoidal cell closed.....(1047) *Desmiostoma* Förster.
21. Second discoidal cell open..... 22
Second discoidal cell closed.
Stigma large, subtriangular; cubitus originating from or a little beyond the middle of the basal nervure; first abscissa of the radius distinct, *not* short, the second cubital cell therefore distinctly petiolate.
(1048) *Utetes* Förster.
Stigma lanceolate, rarely subtriangular; cubitus originating near the apex of the basal nervure, or near the parastigma, the first abscissa not or scarcely developed, the second cubital cell therefore sessile or subsessile .....(1049) *Opius* Wesmael.
22. Stigma narrowed, linear.....(1050) *Nosopæa* Förster.

Subfamily XV. BRACONINÆ.

1862. *Braconidæ*, Family I, FÖRSTER, Verh. d. naturh. Ver. pr. Rheinl., XIX, pp. 227 and 234.
1885. *Braconides* MARSHALL, Trans. Ent. Soc. Lond., p. 1.
1887. *Braconinæ*, Subfamily, CRESSON, Syn. Hym. North Amer., pp. 54 and 56.
1888. *Braconidæ*, Tribe I, MARSHALL, Species des Hym. des Braconides, I, p. 65.
1900. *Braconinæ*, Subfamily XV, ASHMEAD, Smith's Insects of New Jersey, p. 595.

This subfamily and the following, the *Rhogadinæ* and the *Spathiinæ*, represent Wesmael's division *Cyclostomi*, distinguished from the preceding groups by having the clypeus emarginate or impressed anteriorly, and forming, with the mandibles, a semicircular opening.

The species belonging to this subfamily are easily recognized by the *very short* submedian cell in the hind wings and the non-margined occiput, temples, and cheeks. In the *Spathiinæ* and the *Rhogadinæ* the submedian cell in the hind wings is *never* very short and the occiput, the temples, and the cheeks are most frequently distinctly margined.

Three tribes or minor groups, have been recognized, distinguished principally by the length of the submedian cell in the front wings.

TABLE OF TRIBES.

Submedian cell much *shorter* than the median; eyes large, extending clear to the base of the mandibles, the malar space wanting...Tribe I. APHRASTOBRACONINI.
Submedian and median cells *equal;* eyes not extending to the base of mandibles. Tribe II. BRACONINI.
Submedian cell distinctly *longer* than the median; eyes not extending to base of the mandibles.....Tribe III. EUUROBRACONINI.

Tribe I. APHRASTOBRACONINI.

This tribe is based upon a species described recently by the writer from Ceylon; it differs from all other Braconids belonging to the subfamily *Braconinæ* by the submedian cell being much shorter than the median, by the large eyes, and the absence of a malar space:

Head transverse, the eyes very large, occupying the whole side of the head, the face and vertex being very narrow; marginal cell extending to tip of the wing, the median cell much longer than the submedian..(1051) *Aphrastobracon* Ashmead. (Type, *Aphrastobracon flavipennis* Ashmead.)

Tribe II. BRACONINI.

To this tribe belong the vast majority of the species found in the subfamily *Braconinæ;* they are separated at a glance from all others by having the median and submedian cells of an equal length, the transverse median nervure being distinctly *interstitial* with the basal nervure.

Twenty-one genera have been recognized, separable as follows:

TABLE OF GENERA.

Abdomen with the sutures between the segments deep and usually crenulate, the apical margins of the segments sometimes rimmed or reflexed..... 2

Abdomen with the sutures between the segments normal, or at the most with only the second deep and crenulate, the second and third sometimes connate; dorsal segments without transverse furrows, except sometimes the second... 5

2. Head transverse, the temples more or less narrowed or oblique..... 4

Head quadrate or nearly, the temples broad.

Scape simple, unarmed..... 3

Scape armed with a tooth beneath.

(1052) *Odontoscapus* Gribodo ?=*Chaoilta* Cameron.

3. Abdomen elongate and much narrowed; dorsal segments 3–5 at base, with broad, transverse, crenate furrows and with oblique, usually crenate, furrows laterally, the apical margins elevated. (Siam.)

(1053) *Zaglyptogastra* Ashmead, new genus.

(Type, *Zaglyptogaster abbotti* Ashmead, manuscript.)

Abdomen broad, oblong-oval; dorsal segments 2–4, with deep, transverse, usually crenate, furrows, the second also with an oblique furrow on each side, extending from the basal middle to the lateral depressions.

(1054) *Iphiaulax* Förster=*Ipobracon* Thomson.

4. Abdominal segments 2–4, with oblique lateral impressions, and all longitudinally striate or aciculate.....(1055) *Glyptomorpha* Holmgren.

5. Labrum short, *not* elongate or rostriform..... 6

Labrum elongate, rostriform or nearly.

Abdomen elongate, the second dorsal segment and sometimes the third with oblique or curved lateral furrows or depressions, basal segments for the most part longitudinally striate or aciculate.....(1056) *Vipio* Latreille.

6. Head transverse or obtrapezoidal, as seen from above, the temples rarely broad, usually narrow or very oblique, never as broad as the width of the eyes; metathoracic spiracles most frequent, very minute, inconspicuous.... 11

Head quadrate or cubical, the temples broad.

Hind wings with only *one* marginal cell..... 7

Hind wings with *two* marginal cells.....(1057) *Heteropteron* Brullé.

7. Anterior tarsi not twice as long as their tibiæ; penultimate abdominal segment *not* so long as the preceding..... 8

Anterior tarsi at least twice as long as their tibiæ; penultimate abdominal segment twice as long as the preceding.....(1058) *Megaproctus* Brullé.

8. Second cubital cell shorter than the first; the second abscissa of the radius rarely longer than the first transverse cubitus, and most frequently shorter than the first abscissa of the cubitus; scape not long, subglobose, obconic or clavate; pedicel and first joint of the flagellum equal or nearly..... 10

Second cubital cell always much longer than the first; the second abscissa of the radius nearly twice as long as (or even longer than) the first transverse cubitus.

Eyes not so large, entire, never emarginate within..... 9

Eyes very large, occupying the whole sides of the head and emarginate within opposite the insertion of the antennæ (Africa).

(1059) *Curriea* Ashmead, new genus.

(Type, *Curriea fasciatipennis* Ashmead, manuscript.)

9. Scape rather long, cylindrical, truncate at apex, the pedicel much shorter than the first joint of the flagellum, the third flagellar joint shorter than

either the first or second; second dorsal abdominal segment with oblique lateral depressions which extend from the basal middle.

(1060) *Melanobracon* Ashmead, new genus.

(Type, *Bracon simplex* Cresson.)

Scape subglobose, obliquely truncate at apex, the pedicel annular, scarcely one-third the length of the first joint of the flagellum, the second and third flagellar joints equal, hardly so long as wide, shorter than the first; abdomen smooth, polished, banded with white, the second dorsal segment with smooth oblique lateral impressions, the third sometimes with a transverse furrow at base (Australia).

(1061) *Callibracon* Ashmead, new genus.

(Type, *Bracon limbatus* Brullé.)

10. Third joint of the flagellum longer than either the first or the second, the first shorter than the second; abdomen elongate, the second dorsal segment with lateral grooved lines, oblique at base....(1062) *Coloides* Wesmael.

Third joint of the flagellum *not* longer than the second, both about equal.

(1063) *Atanycolus* Förster.

11. Metathorax smooth, *without* a median carina..... 12

Metathorax *with* a distinct median carina..... 20

12. Second abscissa of the radius much longer than, and sometimes twice as long as, the first (or even longer), always much longer than the first transverse cubitus..... 13

Second abscissa of the radius *not*, or scarcely, longer than the first, usually a little shorter than the first transverse cubitus, or no longer..... 19

13. Radius *not* extending to the tip of the wing 17

Radius extending to the tip of the wing.

Legs densely hairy..... 15

Legs *not* densely hairy 14

14. Abdomen abnormal, short rounded, above highly convex, beneath concave, with only four or five visible dorsal segments 16

Abdomen normal, never very short, often elongate, with the usual number of segments.

Scape three or more times longer than thick, subcylindrical, with the apical margin beneath acutely produced; first joint of the flagellum nearly twice as long as the second; abdomen elongate, much longer than the head and thorax united, narrowed toward the base, smooth, but the first and second dorsal segments with deep lateral grooved lines, furrows, or depressions, the third with two shallow oblique impressions; metathoracic spiracles large, linear, placed behind the middle; all tarsi longer than their tibiæ, and the joints armed with stiff bristles or spines at apex.....(1064) *Compsobracon* Ashmead, new genus.

(Type, *Exothecus magnificus* Ashmead, manuscript.)

Scape subglobose, or not twice as long as thick, shorter than the first joint of the flagellum, or no longer, and rarely more than two and one-half times as long as thick; first joint of the flagellum slightly the longest joint, or never shorter than the second or the third; pedicel about twice as long as thick; abdomen oblong oval, not longer than the head and thorax united, smooth, except sometimes the first and second at base laterally, which are usually striate, the second dorsal segment *without* lateral grooved furrows, the third simple *without* impressions; metathoracic spiracles small, rounded, placed at or a little before the middle; tarsi unarmed, the last joint about the length of the second.

(1065) *Macrodyctium* Ashmead, new genus.

(Type, *Bracon cuura* Ashmead.)

15. Scape short, subglobose; first joint of the flagellum twice as long as the pedicel; abdomen oblong, segments 3–5, with transverse grooved lines or furrows; metathoracic spiracles minute, inconspicuous, placed before the middle ..... (1066) *Myosoma* Brullé.

16. Mesonotal furrows complete and only slightly converging posteriorly; scutellum convex, with a crenate furrow across the base; first and second abdominal segments coarsely rugose, occupying most of the surface; the second and the third very large, closely united; the fourth and fifth very short, opaque, shagreened; the sixth often retracted, but emarginate medially at apex for the reception of the ovipositor; scape subglobose, truncate at apex; pedicel annular, wider than long; first three joints of the flagellum about of an equal length, scarcely longer than thick. (Japan.)
(1067) *Chelonogastra* Ashmead, new genus.
(Type, *Chelonogastra Koebelei* Ashmead, manuscript.)

17. Abdomen normal, *not* spinous 18
Abdomen abnormal, spinous.
Scape long, angulated beneath ..... (1068) *Binarea* Brullé.

18. Frons flat, not or scarcely impressed above the insertion of the antennæ; mesopleura without a furrow.
Abdomen smooth, as in *Macrodyctium*, or at the most with segments 1–3 finely sculptured, the ovipositor usually long, more rarely shorter than the abdomen; scape subglobose, very little longer than thick, the first slightly the longest; first dorsal segment with two furrows which converge anteriorly; last joint of hind tarsi distinctly shorter than the second ..... (1069) *Microbracon* Ashmead.
Abdomen with all the segments, except sometimes the apical segments, sculptured, shagreened, or coriaceous, the fourth segment very rarely smooth; first joint of the flagellum distinctly longer than the second, the third a little shorter than the second; first dorsal segment of abdomen rarely much longer than wide at apex, with a depression and a sulcus at base; last joint of hind tarsi long, as long, or nearly, as the second.
(1070) *Bracon* Fabricius.

19. First discoidal cell petiolate; head, thorax, and abdomen most frequently coriaceous or shagreened, rarely smooth and shining; antennal characters as in *Bracon* (*Sensu stricti*); ovipositor short, rarely two-thirds the length of the abdomen, most frequently much shorter; last joint of hind tarsi about the length of the third, shorter than the second.
(1071) *Habrobracon* Ashmead.

20. Mesothoracic furrows more or less distinctly impressed, the middle lobe prominently elevated *anteriorly;* scutelum with a crenate furrow across the base.
Abdomen with the sutures between the segments distinct, well defined; tarsi normal, the last joint of the hind tarsi not enlarged, shorter than the second joint; first joint of the flagellum about twice as long as thick, *not* or scarcely longer than the second; ovipositor either long or short, normal, the sheaths *not* broad.
(1072) *Tropidobracon* Ashmead, new genus.
(Type, *Bracon gastroidex* Ashmead.)
Abdomen with the sutures after the first poorly defined, indistinct; tarsi abnormal, the last joint much enlarged, as long as the first; first joint of the flagellum about thrice as long as thick, a little longer than the second; ovipositor very stout, shorter than the abdomen, but with the sheaths broad ..... (1073) *Baryproctus* Ashmead, new genus.
(Type, *Bracon barypus* Marshall.)

Tribe III. EUUROBRACONINI.

This tribe is based upon a Japanese species named by Frederick Smith *Bracon penetrator;* it is remarkable for the length of the ovipositor, which is many times longer than the whole insect and recalls that found in certain Pimplids—*Rhyssa* and *Thalessa.*

Submedian cell distinctly longer than the median.

(1074) *Euurobracon* Ashmead, new genus.
(Type, *Bracon penetrator* Smith.)

Subfamily XVI. RHOGADINÆ.

1900. *Rhogadinæ*, Subfamily XVI, Ashmead, Smith's Insects of New Jersey, p. 596.

The distinctly margined occiput, temples, and cheeks, and the longer submedian cell in the hind wings, readily separate this subfamily from the *Braconinæ*, while from the *Spathiinæ* it is distinguished by mesonotal characters, and by the subdiscoidal nervure in the front wings, which originates *below* the middle of the discoidal nervure, never from above the middle. A single minor group has the occiput immargined, the cheeks are, however, margined.

The group is dividable into five tribes, or minor groups, called subfamilies by some writers, distinguishable by the characters employed in the following table:

TABLE OF TRIBES.

Front wings with *two* cubital cells 5
Front wings with *three* cubital cells 2
2. Head transverse, narrowed, never full behind the eyes, the temples *not* broad 3
Head large, quadrate or cubical, full behind the eyes, the temples broad.... 4
3. Abdominal segments 1 and 2 *without* a median longitudinal carina, the thyridia usually wanting, rarely distinct; ovipositor strongly exserted, or prominent.
Head with the occiput immargined; radius in hind wings entirely obsolete or subobsolete.....Tribe I. Exothecini.
Head with the occiput always margined; radius in hind wings usually distinct .....Tribe II. Rhyssalini.
Abdominal segments 1 and 2 and sometimes 3 *with* a longitudinal median carina, the thyridia distinct; ovipositor never prominent, at most subexserted. Tribe III. Rhogadini.
4. Abdominal segments 1 and 2 *without* a median carina, at most rugulose or striate; ovipositor long .....Tribe IV. Doryctini.
5. Head quadrate, full behind the eyes, the temples broad..Tribe V. Hecabolini.

Tribe I. EXOTHECINI.

1862. *Exothecoidæ*, Family, Förster, Verh. d. naturh. Ver. pr. Rheinl., XIX, p. 279.
1885. *Exothecides* Marshall, Trans. Ent. Soc. Lond., p. 9.
1887. *Exothecinæ*, Subfamily, Cresson, Syn. Hym. North America, p. 56.
1888. *Exothecidæ*, Tribe II, Marshall, Species des Hym. des Braconides, I, p. 65.
1900. *Exothecini*, Tribe V, Ashmead, Smith's Insects of New Jersey, p. 597.

This tribe is readily separated from the others by the immargined occiput. It comes nearest in this respect to the subfamily *Braconinæ*, with which the species are easily confused. The venation of the hind wings is, however, quite distinct from the species in that group, the submedian cell being always much longer, nearly half the length of the median cell, while in the *Braconinæ* it is never more than one-third the length of the median cell.

Eight genera belong to this tribe, separable as follows:

TABLE OF GENERA.

Suturiform articulation distinct, crenulate 2
Suturiform articulation obsolete 3
2. Stigma large, oval, the marginal cell closed a little before the tip of the wing. (1075) *Zamegaspilus* Ashmead, new genus. (Type, *Zamegaspilus Hopkinsi* Ashmead, manuscript.)
Stigma normal, the marginal cell closed at the apex of the wing; metathorax with a delicate median carina; second dorsal abdominal segment with a cross furrow ..... (1076) *Phanomeris* Förster.
3. Radius originating from the middle of the stigma 4
Radius originating far *beyond* the middle of the stigma 5
Radius originating much *before* the middle of the stigma.
Submedian cell much longer than the median, the transverse median nervure joining the median vein far *beyond* the origin of the basal nervure. (1077) *Exothecus* Wesmael.
Submedian cell *not* longer than the median, the transverse median nervure interstitial with the basal nervure ..... (1078) *Xynobius* Förster.
4. Recurrent nervure received by the first cubital cell. Second abscissa of the radius more than twice as long as the first; abdominal segments 2–3, smooth, shining, the first sometimes aciculate.
Second discoidal cell closed ..... (1079) *Rhysipolis* Förster.
Second discoidal cell open ..... (1080) *Lytopylus* Förster.
Recurrent nervure received by the second cubital cell. (1081) *Bathystomus* Förster.
5. Recurrent nervure received by the first cubital cell; second abdominal segment *without* a transverse furrow ..... (1082) *Xenarcha* Förster.

Tribe II. RHYSSALINI.

1862. *Rhyssaloidæ*, Family 7, Förster, Verh. d. naturh. Ver. pr. Rheinl., XIX, pp. 228 and 241.
1885. *Rhyssalides* Marshall, Trans. Ent. Soc. Lond., p. 9.
1887. *Rhyssalinæ*, Subfamily, Cresson, Syn. Hym. North America, p. 56.
1900. *Rhyssalini*, Tribe IV, Ashmead, Smith's Insects of New Jersey, p. 596.

This tribe is composed of a number of minute species easily confused with some in the tribe *Exothecini*, and great care must be given to the

examination of the head before the species can be placed, the occiput in this group being distinctly margined, while in the former it is immargined. The presence of a radius in the hind wings assist somewhat in placing these insects, but the character is only of secondary importance since it is absent in some forms.

Nine genera fall into this tribe, distinguishable by the use of the following table:

TABLE OF GENERA.

Recurrent nervure *interstitial* with the first transverse cubitus or received by the *first* cubital cell 2

Recurrent nervure received by the *second* cubital cell 9

2. Marginal cell in front wings completely closed 3

Marginal cell in front wings open at apex.

Stigma narrow, lanceolate, the radius originating a little beyond its middle. (1083) *Ademon* Haliday.

3. Radius originating *at* or much *beyond* the middle of the stigma 5

Radius originating somewhat *before* the middle of the stigma.

Abdomen always broadened at the middle, oval or oblong-oval 4

Abdomen sessile sublinear, scarcely broadened at the middle, the second segment longer than the two following united, the fourth somewhat shorter than the third ..... (1084) *Camptocentrus* Kriechbaumer.

4. Second abdominal segment *with* two oblique furrows, the hind margin tumid; legs short, the femora much swollen. (1085) *Glyptocolastes* Ashmead, new genus. (Type, *Glyptocolastes texanus* Ashmead, manuscript.)

Second abdominal segment *without* oblique furrows, the hind margin *not* tumid; metanotum with a median carina and a small triangular areola; legs not short, slender ..... (1086) *Colastes* Haliday.

5. Radius originating from the middle of the stigma or only a little beyond 6

Radius originating from the last third of the stigma 8

6. Metanotum with a short median carina, which is usually forked at apex.

Abdomen in female *not* compressed at apex, with the hind margins of segments 2 and 3, and sometimes one or more of the following, tumid; stigma strongly angulate at the origin of the radius 7

Abdomen in female compressed at apex, with the hind margin of segments 2 and 3 normal, *not* tumid; dorsal segments 1–3 rugulose; stigma not angulate at the origin of the radius ..... (1087) *Clinocentrus* Haliday.

7. First abscissa of the radius very short, less than half the length of the first transverse cubitus (or scarcely longer); second abdominal segment very little longer than the first; metathorax with an areola and a petiola area. (1088) *Oncophanes* Förster.

First abscissa of radius much longer, fully half the length of the first transverse cubitus or longer; second abdominal segment very large, nearly twice as long as the first ..... (1089) *Epirhyssalus* Ashmead, new genus. (Type, *Epirhyssalus californicus* Ashmead, manuscript.)

8. Stigma scarcely angulate at the origin of the radius. (1090) *Noserus* Förster.

9. Metathorax areolated, the basal area always complete; radius originating beyond the middle of the stigma; hind tibiæ in male thick, clavate. (1091) *Rhyssalus* Haliday.

Metathorax *not* areolated; radius originating from the middle of the stigma; hind tibiæ in male normal ..... (1092) *Eurybolus* Ratzeburg.

Tribe III. RHOGADINI.

1862. *Rhogadoidæ*, Family 6, FÖRSTER, Verh. d. naturh. Ver. pr. Rheinl., XIX, pp. 228 and 240.
1885. *Rhogadides* MARSHALL, Trans. Ent. Soc. Lond., p. 10.
1887. *Rhogadinæ*, Subfamily, CRESSON, Syn. Hym. North America, p. 58.
1888. *Rhogadidæ*, Tribe VIII, MARSHALL, Species des Hymén. des Braconides, I, p. 66.
1900. *Rhogadini*, Tribe III, ASHMEAD, Smith's Insects of New Jersey, p. 596.

The species falling in this tribe are very characteristic, and among the easiest of all Braconids to recognize by the longitudinal carinæ on the first and second abdominal segments and their characteristic sculpture.

Five genera fall into this tribe, all occurring in our fauna. They may be readily distinguished by the use of the following table:

TABLE OF GENERA.

Suturiform articulation obsolete 2
Suturiform articulation distinct, crenulate 4
2. Abdomen *not* longer than the head and thorax united, in female not strongly compressed 3
Abdomen longer than the head and thorax united, in female strongly compressed from before the middle toward the apex; ovipositor subexserted; second cubital cell rectangular ..... (1093) *Petalodes* Wesmael.
3. Tarsi very short, hardly half the length of the tibiæ; second cubital cell small, shorter than the first abscissa of the radius ..... (1094) *Velicones* Cameron.
4. Third joint of the maxillary palpi normal 5
Third joint of the maxillary palpi dilated inwardly; ovipositor slightly exserted. (1095) *Pelecystoma* Wesmael.
5. First abscissa of the radius longer than the second, the second cubital cell quadrate; terminal abdominal segments more or less retracted. (1096) *Heterogamus* Wesmael.
First abscissa of the radius shorter than the second, the second cubital cell longer than wide, or trapezoidal ..... (1097) *Rhogas* Nees.

Tribe IV. DORYCTINI.

1862. *Doryctoidæ*, Family 4, FÖRSTER, Verh. d. naturh. Ver. pr. Rheinl., XIX, pp. 227 and 238.
1885. *Dorycides* MARSHALL, Trans. Ent. Soc. Lond., p., 9.
1887. *Dorycinæ*, Subfamily, CRESSON, Syn. Hym. North America, p., 57.
1888. *Dorycidæ*, Tribe VI, MARSHALL, Species des Hymén. des Braconides, I, p. 65.
1900. *Dorycini*, Tribe II, ASHMEAD, Smith's Insects of New Jersey, p. 596.

This tribe has been heretofore treated as a subfamily equivalent in value to the *Braconinæ*, with which some of them are frequently confused, although they ought not to be, since the head is distinctly margined and the venation of the hind wings is wholly different, the submedian cell being very long, longer than half the length of the median.

To my eyes the two groups are quite distinct and have little in common, the resemblance to each other being merely superficial.

Ten genera belong to this tribe, among which is the genus *Stenophasmus* Smith, placed by some authorities with the *Stephanidæ*. I have not seen the type of this genus, however, and what American hymenopterologist take for it may be quite a distinct genus. Our species, placed in it, are easily confused with the genus *Spathius* on account of the petiolate abdomen and the similarity of venation.

TABLE OF GENERA.

Second abdominal segment separated from the third by a strong transverse furrow. 2
Second abdominal segment blending with the third, *not* separated by a strong transverse furrow 3

2. Hind coxæ armed with a strong tooth or spine above.
(1098) *Odontobracon* Cameron=*Syngaster* Brullé (part.)
Hind coxæ normal, unarmed.
Recurrent nervure received by the *first* cubital cell.
(1099) *Hedysomus* Förster ?=*Zombrus* Marshall.
Recurrent nervure received by the *second* cubital cell.
(1100) *Rhaconotus* Reinhard.

3. Basal joint of the hind tarsi *not* longer than the four following joints united; antennæ very long 4
Basal joint of the hind tarsi about twice as long as the four following joints united; antennæ very short ..... (1101) *Histeromerus* Wesmael.

4. Recurrent nervure received by the *first* cubital cell, or *interstitial* with the first transverse cubitus 5
Recurrent nervure received by the second cubital cell.
Second and third abscissæ of the radius and the cubitus abnormally *thickened;* hind wings *without* an anal cell ..... (1102) *Caenopachys* Förster.
Second and third abscissæ of the radius normal, *not* thickened; hind wings with an anal cell ..... (1103) *Doryctomorpha* Ashmead, new genus.
(Type, *Doryctomorpha antipoda* Ashmead, manuscript.)

5. Abdominal segments *without* arcuate punctate lines, at the most with the second segment only with oblique impressed lines 6
All abdominal segments *with* punctate, arcuate lines; recurrent nervure interstitial with the first transverse cubitus.
(1104) *Bathycentor* Kriechbaumer.

6. Second abdominal segment *without* deep oblique impressed lines; hind wings in male *without* a stigma 7
Second abdominal segment *with* two distinct oblique impressions or lines; hind wings in male usually *with* a stigma, rarely without; recurrent nervure *not* interstitial ..... (1105) *Glyptodoryctes* Ashmead, new genus.
(Type, *Heterospilus caryæ* Ashmead, manuscript.)

7. Submedian cell *not* longer than the median; abdomen distinctly petiolate, the first segment long and slender 8
Submedian cell longer than the median; abdomen sessile.
Metathorax more or less distinctly areolated, or at least always with a complete areola or basal and lateral areas; first joint of the flagellum distinctly longer than the second; basal abdominal segment striate or sculptured, the second and following usually smooth, polished, rarely with the second striate at base ..... (1106) *Ischiogonus* Wesmael.

Metathorax *not*, or incompletely, areolated, the areola, if at all defined, open behind, the lateral areas never distinct; first joint of the flagellum *not* longer than the second, equal or slightly shorter; first abdominal segment base of the second, as well as sometimes the following segments, striate or sculptured.....(1107) *Doryctes* Haliday.

Submedian cell *not* longer than the median; abdomen distinctly petiolate, the first segment very long and slender; metathorax sculptured but exareolated; antennæ long and slender, the first and second joints of the flagellum about equal in length.....(1108) *Stenophasmus* Smith.

Tribe V. HECABOLINI.

1862. *Hecaboloidæ*, Family 3, FÖRSTER, Verh. d. naturh. Ver. pr. Rheinl., XIX, pp. 227 and 236.
1887. *Hecabolinæ*, Subfamily, CRESSON, Syn. Hym. North America, p. 57.
1888. *Hecabolidæ*, Tribe IV, MARSHALL, Species des Hym. des Braconides, I, p. 65.
1900. *Hecabolini*, Tribe I, ASHMEAD, Smith's Insects of New Jersey, p. 596.

This tribe is easily separated from all the others in this group by the venation of the front wings, which have only *two* cubital cells; otherwise it resembles the *Doryctini*, the species falling in it having a cubical-shaped head.

Only two genera have been recognized, separable as follows:

TABLE OF GENERA.

Marginal cell narrow, cuneiform, prolonged to the tip of the wing; second abdominal segment *with* two converging furrows; hind wings in male *without* a stigma. (1109) *Eucorystes* Marshall.

Marginal cell normal, or cultriform; second abdominal segment *without* converging furrows; hind wings in male with a stigma.....(1110) *Hecabolus* Curtis.

Subfamily XVII. SPATHIINÆ.

1862. *Euspathioidæ*, Family 2, FÖRSTER, Verh. d. naturh. Ver. pr. Rheinl., XIX, pp. 227 and 236.
1887. *Spathiinæ*, Subfamily, CRESSON (part) Syn. Hym. North America, p. 57.
1888. *Spathiidæ*, Tribe III, MARSHALL (part) Species des Hym. des Braconides, I, p. 65.
1900. *Spathiinæ*, Subfamily XVII, ASHMEAD, Smith's Insects of New Jersey, p. 597.

With this subfamily I terminate the genuine Braconids, and consider it the connecting link between the families *Braconidæ* and *Stephanidæ*. Its nearest allies are to be found among the *Rhogadinæ*, but from them it is readily separated by the minute, tibial spurs, and in having the subdiscoidal nervure either interstitial or originating *above* the middle of the discoidal nervure.

The group is dividable into three tribes, usually treated as subfamilies, and recognizable by the characters made use of in the following table:

TABLE OF TRIBES.

Abdomen sessile; head transverse, very rarely quadrate.
Front wings with *two* cubital cells or less; recurrent nervure in hind wings and the submedian cell wanting; female sometimes apterous, with only three visible segments ..... Tribe I. PAMBOLINI.
Front wings with *three* cubical cells, the subdiscoidal vein *interstitial* or nearly; recurrent nervure in hind wings rarely present, the submedial cell distinct; no apterous forms known ..... Tribe II. HORMIINI.
Abdomen petiolate; head quadrate, rarely subquadrate; front wings with three cubital cells ..... Tribe III. SPATHIINI.

Tribe I. PAMBOLINI.

1862. *Hecaboloidæ*, Family 3 (part), FÖRSTER, Verh. d. naturh. Ver. pr. Rheinl., XIX, pp. 227 and 236.
1885. *Pambolides* (part), MARSHALL, Trans. Ent. Soc. Lond., p. 9.
1887. *Pambolinæ*, Subfamily (part), CRESSON, Syn. Hym. North Amer., p. 57.
1888. *Pambolidæ*, Tribe V (part), MARSHALL, Species des Hym. des Braconides, I, p. 65.
1900. *Pambolini*, Tribe I, ASHMEAD, Smith's Insects of New Jersey, p. 597.

This tribe is distinguished from the *Spathiinæ* by having the abdomen sessile, never petiolate, and from the *Hormiini* by having only two cubital cells in the front wings. It also includes all the wingless species known in the subfamily.

I am in doubt as to the sexes of *Arhaphis* Ruthe and *Pambolus* Haliday. Mr. Marshall has united both under the genus *Pambolus* Haliday, but he has recently described and figured what I take to be a winged form of either *Pambolus* or *Arhaphis* under the genus *Phænodus*. Phænodus is known to me in nature, and has *three* cubital cells, not two as figured by Marshall. *Pambolus* is known to me in the female sex alone.

TABLE OF GENERA.

Metathorax normal, unarmed 2
Metathorax armed with two spines or teeth. Male.
(1111) *Arhaphis* Ruthe ?= *Pambolus* Haliday.
2. Winged 5
Wingless or at most with minute wing pads.
Antennæ more than 12-jointed; basal joint of the hind tarsi normal, *not* inflated 3
Antennæ 12-jointed; basal joint of the hind tarsi very large, inflated or incrassated. Male ..... (1112) *Sactopus* Ashmead, new genus.
(Type, *Sactopus schwarzii* Ashmead, manuscript.)
3. Abdomen with from 4 to 6 segments 4
Abdomen with 2 segments. Female (see p. 147.) .... (1113) *Pambolus* Haliday.
4. Antennæ 16-jointed, longer than the body; head large, quadrate; abdomen with at least 6 segments, the ovipositor scarcely half the length of the abdomen (Hawaii) ..... (1114) *Ecphylopsis* Ashmead, new genus.
(Type, *Ecphylopsis nigra* Ashmead, manuscript.)
Antennæ 18-jointed, much shorter than the body; head transverse; abdomen with 4 to 5 segments, the first and second occupying most of the surface;

ovipositor very long, nearly the length of the body; maxillary 4—, labial palpi, 3-jointed.....(1115) *Pambolidea* Ashmead, new genus.
(Type, *Pambolidea yuma* Ashmead, manuscript.)

5. Front wings with only *one* cubital cell..... 13
Front wings with *two* cubital cells.
Marginal cell completely closed..... 6
Marginal cell open at apex.
Hind tibiæ in male thickened clariform.....(1116) *Acrisis* Förster.

6. First cubital and first discoidal cells *not* confluent, distinctly separated..... 7
First cubital and first discoidal cells *confluent*, the first abscissa of the cubitus wanting..... 10

7. Recurrent nervure received by the *first* cubital cell..... 8
Recurrent nervure *interstitial* or received by the *second* cubital cell; mesonotum trilobed.....(1117) *Monolexis* Förster.

8. Transverse median nervure present; the second discoidal cell is therefore distinct..... 11
Transverse median nervure wanting; the second discoidal cell is therefore absent or *confluent* with the submedian cell..... 9

9. Antennæ 13-jointed; basal joint of the hind tarsi stout or incrassated, and as long as all the other joints united. Female..(1112) *Suctopus* Ashmead.
Antennæ more than 13-jointed; basal joint of the hind tarsi normal.
Subdiscoidal nervure interstitial.....(1118) *Ecphylus* Förster.
Subdiscoidal nervure *not* interstitial.....(1119) *Euchasmus* Marshall.

10. Submedian and the second discoidal cells confluent, the tranverse median nervure wanting; antennæ in female 16-jointed (Hawaii).
(1120) *Paraecphylus* Ashmead, new genus.
(Type, *Paraecphylus websteri* Ashmead, manuscript.)

11. Hind wings in male *with* a stigma.
Cubitus distinct, *not* obliterated just behind the first transverse cubitus..... 12
Cubitus obliterated just behind the first transverse cubitus.
(1121) *Miocolus* Förster.

12. Abdomen elongate, much longer than the head and thorax united, the second and third segments distinctly separated by a transverse suture.
(1122) *Polystenus* Förster = *Rhoptrocentrus* Marshall.
Abdomen oval, *not* longer than the head and thorax united, the second and third segments quite coalescing (see p. 146)..(1113) *Pambolus* Haliday.

13. Cubical cell separated from the first discoidal cell; subdiscoidal vein interstitial.
(1123) *Achoristus* Ratzeburg.
Cubital cell confused or confluent with the first discoidal cell.
(1124) *Telebolus* Marshall.

Tribe II. HORMIINI.

1862. *Rhyssaloidæ*, Family 7, Förster (part), Verh. d. naturh. Ver. pr. Rheinl., XIX, pp. 227 and 241.
1862. *Hormioidæ*, Family 5, Förster, Verh. d. naturh. Ver. pr. Rheinl., XIX, pp. 227 and 240.
1885. *Hormiides* Marshall, Trans. Ent. Soc. Lond., p. 9.
1887. *Hormiinæ*, Subfamily, Cresson, Syn. Hym. North America, p. 58.
1888. *Hormiidæ*, Tribe VII, Marshall, Species des Hym. des Braconides, I, p. 66.
1900. *Hormiini*, Tribe II, Ashmead, Smith's Insects of New Jersey, p. 597.

This tribe, in having the abdomen sessile, agrees with the tribe *Pambolini*, but is readily separated by the venation of the front wings,

which have *three* cubital cells, never less, and by having a distinct submedian cell in the hind wings.

Nine genera have been recognized, distinguishable as follows:

TABLE OF GENERA.

Upper hind angles of the metathorax produced into long spines 7
Upper hind angles of the metathorax normal, unarmed 2

2. Median and submedian cells in front wings usually of an equal length, very rarely with the submedian cell much the longer; antennæ from 17 to 36 jointed 3

Median cell much shorter than the submedian; antennæ 12-jointed.
(1125) *Chremylus* Haliday.

3. First transverse cubitus distinct, the first and second cubital cells *not* confluent 4

First transverse cubitus more or less obsolete, so that the first and second cubital cells are confluent 6

4. Subdiscoidal nervure *not* interstitial, strongly curved at the base 5

Subdiscoidal nervure interstitial.

Recurrent nervure received by the second cubital cell.
(1126) *Hormius* Nees.

Recurrent nervure interstitial with the first transverse cubitus.
(1127) *Hormiopterus* Girard.

5. Head subquadrate; second abdominal segment long, with a transverse impressed line; wings fasciate; scutellum *not* flat, elevated or conical.
(1128) *Callihormius* Ashmead, new genus.
(Type, *Pambolus bifasciatus* Ashmead, manuscript.)

Head quadrate; second abdominal segment *without* a transverse impressed line; scutellum not elevated.

Submedian cell distinctly longer than the median; second abscissa of the radius *not* longer than the first transverse cubitus, usually shorter; hind wings in male *with* a stigma ..... (1129) *Dendrosoter* Wesmael.

Submedian cell *not* or scarcely longer than the median; second abscissa of the radius usually much longer than the first transverse cubitus; hind wings in male *without* a stigma ..... (1130) *Atoreutus* Förster.

6. Head quadrate; hind wings in male *with* a stigma, rarely without.

Abdomen with 6 or 7 segments ..... (1131) *Heterospilus* Haliday = *Synodus* Ratzeburg = *Cænophanes* Förster = *Earybolus* Thomson.

Abdomen with only 3 visible segments; hind wings in male *without* a stigma ..... (1132) *Trissarthrum* Ashmead, new genus.
(Type, *Dimeris maculipennis* Ashmead, manuscript.)

7. Head transverse, the temples obliquely narrowed; recurrent nervure received by the first cubital cell ..... (1133)) *Phænodus* Förster.

Tribe III. SPATHIINI.

1862. *Euspathiidæ*, Family 2, Förster, Verh. d. naturh. Ver. pr. Rheinl., XIX, pp. 227 and 236.
1885. *Spathiides* Marshall, Trans. Ent. Soc. Lond., p. 9.
1887. *Spathiinæ*, Subfamily, Cresson, Syn. Hym. North America, p. 57.
1888. *Spathiidæ*, Tribe III, Marshall, Species des Hym. des Braconides, I, p. 65.
1900. *Spathiini*, Tribe III, Ashmead, Smith's Insects of New Jersey, p. 597.

This tribe is easily separated by the characteristic abdomen, which is always distinctly petiolate, the first segment being long and slender,

the spiracles placed much before the middle. In the typical forms (*Spathius*) the front wings have three distinct cubital cells, the hind wings with a recurrent nervure and a complete submedian cell, which is a little shorter than half the length of the median cell.

Only two genera are known, separable as follows:

TABLE OF GENERA.

Head transverse-quadrate 2
Head quadrate or cubical.
Second cubital cell much longer than first; recurrent nervure received by the second cubital cell at its lower hind angle ..... (1134) *Spathius* Nees.
2. Second cubital cell shorter than the first; recurrent nervure interstitial with the first transverse cubitus ..... (1135) *Psenobolus* Reinhard.

Family LXXIX. STEPHANIDÆ.

1815. *Stephanida* Leach, Edinb. Encyclop., IX, p. 142.
1839. *Stephanidæ*, Family 7, Haliday, Hym. Syn., p. ii.
1840. *Stephanidæ* Shuckard (part), Newman's Entom., I, p. 119.
1840. *Megalyridæ* Shuckard (part), Newman's Entom., I, p. 119.
1887. *Stephanidæ* Cresson, Syn. Hym. North America, p. 52.
1900. *Stephanidæ*, Family LXXIX, Ashmead, Smith's Insects of New Jersey, p. 597.

In this family the costal cell in the front wings is distinct, as in the *Evaniidæ* and in the aculeate Hymenoptera, and this character readily distinguishes the family from the *Ichneumonidæ*, the *Alysiidæ* and the *Braconidæ*. From the *Evaniidæ* it is separated by the abdomen, which is attached normally, as in the *Ichneumonidæ*. Its other characters are peculiar: The head is most frequently globose, rugose, and tuberculous; the mandibles are protruding and form a kind of mouth opening, similar to some Braconids; the antennæ are long and slender and inserted far anteriorly, close to the clypeus, the scape subglose; the prothorax is rather long and narrowed into a neck anteriorly; the front wings have only one recurrent nervure and have a venation, except in having a distinct costal cell very similar to many of the Braconids, the hind wings most frequently being *without* distinct basal cells; the abdomen is elongate, the ovipositor being long; while the hind legs are robust, the coxæ large and long, nearly as long as their femora, which is considerably swollen and most frequently armed with a tooth or teeth beneath.

The cephalic and venational characters of this curious group recall those to be found in the family *Oryssidæ*, and I can not help but think the two families, in ages past, had a common ancestry.

TABLE OF GENERA.

Hind wings *without* basal cells 2
Hind wings *with* basal cells.
Abdomen sessile, the first segment *not* longer than the second; posterior tarsi in both sexes normal, unarmed.

(1136) (1) *Schlettererius* Ashmead,[1] new genus=*Stephanus* Cresson, *nec* Jurine.
(Type, *Stephanus cinctipes* Cresson.)

2. Abdomen petiolate, or the first segment is long petioliform, as long or nearly as long as the rest of the segments united; hind femora short, swollen, and armed with teeth beneath, their tarsi variable, in female 3 or 4 jointed, in male 5-jointed; pronotum long.
(1137) (2) *Stephanus* Jurine=*Megischus* Brullé.

Abdomen sessile, the first segment *not* long; hind femora unarmed, their tarsi 5-jointed; pronotum short.....(1138) (3) *Megalyra* Westwood.

[1] After Dr. August Schletterer, the monographer of the family.

GENERA UNKNOWN TO AUTHOR AND NOT CLASSIFIED.

Family BRACONIDÆ.

Cephaloplites Széplegeti, Termes. Fuzet., XX, 1897, p. 600.
Belongs to subfamily *Opiinæ*.

Curtisella Spinola, Mém. accad. sc. Torino, (2), XIII, 1851, p. 30.
Belongs possibly to tribe *Calyptini*.

Cyanopterus Wesmael, *teste* Kirchner, Cat. Hym. Eur., 1867, p. 115.
Description unknown to me and not found in Wesmael, as recorded by Kirchner. The genus is evidently identical with *Melanobracon* Ashmead, and, if described, has priority over that genus.

Euryzona Haliday, Ent. Mag., V, 1838, p. 5.
Belongs to the subfamily *Agathidinæ*. The name was suggested for a species from Australia, but since neither the species nor genus was ever characterized, the name should be dropped.

Gnathobracon Costa, Ann. Mus. Zool. Napoli, II, 1864, p. 69.

Heratremis Walker, Ann. and Mag. Nat. Hist., (3), V, 1860, p. 310.

Isomecus Kriechbaumer, Progr. Staatsgymn. Pola, 1895, p. 11.
Belongs to tribe *Rhogadini*. Description not seen by author, the publication not being in any of the libraries in Washington or Philadelphia.

Lysitermus Förster, Verh. d. naturh. Ver. pr. Rheinl., XIX, 1862, p. 2.

Nebartha Walker, Ann. and Mag. Nat. Hist., (3), V, 1860, p. 310.

Neotrimorus Dalla Torre, Wien. ent. Zeitg., XVII, 1898, p. 100.

Pseudovipio Széplegeti, Termes. Fuzet., XIX, 1896, pp. 167 and 230.

Psyttalia Walker, Ann. and Mag. Nat. Hist., (3), V, 1860, p. 311.

Spinaria Brullé, see p. 186.

Wesmaelella Spinola, Mém. accad. sci. Torino, (2), XIII, 1851, p. 32.

Family ICHNEUMONIDÆ.

Aglyptus Giraud, Ann. ent. Soc. France, (5), I, 1871, p. 411.

Amphibulus Kriechbaumer, Ent. Nachr., XIX, 1893, p. 122.

Anoplectis Kriechbaumer, Ent. Nachr., XXII, 1896, p. 363.

Branchopsis Kriechbaumer, Ent. Nachr., XII, 1886, p. 244.

Brachycystus Kriechbaumer, Corresp. Zool. mineral. Ver., in Regensburg, XXIV, 1880, p. 161.

Braunsia Kriechbaumer, Berl. ent. Zeitschr., XXXIX, 1894, p. 63.

Brischkea Kriechbaumer, Ent. Nachr., XXIII, 1897, p. 167.

Camptocentrus Kriechbaumer, Berl. ent. Zeitschr., XXXIX, 1894, p. 61.

Camptotypus Kriechbaumer, Ent. Nachr., XV, 1889, p. 311.

Cecidonomus Bridgman, Entom., XIII, 1880, p. 265.

Cratophion Thomson, Opus. Ent., XIII, 1889, p. 1363.

Cyrophio Thomson, Opus. Ent., XIII, 1889, p. 1367.

Dicksonia Holmgren, Nov. Species Ins., 1880, p. 11.

Diplomorphus Giraud, Ann. Soc. ent. France, (5) I, 1871, p. 409.

Dolichomitus Smith, Proc. Zool. Soc. Lond., 1877, p. 411.
Ectopius Wesmael, Mém. couron. ac. sci. Belg., 1859, p. 14.
Euryptilus Holmgren, Ichn. Suec., III, 1889, p. 375.
Goryphus Holmgren, Eng. Resa, Zool., I, 1868, p. 398, pl. VIII.
Griphodes Kriechbaumer, Termes. Fuzet., 1894, p. 57.
Hereterolabis Kriechbaumer, Ent. Nachr., XV, 1899, p. 18.
Idiostolus Förster, Verh. d. naturh. Ver. pr. Rheinl., XXV,1868, p. 190.
Labium Brullé, Hist. Nat. des Ins. Hym., IV, 1846, p. 316.
Lasiophorus Haliday, Ent. Mag., V, 1838, p. 5.
Leptobatides Du Buysson, Andrés' Species Hym. d'Eur., VI, 1896, p. 678.
Liogaster Kriechbaumer, Ent. Nachr., XVI, 1890, p. 297.
Matara Holmgren, Eng. Resa, Zool., I, 1868, p. 395.
Microleptes Gravenhorst, Ichn. Eur., I, 1829, p. 679.
Nemioblastus Thomson, Opus. Ent., IX, 1883, p. 901.
Ophiodes Hartig, Jahresb. der Forstwiss. u. Forst. naturk., 1840.
Opisoneura Kriechbaumer, Berl. ent. Zeitschr., ——.
Oresbius Marshall, Ent. Mo. Mag., III, 1867, p. 193.
Orotylus Holmgren, Ichn. Suec., III, 1889, p. 405.
Perissocerus Smith, Proc. Zool. Soc. Lond., 1877, p. 412.
Scambus Hartig, Jahresb üb. d. Forstschr. d. Forst. naturk., 1838, p. 267.
Sirbiriakoffia Holmgren, Nov. Species Ins., 1880, p. 13.
Sphaetes Breme? Publication unknown to author.
Sphecophaga Westwood, Intro. mod. class. Ins., II, 1840, Synop., p. 57.
Tricholabis Thomson, Opus. Ent., XVII, 1894, pp. 2102 and 2113.
Westwoodia Provancher *nec* Brullé, Nat. Can., VII, 1875, p. 329.
Xaniopelma Tschek, Verh. zool.-bot. Gesell. in Wien., XVIII, 1868, p. 443.
Xylophylax Kriechbaumer, Ent. Nachr., IV, 1878, p. 210.

GENERA INCORRECTLY PLACED WITH THE ICHNEUMONOIDEA.

Arotropus Provancher (=Stigmatomma Roger), Fn. du Can. Hym., II, 1883, p. 538.
Belongs to the family *Poneridæ*. (Formicoidea.)

Callipteroma Motschulsky (=Calliopteroma Dalla Torre), Bull. Soc. natural. Moscou, XXXVI, 1863, p. 35; Dalla Torre, Cat. Hym., IV, 1898, p. 307.
Belongs to the family *Encyrtidæ*. (Chalcidoidea.)

Copelus Provancher (=Helorus Latreille), Fn. du Can. Hym., II, 1883, p. 540.
Belongs to the family *Heloridæ*. (Proctotrypoidea.)

Monomachus Westwood, Ann. and Mag. Nat. Hist., VII, 1841, p. 535; Schletterer, Berl. Ent. Zeitschr., XXXIII, 1889, p. 209.
Belongs to the family *Heloridæ*. (Proctotrypoidea.)

Olixon, Cameron, Biol. Centr.-Amer. Hym., I, 1887, p. 413; Dalla Torre, Cat. Hym., IV, 1898, p. 307.
Belongs to the family *Bethylidæ*. (Vespoidea.)

Rhopalosoma Cresson (=Sibillina Westwood), Proc. Ent. Soc. Phil., IV, 1865, p. 58; Dalla Torre, Cat. Hym., IV, 1898, p. 307.—*Sibillina* Westwood, Trans. Ent. Soc. Lond., 1868, p. 329.—*Sibyllina* Dalla Torre, Cat. Hym., IX, 1894, p. 113.—Rhopalosoma Ashmead, Proc. Ent. Soc. Wash., III, 1895 [1896], p. 303.
Represents the type of the family *Rhopalosomidæ* Ashmead. (Vespoidea.)

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SYNOPSES OF THE FAMILIES OF THE HYMENOPTERA.

Suborder I. HETEROPHAGA.

Superfamily I. APOIDEA.

TABLE OF FAMILIES.

Labium, or tongue, flattened, most frequently shorter than the mentum, rarely much longer (some *Panurgidæ*); basal joints of labial palpi cylindrical, the first joint sometimes very elongate or thickened, but still neither flattened nor unlike the following joints 6

Labium, or tongue, very elongate, slender, and always longer than the mentum; two basal joints of labial palpi very elongate, compressed, valvate, and very unlike the following, which are minute, the third joint uniting with the second a little before its apex.

Hind tibiæ *with* two apical spurs 2

Hind tibiæ *without* apical spurs.

Sexes three, female, worker, male; workers with corbiculæ, the female *without;* maxillary palpi very short, 1-jointed (rarely indistinctly 2-jointed from a slight constriction); labial palpi 4-jointed, with the joints very unequal, the first two long, valvately compressed.

Family I. APIDÆ.

2. First cubital cell not, or rarely, divided by a delicate, oblique nervure; if at all present, incomplete or indicated by a hyaline streak or nervure; sexes two; female and male; hind tibiæ in female convex or rounded, never concave; no corbiculæ; basal joint of hind tarsi in female not forcipate at base; malar space except in the *Psithyridæ*, wanting or indistinct, never very large 3

First cubital cell most frequently divided by a distinct, but delicate, oblique nervure, rarely indistinct; hind tibiæ and metatarsi in female strongly dilated, outwardly concave; metatarsus in female forcipate; malar space large, distinct.

Labrum transverse, subtrapezoidal, the clypeus *not* carinate; body densely hairy; scutellum semicircular, rounded off posteriorly, and not projecting over the metanotum; sexes three, female, worker, male; female and worker with corbiculæ and a dense polleniferous scopa on hind tibiæ and tarsi; labial palpi 4-jointed; maxillary palpi short, 2-jointed; tongue not extending beyond the apex of thorax.

Family II. BOMBIDÆ.

Labrum large, subquadrate, the clypeus, and frequently the labrum also, carinate; body most frequently metallic, bare or nearly, rarely very densely pubescent (*Eulema*); scutellum large, quadrangular, projecting over the metanotum, the axillæ very small; sexes two, female, male; female with corbiculæ, but with the polleniferous scopa on hind tibiæ and tarsi very sparse, or thin and confined to

the lateral edges; labial palpi 2-jointed; maxillary palpi 1-jointed; tongue reaching to or beyond the middle of the abdomen.

Family III. EUGLOSSIDÆ.

3. Front wings with *two* cubital cells, the second sometimes incomplete..... 5
Front wings with *three* cubital cells.

Eyes extending to or nearly to the base of the mandibles, the malar space wanting, or at most not longer than the pedicel of antennæ..... 4

Eyes not nearly extending to the base of the mandibles, the malar space large, distinct, longer than the pedicel, and first joint of flagellum united.

Marginal cell very long, as long or longer than the three cubital cells united; body rather densely pubescent; abdomen broadly oval or oblong, flat beneath, convex above; female *without* corbiculæ or polliniferous scopa; male with eyes frequently strongly convergent above, the genitalia, squama, and lacinia always membranous.

Family IV. PSITHYRIDÆ.

4. Labrum large, free, convex, or inflexed.

Marginal cell neither especially long nor narrow, rarely longer than the first two cubital cells united.

Female *with* a dense polleniferous scopa on hind tibiæ and tarsi; body clothed with a dense pubescence; maxillary palpi 2- to 6-jointed.

Family V. ANTHOPHORIDÆ.

Female *without* a polleniferous scopa, at most with a thin, sparse flocculus on hind tibiæ and tarsi; body most frequently bare, or nearly; the pubescence, if any, short and sparse, rarely densely pubescent; species often metallic or rufous and black, the abdomen usually ornate, with white or yellow maculæ or bands.

Family VI. NOMADIDÆ.

Marginal cell long and narrow, usually as long or longer than the three cubital cells united.

Hind tibiæ and tarsi with a sparse pubescence, but *without* a distinct scopa; maxillary palpi 4- to 6-jointed; body usually metallic or submetallic, nearly bare; abdomen elongate, subcylindrical, the segments more or less constricted at sutures. Small species.

Family VII. CERATINIDÆ.

Hind tibiæ and tarsi with a dense scopa; maxillary palpi usually 4- to 6-jointed (rarely wanting); thorax more or less densely pubescent, or at least laterally; abdomen not elongate, oblong-oval, with a ventral scopa; eyes in males often convergent above.. Family VIII. XYLOCOPIDÆ.

5. Labrum large and free, uncovered; maxillary palpi 4-, 5-, or 6-jointed (rarely wanting); body densely pubescent; ventral scopa present, the hind legs with a dense scopa.

Marginal cell neither long nor narrow..... Family V. ANTHOPHORIDÆ (part).

Marginal cell very long and narrow ..... Family VIII. XYLOCOPIDÆ (part).

Labrum not large and free, most frequently entirely covered by the clypeus (*Megachilidæ*); or, if sometimes visible, then strongly inflexed (*Stelididæ*).

Abdomen in female *with* a ventral scopa; labrum entirely covered by the clypeus ..... Family IX. MEGACHILIDÆ.

Abdomen in female *without* a ventral scopa; labrum more or less visible, not entirely covered by the clypeus, strongly inflexed.

Family X. STELIDIDÆ.

6. Labium, or tongue, short, broad, obtuse or emarginate at apex, never acute medially; hind femora with or without a distinct pollen brush or flocculus 7

Labium, or tongue, long or short, but always acute medially at apex; hind femora always with a pollen brush or flocculus, rarely very thin and sparse.

Front wings with *two* cubital cells; labium long or short, usually, however, narrowed and longer than the mentum; labrum rather large, distinct, not covered by the clypeus, most frequently inflexed.

Family XI. PANURGIDÆ.

Front wings with *three* cubital cells; labium shorter, not longer than the mentum, triangular, not narrowed, rarely long; labrum not free, more or less hidden by the clypeus, or with the basal process alone visible.

Family XII. ANDRENIDÆ.

7. Front wings with *three* cubital cells; head and thorax more or less clothed with a dense pubescence; second recurrent nervure often more or less sinuate; labium at apex rather deeply triangularly emarginate; hind femora in female *with* a pollen brush or flocculus.

Family XIII. COLLETIDÆ.

Front wings with *two* cubital cells; head and thorax bare, or nearly; second recurrent nervure always straight; labium very short and broad, shallowly or very obtusely triangularly emarginate at apex; hind femora in female *without* a pollen brush or flocculus.

Family XIV. PROSOPIDÆ.

Superfamily II. SPHECOIDEA.

TABLE OF FAMILIES.

Middle tibiæ always with *two* apical spurs 5

Middle tibiæ with only *one* apical spur (occasionally absent in some males).

Median cell in hind wings not twice as long as the submedian, the latter often the longer; front wings with two or three cubital cells; if with one only the head transverse, not quadrate 2

Median cell in hind wings fully twice as long as the submedian; front wings with only one cubital cell, very rarely with an indistinctly defined areolet.

Head transverse, the temples not very broad; scutellum margined, the postscutellum armed with a spine, thorn, or forked process, and with squamæ; front wings with the first discoidal cell obliterated, rarely distinct, most frequently confluent with the second discoidal cell.....Family XV. OXYBELIDÆ.

Head large, quadrate or trapezoidal, the temples very broad; scutellum normal, the postscutellum unarmed, without squamæ; front wings with the first discoidal cell always distinct, separated from the second.....Family XVI. CRABRONIDÆ.

2. Abdomen with a strong constriction between the first and second segments; eyes often emarginate within 4

Abdomen without a strong constriction between the first and second segments; eyes most frequently normal, rarely emarginate within.

Abdomen sessile, never petiolate 3

Abdomen petiolate or subpetiolate; cubitus in hind wings usually originating before the transverse median nervure, more rarely interstitial or originating slightly beyond it; transverse median nervure not sinuate ?-shaped; ocelli distinct; labrum most frequently hidden, rarely triangularly exserted, never free.

Family XVII. PEMPHREDONIDÆ.

3. Labrum large, free, well developed, and triangularly elongated, much longer than wide; cubitus in hind wings usually originating beyond the transverse median nervure, the latter sinuate or somewhat ♂-shaped; ocelli aborted, represented by cicatrices.

Family XVIII. BEMBICIDÆ.

Labrum small, not free, usually completely hidden by the clypeus; cubitus in hind wings most frequently originating beyond the transverse median nervure, the latter straight, not ♂-shaped; mandibles often emarginate on under side; ocelli distinct, or at most with the lateral or hind ocelli aborted or wanting, indicated by cicatrices; front wings with a distinct stigma.....Family XIX. LARRIDÆ.

4. Head wider than the thorax, the temples not narrow, rather broad; eyes most frequently normal, rarely deeply emarginate within, although often slightly emarginate within; abdomen most frequently sessile or subsessile, rarely petiolate (*Tachypus* Klug), not elongate, ovate or oblong-oval, and most frequently with a deep constriction between the segments, or at least always with a constriction between the first and second; front wings with three cubital cells, the second often petiolate, the second and third each receiving a recurrent nervure; cubitus in hind wings variable, inerstitial or nearly, originating far beyond the transverse median nervure.

Family XX. PHILANTHIDÆ.

Head not wider than the thorax, the temples very narrow or flat; eyes always deeply emarginate within, or reniform; abdomen elongate, clavate, the first segment elongate, petioliform; front wings with one or two cubital cells, the second, however, usually more or less indistinct or subobsolete; cubitus in hind wings origiuating beyond the transverse median nervure .....Family XXI. TRYPOXYLIDÆ.

5. Abdomen without a constriction between the first and second segments; intermediate coxæ not contiguous..... 6

Abdomen with a more or less distinct constriction between the first and second segments, the first segment coarctate; intermediate coxæ contiguous; mesosternal suture wanting .....Family XXII. MELLINIDÆ.

6. Mesosternum produced into a forked process posteriorly; mesepisternum not separated; mesonotum with distinct parapsidal furrows..... 8

Mesosternum normal, not produced into a forked process posteriorly; mesepisternum separated; mesonotum without parapsidal furrows, or at most only vaguely defined.

Abdomen distinctly petiolated 7

Abdomen sessile or subsessile.

Labrum not free, entirely covered by the clypeus, or at most with only its apex visible; cubitus in hind wings originating *before* the transverse median nervure, rarely slightly beyond it, the latter most frequently straight, rarely sinuate or somewhat ♂-shaped.

Family XXIII. NYSSONIDÆ.

Labrum free, well developed, subtrianguar or semicircular, wider than long; cubitus in hind wings originating usually before the transverse median nervure, the latter strongly sinuate or somewhat ♂-shaped; ocelli distinct.....Family XXIV. STIZIDÆ.

7. Clypeus never produced posteriorly between the antennæ, the latter inserted above the base of the clypeus; metathorax most frequently rounded posteriorly, very rarely with acute angles; cubitus in hind wings variable, most frequently originating *beyond* the transverse median nervure, more rarely interstitial .....Family XXV. SPHECIDÆ.

8. Clypeus posteriorly usually carinate or produced between the insertion of the antennæ so that its basal margin is beyond a line drawn from their base; anteriorly it is often rostriform carinate, or at least more or less produced medially; metathorax usually long, abruptly truncate posteriorly with the angles acute or toothed, although sometimes the angles are rounded; pronotum rather long, conically produced.
Family XXVI. AMPULICIDÆ.

Superfamily III. VESPOIDEA.

TABLE OF FAMILIES.

Abdomen either sessile or petiolate, with the first ventral segment distinctly separated from the second by a more or less deep *constriction* or *transverse* furrow; legs most frequently fossorial 5

Abdomen either sessile or petiolate, but the second ventral segment *not* separated from the first by a strong constriction or transverse furrow; if somewhat constricted, then the legs are *not* fossorial and the wings are usually folded in repose; in the former case the legs may be either fossorial or simple.

Posterior legs usually short, the femora rarely reaching to or at least extending much beyond the middle of the abdomen; legs most frequently not fossorial 2

Posterior legs long, the femora most frequently reaching to or beyond the tip of the abdomen; tibiæ in female most frequently serrate or spinous, more rarely entirely smooth; middle tibiæ with two apical spurs.
Family XXVII. POMPILIDÆ.

2. Wings not folded in repose; female sometimes apterous 3

Wings folded in repose; never apterous.

Claws simple; middle tibiæ with two apical spurs; sexes three, female, worker, male ..... Family XXVIII. VESPIDÆ.

Claws with one or more teeth beneath; middle tibiæ with one or two apical spurs; sexes two, female and male ..... Family XXIX. EUMENIDÆ.

3. Metathoracic angles usually acutely produced, the metanotum posteriorly concave; scutellum large, flat, convex, conical, or spined; if the metathoracic angles are rounded, which occurs rarely, the abdomen has only from 3 to 5 visible segments.

Abdomen normal, with at least 6 distinct segments, the venter flat; antennæ usually strongly clavate, in female knobbed at apex; scutellum very large, flat; species *not* metallic; antennæ never more than 12-jointed.
Family XXX. MASARIDÆ.

Abdomen abnormal, with from 3 to 5 visible segments, the terminal segments most frequently retractile, telescopic-like, the venter concave or flat; species metallic; antennæ most frequently filiform, inserted close to the anterior border of the head, 13-jointed; scutellum convex, conical, or spined, rarely flat ..... Family XXXI. CHRYSIDIDÆ.

Metathoracic angles rarely toothed or acutely produced, the metanotum posteriorly squarely truncate or rounded, not concave; scutellum normal, or in some wingless females entirely absent; antennæ filiform or subclavate, rarely flabellate in some males; abdomen always with more than 5 dorsal segments.

Hind wings *with* a distinct venation, and always *without* anal lobes; females never apterous 4

Hind wings *without* a distinct venation, and always *with* an anal lobe; females often apterous; middle tibiæ with two apical spurs; antennæ, 10- to 26-jointed ..... Family XXXII. BETHYLIDÆ.

4. Trochanters 2-jointed; middle tibiæ with *two* apical spurs; eyes normal, *not* emarginate within; antennæ long, filiform, 15-jointed or more, similar in both sexes ..... Family XXXIII. TRIGONALIDÆ.

Trochanters 1-jointed; middle tibiæ with *one* apical spur; eyes reniform or emarginate within; antennæ in female 12-jointed, in male 13-jointed.
Family XXXIV. SAPYGIDÆ.

5. Middle coxæ contiguous or nearly 7
Middle coxæ distant, usually widely separated 6

6. Stigma in the front wings *not* well developed, at the most only slightly developed, either very small or linear; eyes most frequently emarginate within; middle tibiæ with two apical spurs.

Pygidium in male deeply emarginate at apex, the hypopygium terminating in a sharp thorn or aculeus, which curves upward and rests in the emargination of the pygidium; claws cleft.
Family XXXV. MYZINIDÆ.

Pygidium in male entire, or at most with only a slight sinus, the hypopygium terminating in three spines; claws simple.
Family XXXVI. SCOLIIDÆ.

Stigma in front wings well developed, ovate or subovate; eyes entire, never emarginate within; pygidium in male entire, the hypopygium terminating in a sharp aculeus, which curves upward.
Family XXXVII. TIPHIIDÆ.

7. Females always apterous, and frequently, but not always, without ocelli; eyes variable 9
Females always winged, with ocelli; eyes large, always extending to base of mandibles 8

8. Abdomen sessile or subsessile, and often with a more or less distinct constriction between dorsal segments 1 and 2; front wings with the stigma well developed, the marginal cell usually attaining the costa at apex (rarely rounded or truncate at apex, with a slight space between *Cosila* and allies); hind wings usually without an anal lobe, the cubitus either interstitial or originating beyond the transverse median nervure, very rarely originating before it; tibial spurs 1, 2, 2; tarsal joints normal; eyes entire; ocelli normal; hypopygium entire, not ending in a spine or an aculeus.
Family XXXVIII. COSILIDÆ.

Abdomen longly petiolate; front wings with the stigma small, not well developed, the second recurrent nervure subobsolete; hind wings bilobed, the cubitus originating far beyond the transverse median nervure; tibial spurs very long, straight; tarsal joints 2–3 in female dilated, deeply excised or lobed, and filled with a membrane between the lobes; eyes emarginate within; ocelli very large; antennæ very long, filiform, the joints with a bristle-like spine at apex.
Family XXXIX. RHOPALOSOMIDÆ.

9. Middle tibiæ with two apical spurs, rarely with one only, or none in some males.

Middle coxæ usually slightly separated by a triangular or bilobed projection of the mesosternum; females with the thorax divided into three parts, the pygidium usually subcompressed or otherwise formed, usually abnormal; hypopygium in male most frequently armed.
Family XL. THYNNIDÆ.

Middle coxæ contiguous, not separated by a triangular or bilobed projection of the mesosternum, the latter being squarely truncate at apex.

Thorax in the female divided into two parts; pygidium normal; hypopygium in male produced into a sharp aculeus, which curves upward (very rarely simple, unarmed); hind wings *with* a distinct anal lobe, the cubitus originating from the apex of the submedian cell, interstitial with the transverse median nervure, or rarely originating beyond it ..... Family XLI. MYRMOSIDÆ.

Thorax in female undivided, all the parts being closely united or soldered together, and *without* visible sutures between; pygidium normal; hypopygium in male simple, unarmed, but the genital plate is armed with two slender, straight spines, which project more or less distinctly from the tip of the abdomen; hind wings *without* an anal lobe, the cubitus originating far *before* the transverse median nervure ..... Family XLII. MUTILLIDÆ.

Superfamily IV. FORMICOIDEA.

TABLE OF FAMILIES.

Abdomen with the petiole composed of a single joint or node, never with a constriction between segments 2 and 3 4

Abdomen with the petiole composed of two joints, nodes, or scales, or if with one, with a strong constriction between segments 2 and 3. Females and workers with the sting well developed; orifice of the cloaca slit or cleft.

Middle and posterior tibiæ *with* apical spurs 2

Middle and posterior tibiæ *without* apical spurs 3

2. Males without cerci; subgenital plate semicircularly emarginate, ending in two prongs; genital organs wholly retractile; frontal carinæ close together, nearly vertical, not at all covering the base of the antennæ. Family XLIII. DORYLIDÆ.

Males with cerci; subgenital plate never ending in two prongs; genital organs, except in a single case, not wholly retractile; frontal carinæ most frequently remote; if close, they are usually dilated anteriorly in an oblique or horizontal lamina, and cover in part the insertion of the antennæ.

Petiole 1-jointed, but there is always a constriction between segments 2 and 3; pupæ covered with a cocoon ..... Family XLIV. PONERIDÆ.

Petiole with 2 joints or nodes; pupæ naked, without a cocoon. Family XLV. MYRMICIDÆ.

3. Male genital organs prominent; clypeus viewed from in front triangular, subtriangular, or semicircular, and always prolonged posteriorly between antennæ. (Leaf-cutting ants; all fungus growers.) Family XLVI. CRYPTOCERIDÆ.

4. Mandibles linear, parallel, articulated at or near the middle of the anterior margin of the head, in male very small or rudimentary; eyes in males very large, occupying most of the sides of the head; front wings with three cubital cells; females and workers with the sting well developed; orifice of cloaca slit or cleft. Family XLVII. ODONTOMACHIDÆ.

Mandibles articulated normally toward the anterior lateral angles of the head, never linear, parallel, nor very small; rudimentary in males; eyes not especially large.

Male genital organs not retractile, rarely very large, except in *Liometopum;* workers and females with a rudimentary sting; orifice of cloaca slit or cleft; pupæ without cocoons.

Family XLVIII. DOLICHODERIDÆ.

Male genital organs most frequently exserted, the hypopygium obtusely triangular or rounded at apex; workers and females without a sting; orifice of cloaca round, terminal, surrounded with a fringe of hairs; pupæ usually covered with a cocoon...Family XLIX. FORMICIDÆ.

Superfamily V. PROCTOTRYPOIDEA.

TABLE OF FAMILIES.

Trochanters distinctly 2-jointed..... 2

Trochanters 1-jointed.

Antennæ 14-jointed, inserted on the middle of the face; front wings with a lanceolate stigma, the marginal cell long, open at apex; maxillary palpi 5-, labial palpi 3-jointed; female abdomen very greatly lengthened, slender and cylindrical, about five times the length of the head and thorax united, composed of 6 segments; male abdomen clavate .....Family L. PELECINIDÆ.

2. Antennæ inserted at the clypeus..... 5

Antennæ inserted on the middle of the face, often on a frontal prominence.

Wingless forms..... 4

Winged.

Front wings with the marginal vein linear, never stigmated..... 3

Front wings with the marginal vein stigmated, or with a distinct stigma.

Mandibles dentate; antennæ 14–15 jointed; claws simple or pectinate; hind wings *with* a more or less distinct venation.

Family LI. HELORIDÆ.

Mandibles edentate; antennæ 13-jointed, with a ring joint; claws simple; hind wings *without* a distinct venation.

Family LII. PROCTOTRYPIDÆ.

3. Front wings with a distinct basal cell and usually with a marginal cell often closed, never entirely wanting, although often incomplete; hind wings always with a basal cell; antennæ 14–15-jointed; labial palpi 3-jointed .....Family LIII. BELYTIDÆ.

Front wings rarely with a distinct basal cell, the median vein most frequently obsolete or subobsolete, the marginal cell never complete, usually entirely wanting; hind wings always *without* a basal cell; antennæ 12, 13, or 14 jointed; labial palpi 2-jointed.

Family LIV. DIAPRIIDÆ.

4. Mandibles edentate.....Family LII. PROCTOTRYPIDÆ.

Mandibles dentate.

Labial palpi 3-jointed .....Family LIII. BELYTIDÆ.

Labial palpi 2-jointed .....Family LIV. DIAPRIIDÆ.

5. Wingless forms..... 7

Winged.

Abdomen acute or margined along the sides, sessile or subsessile..... 6

Abdomen rounded at sides, never acute or margined, sessile or subsessile; front tibiæ with the apical spur strongly forked; antennæ in female 10–11 jointed, in male 11-jointed; front wings always without a postmarginal vein, the stigmal vein or radius usually long, the marginal vein either linear or stigmated.....Family LV. CERAPHRONIDÆ.

6. Front wings most frequently with marginal and stigmal veins; antennæ usually 12-jointed in both sexes, but sometimes in female 11-jointed, or 7-jointed when the club joints coalesce..Family LVI. SCELIONIDÆ.

Front wings always *without* marginal and stigmal veins, and most frequently veinless, at the most with only the submarginal or subcostal vein present, which is sometimes clavate or stigmated at apex; antennæ never more than 10-jointed, usually with the same number of joints in both sexes (rarely only 8 or 9 jointed).

Family LVII. PLATYGASTERIDÆ.

7. Abdomen never acute or margined along the sides; anterior tibiæ with the apical spur strongly forked.....Family LV. CERAPHRONIDÆ.

Abdomen with the sides acute or margined; anterior tibiæ with one apical spur.

Antennæ 12-jointed or if with a solid club, 7-jointed; labial palpi 2-jointed.

Family LVI. SCELIONIDÆ.

Antennæ 10-jointed (rarely less); labial palpi 1-jointed.

Family LVII. PLATYGASTERIDÆ.

Superfamily VI. CYNIPOIDEA.

TABLE OF FAMILIES.

Abdominal tergites meeting along the venter and entirely inclosing or concealing the sternites, at most with only a part of the hypopygium exposed.

Family LVIII. FIGITIDÆ.

Abdominal tergites *not* meeting along the venter; all or nearly all the sternites visible.....Family LIX. CYNIPIDÆ.

Family LVIII. FIGITIDÆ.

TABLE OF SUBFAMILIES.

Abdomen short, globose or subglobose, the second segment the longest..... 3

Abdomen ovate, compressed or subcompressed, often longly petiolated, the apex usually pointed.

Scutellum cupuliform, i. e., with a cup-like elevation on its disk..... 2

Scutellum not cupuliform, of ordinary shape or grooved, spined, or cone-shaped, and usually foveate at base.

Abdomen sessile or subsessile or with a short petiole, the second segment shorter than the third.

Second abdominal segment *not* prolonged dorsally, as seen from the side, not tongue-shaped.....Subfamily I. FIGITINÆ.

Second abdominal segment prolonged dorsally, as seen from the side, tongue-shaped.....Subfamily II. ONYCHIINÆ.

Abdomen longly petiolated, the second segment usually somewhat longer than the third.

Petiole attached to the metathorax normally, between the hind coxæ; fourth segment not longer than either the second or the third.

Subfamily III. ANACHARINÆ.

Petiole attached to the metathorax far above the hind coxæ; fourth segment much longer than either the second or the third.

Subfamily IV. LIOPTERINÆ.

2. Second abdominal segment always the longest and usually occupying most of the surface of abdomen; hind tibiæ with *two* apical spurs.

Subfamily V. EUCŒLINÆ.

3. Scutellum rounded, smooth, convex; hind tibiæ with only *one* apical spur.

Subfamily VI. ALLOTRIINÆ.

Family LIX. CYNIPIDÆ.

TABLE OF SUBFAMILIES.

Basal joint of hind tarsi at least twice as long as all the others united; joints 2 to 4 scarcely longer than wide, the second with a long-spined process outwardly 2

Basal joint of hind tarsi usually shorter than joints 2 to 5 united, or never much longer; abdomen not or very little longer than the head and thorax united.

Second and third abdominal segments in female closely united and occupying the whole or nearly the whole surface of the abdomen, very rarely showing an indistinct dividing suture between; if the suture is present, it is very oblique and the segment dorsally is fully two-thirds the length of the abdomen; male sometimes with the second and third abdominal segments subequal, but these segments occupy most of the surface of abdomen; venter more or less completely covered basally ..... Subfamily I. SYNERGINÆ.

Second and third abdominal segments, in female and male, well separated and rarely occupying much more than half the whole surface of abdomen; segment 3 in male never longer than half the length of the first dorsally, the second segment being usually as long as all the following segments united; venter always visible.

Subfamily II. CYNIPINÆ.

2. Abdomen very strongly compressed, cultriform, and much longer than the head and thorax united, the four or five basal segments nearly of an equal length ..... Subfamily III. IBALIINÆ.

Superfamily VII. CHALCIDOIDEA.

TABLE OF FAMILIES.

Hind wings exceedingly narrow, linear, peduncle at base; ovipositor issuing from beneath just anterior to tip of abdomen; antennæ without a ring-joint, the scape rather small, short, compressed 12

Hind wings never very narrow, nor linear, not pedunculate at base; ovipositor issuing far anterior to the tip of abdomen; antennæ elbowed, with 1, 2, or 3 ring-joints, very rarely without, the scape large and rather long.

Axillæ triangularly produced or advanced forward into the basal region of the scapulæ, their base or anterior margin *on* or *in advance* of an imaginary line drawn from tegula to tegula; anterior tibial spur most frequently small or weak; tarsi 3–4-jointed, rarely 5-jointed or heteromerous 10

Axillæ normal, or at least never produced forward into the basal region of the scapulæ, their base or anterior margin straight and always back of an imaginary line drawn from tegula to tegula; anterior tibial spur large and strong; tarsi 5-jointed (rarely 4-jointed, or 3 or 4 jointed in some wingless males) 3

3. Head in female oblong, with a deep, broad longitudinal furrow above, the occipital margin superiorly, usually with a small recurved tubercle or spine at its middle; mandibles or palpi most frequently furnished with saw-like appendages; anterior and posterior legs very stout, their tibiæ very much shorter than their femora, the middle legs very slender, sometimes aborted; hypopygium very prominent,

acute, cultriform or lanceolate; ovipositor long, prominently exserted; male always apterous, the head anteriorly with a deep triangular fovea, in which are placed the short 3–9-jointed antennæ; the abdomen in the male is always long and tubular, thickened at base.

Family LX. AGAONIDÆ.

Head rarely oblong and quite differently formed, never with a deep broad longitudinal furrow above, most frequently transverse, or subquadrate, the occipital margin never with a small recurved spine; mandibles and palpi without saw-like appendages; middle legs not especially slender, the anterior and posterior legs are often stout, but their tibiæ are always longer, at least never shorter, than their femora; hypopygium rarely very prominent; male most frequently winged, rarely apterous; in the latter case the abdomen is normal, not long and tubular.

Mesopleura large, entire, without a femoral furrow, except occasionally in some males, the mesepisternum large, triangular, not extending to base of front coxæ; middle tibial spur saltatorial, most frequently long and stout, or dilated at base 8

Mesopleura always with a femoral furrow or impression, the mesepisternum variable, rarely large, except in the *Cleonymidæ*, most frequently small, wedge-shaped, or linear and extending to base of front coxæ; if large and triangular, either the anterior or posterior femora are much swollen; middle tibial spur not saltatorial, usually short or weak, never very stout.

Hind tibiæ with 2 apical spurs, rarely with 1 only; in the latter case the radius terminates in a large, rounded stigma, the ovipositor very long 4

Hind tibiæ with 1 apical spur; ovipositor rarely long, if long the stigma is small 9

4. Mandibles falcate, usually with 1 or 2 teeth within; thorax most frequently very gibbous, the scutellum usually very large, often abnormally developed, elevated and produced posteriorly, the axillæ connate, not distinctly separated from the surrounding surface and broadly united along their inner margins 6

Mandibles usually 3–4 dentate at apex; rarely falcate, with 1 or 2 teeth within; thorax not or very slightly gibbous, the axillæ distinctly separate, their inner margins most frequently widely separated, very rarely touching. 5

Hind coxæ rarely much larger than the anterior coxæ, most frequently smaller or equal; if much larger, the pronotum is elongate, mesepisternum large, the hind legs very long, the postmarginal vein very long; ovipositor very rarely prominent 5

Hind coxæ very large and long, usually five or six times larger than the anterior coxæ.

Hind coxæ subtriquetrous, or at least compressed into a sharp ridge above; hind femora never very much swollen, and most frequently simple, rarely with one large tooth or denticulate beneath; abdomen most frequently subcompressed (more rarely depressed), with a long ovipositor; if without an exserted ovipositor, the abdomen is conical or conic-ovate with a peculiar sculpture, the radius (stigmal vein) usually very short, the hind tibiæ at apex normal.

Family LXI. TORYMIDÆ.

Hind coxæ usually very long and subcylindrical, rarely triquetrous; hind femora always much swollen and most frequently armed with teeth

beneath or finely serrated, rarely without teeth; abdomen of various shapes, most frequently conical or conic-ovate, more rarely globose, or oblong oval, the ovipositor very rarely prominent; radius variable, rarely very short; hind tibiæ strongly curved and obliquely truncately produced at apex, so that the tarsi seem to be attached a little before tips ..... Family LXII. CHALCIDIDÆ.

5. Pronotum rarely transverse-quadrate, conical or conically produced anteriorly, or very short, transverse, and very much narrowed medially, rarely as wide as the mesonotum 7

Pronotum large quadrate or transverse quadrate, never very short, if somewhat shortened always as wide as the mesonotum.

Pronotum quadrate or subquadrate; abdomen in female not triangulated, globose, ovate, conic-ovate, or lanceolate and compressed or subcompressed, the hypopygium most frequently prominent plowshare shaped; second dorsal segment never very large; mandibles not strong, most frequent 4-dentate ..... Family LXIII. EURYTOMIDÆ.

Pronotum shorter, more transverse, and as wide as the mesonotum; abdomen in female most frequently triangulated, or globose, the second and third segments occupying most of the dorsal surface, the following very short and more or less retracted within the third; hypopygium not prominent; mandibles 2 or 3 dentate at apex.

Family LXIV. PERILAMPIDÆ.

6. Second abdominal segment very large and most frequently inclosing the following; coxæ not large, subglobose, nearly equal; all legs very slender; radius scarcely developed, its stigma sessile or subsessile.

Family LXV. EUCHARIDÆ.

7. Mesepisternum not large, triangular; anterior femora never much swollen, the posterior femora also normal or only slightly swollen; marginal vein in hind wings usually long, the costal cell not reaching to the hooklets or spinulæ and most frequently very narrow; radius well developed ..... Family LXVI. MISCOGASTERIDÆ.

Mesepisternum large, triangular; either the anterior or the posterior femora are much swollen and sometimes toothed, or both are swollen with the hind femora toothed; if with slender legs, the hind legs are very long, their coxæ long, cylindrical, while the radius (stigmal vein) in front wings is very short, with the postmarginal vein very long, extending to the apex of the wing (*Pelecinella* Westwood).

Family LXVII. CLEONYMIDÆ.

8. Mesonotum either depressed, with more or less distinct parapsidal furrows, the scapulæ longitudinally ridged, or convex or subconvex, entirely without furrows, rarely convex with distinct furrows; axillæ most frequently meeting at inner basal angles, rarely very widely separated ..... Family LXVIII. ENCYRTIDÆ.

9. Mesonotum subconvex with incomplete or complete parapsidal furrows; hind coxæ rarely much larger than the front coxæ; axillæ separated, not meeting at inner basal angles; mesepisternum usually small, wedge-shaped, or triangular; hind wings with a long marginal vein; mandibles usually stout, 3 or 4 dentate at apex.

Family LXIX. PTEROMALIDÆ.

10. Hind coxæ normal; mesopleura impressed 11

Hind coxæ abnormally large and dilated, their femora flat or compressed; tarsi very long; mesopleura entire, not impressed; marginal vein in front wings most frequently extraordinarily lengthened, the radius very short, scarcely dilated; mesonotum without furrows.

Family LXX. ELASMIDÆ.

11. Tarsi 4–5 jointed, rarely heteromerous; anterior wings not short and broad, with the pubescence normal; marginal and radial veins normal; postmarginal vein often wanting; mesonotum with complete or incomplete furrows ..... Family LXXI. EULOPHIDÆ.

Tarsi 3 jointed; anterior wings short and broad, broadly rounded at apex with the pubescences most frequently arranged in rows, more rarely normally pubescent; marginal and radial veins united in the form of a strongly curved line ∩ ..... Family LXXII. TRICHOGRAMMIDÆ.

12. Pronotum usually large, rounded, or conically produced anteriorly; wings always with a long marginal fringe, nearly veinless and always without a radius (stigmal vein), the marginal vein most frequently reduced to a mere dot; antennæ in female most frequently terminating in a distinct fusiform or egg-shaped solid club, more rarely with a 2-jointed club; tarsi 4–5 jointed ..... Family LXXIII. MYMARIDÆ.

Superfamily VIII. ICHNEUMONOIDEA.

TABLE OF FAMILIES (see p. 5).

Family LXXIV. EVANIIDÆ.
Family LXXV. AGRIOTYPIDÆ.
Family LXXVI. ICHNEUMONIDÆ.
Family LXXVII. ALYSIIDÆ.
Family LXXVIII. BRACONIDÆ.
Family LXXIX. STEPHANIDÆ.

Suborder II. PHYTOPHAGA.

Superfamily IX. SIRICOIDEA.

TABLE OF FAMILIES.

Metathorax fissured in the middle at apex 2

Metathorax not fissured.

Vertex tuberculate; antennæ inserted below the clypeus and eyes; front wings with two submarginal cells; abdomen cylindrical or depressed; ovipositor not exserted ..... Family LXXX. ORYSSIDÆ.

2. Middle lobe of mesonotum attaining the scutellum and separated from it by a transverse line; abdomen cylindrical or depressed.

Prothorax large, subquadrate; costal cell of front wings not divided by a transverse nervure; tip of abdomen ending in a triangular or lanceolate process ..... Family LXXXI. SIRICIDÆ.

Prothorax conical; costal cell of front wings divided by a transverse nervure; abdomen at tip normal ..... Family LXXXII. XIPHYDRIIDÆ.

Middle lobe of mesonotum not attaining the scutellum; abdomen more or less compressed ..... Family LXXXIII. CEPHIDÆ.

Superfamily X. TENTHREDINOIDEA.

TABLE OF FAMILIES.

Prothorax emarginate behind; middle lobe of mesonotum much longer than broad, not separated from the scutellum by a deep fovea; costal vein usually strongly thickened or clavate toward apex; costal cell *without* an intercostal vein; scape of antennæ very short or globose. 2

Prothorax subtruncate behind; middle lobe of mesonotum not much longer than broad, and separated from the scutellum by a deep fovea; costal nervure toward apex neither thickened nor clavate, the cubitus originating from the basal nervure; costal cell usually *with* an intercostal vein, rarely without (*Megalodontinæ*); scape of antennæ long or rather long.

Head transverse, the temples not very broad; third joint of antennæ very long, three or four times longer than the long scape; abdomen subdepressed, the ovipositor more or less exserted.

Family LXXXIV. XYELIDÆ.

Head quadrate, the temples very broad, third joint of antennæ rarely much longer than the scape; abdomen much depressed, the ovipositor hidden ..... Family LXXXV. LYDIDÆ.

2. Basal nervure in front wings usually uniting with the subcostal vein far from the origin of the cubitus; basal plates of first abdominal segment usually closely united, rarely showing a slight median emargination at apex; if deeply emarginate, the sides of the abdomen acutely margined, while the antennæ are clavate 7

Basal nervure in front wings usually uniting with the base of the cubitus or with the subcostal very near its base; basal plates of first abdominal segment most frequently not united, medially slit or with a wedge-shaped or broadly triangular emargination, sides of abdomen rounded, never acutely margined.

Front wings with two cubital cells 6

Front wings with one cubital cell 3

3. Front wings without a lanceolate cell 5

Front wings with a lanceolate cell.

Antennæ 9 to 25 jointed 4

Antennæ 3-jointed.

Hind wings with an anal cell; tibiæ usually with lateral spurs; antennæ in female with the third joint very long, subclavate or filiform, densely hairy, in male most frequently forked.

Family LXXXVI. HYLOTOMIDÆ.

4. Hind wings with an anal cell; female antennæ usually serrate or subserrate, male antennæ ramose or biramose ..... Family LXXXVII. LOPHYRIDÆ.

Hind wings without an anal cell; female antennæ most frequently subclavate or filiform, male antennæ usually ramose or filiform.

Family LXXXVIII. PERREYIIDÆ.

5. Hind wings without an anal cell; antennæ 6 to 25 jointed, in female clavate or subclavate, more rarely filiform, in male ramose or simple, filiform, multiarticulate ..... Family LXXXIX. PTERYGOPHORIDÆ.

6. Body rather short, oviform, the abdomen not long; scape small, scarcely longer than thick, not or only a little larger than the pedicel (except in the *Blasticotominæ*, which has, however, only 4-jointed antennæ); antennæ 4 to 15 jointed; head, seen from above, not quadrate, the occiput more deeply concave, the temples not so broad, more rounded behind, while there is no distinct furrow or depression between the antennæ and eyes, or so slight as to be scarcely noticeable ..... Family XC. SELANDRIIDÆ.

Body elongate, the abdomen usually long, narrow, and subcylindrical; scape rather large, usually thrice as long as thick, or about four times larger than the pedicel; antennæ 9-jointed; head, seen from above, quadrate, the temples very broad and with a furrow, channel, or

depression on each side of the antennæ, between them and the eyes, which extends upward and posteriorly on the vertex.

Family XCIII. TENTHREDINIDÆ (part)
(=Subfamily STRONGYLOGASTERINÆ).

7. Front wings with two cubital cells 8
Front wings with one cubital cell; second submarginal cell receiving two recurrent nervures; lanceolate cell contracted near the middle and closed at base, or petiolate; antennæ 9-jointed...Family XCI. NEMATIDÆ.

8. Abdomen acutely margined at sides; antennæ clavate, 5 to 8 jointed 9
Abdomen not margined at sides; antennæ not clavate, 8 to 9 jointed; front wings with three or four cubital cells.

Front wings with four cubital cells, the second usually receiving both recurrent nervures or the second recurrent is interstitial with the second transverse cubitus, very rarely joining the base of the third submarginal cell; if with only three cubital cells the first transverse cubitus is wanting; abdomen short, oviform.

Family XCII. DINEURIDÆ.

Front wings with four cubital cells, the second and third each receiving a recurrent nervure; if with three submarginal cells, either the first or the second transverse cubitus is wanting; abdomen elongate, subcylindrical.....Family XCIII. TENTHREDINIDÆ.

9. Dorsal plates of first abdominal segment usually deeply emarginate medially, leaving a membrane exposed.....Family XCIV. CIMBICIDÆ.

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