

**A generic Synopsis of the Hymenopterous Family
PROCTOTRUPIDÆ.**

BY L. O. HOWARD.

This large family has been but little studied in this country, although considerable material for study is to be found in the various collections. I have been able to pay but little attention to the group, and this synopsis is nearly a literal translation of that which appears in Part II of Dr. Foerster's "Hymenopterologische Studien," Aachen, 1856. I have inserted, however, several of his more recently erected genera taken from his "Kleine Monographien," and also one or two others which have been described since. The division into subfamilies which immediately follows is faulty in the absence of the subfamily *BETHYLINÆ*, a generic synopsis of which is included later. My excuse for this omission is ignorance of the general characters of this subfamily, which, together with the *Emboleminae*, is omitted by Foerster from his subfamily synopsis. I have been unable to find a copy of Haliday's "Hymenopterorum Synopsis" in America in which the characters of this subfamily are presumably given, and while this synopsis is being printed Prof. Riley is kindly searching for this paper in English libraries. I am obliged, however, not to defer publication on this account. I have prefixed an asterisk to those genera, species of which have been published as found in America north of Mexico, and a dagger to those which I have myself recognized in collections (mainly in Prof. C. V. Riley's, now the property of the National Museum by donation), but which have not yet been published as American. Of the one hundred and thirteen genera mentioned in the synopsis, but twenty-nine have thus far been found in this country.

Family PROCTOTRUPIDÆ.

Hind wings with a distinct lobe near base, or, where the wings of the ♀ are wanting, the fore feet are fitted for grasping.

Antennæ with same number of joints ♂ and ♀.....Subfamily **Dryininae**.
 ♂ antennæ 10- ♀ 13-jointed.....Subfamily **Emboleminae**.

Hind wings not lobed.

The front tibiae with two spurs.....Subfamily **Ceraphroninae**.

Front tibiae with one spur.

Mandibles not toothed.....Subfamily **Proctotruperinae**.

Mandibles toothed.

Abdomen acutely margined on the sides; antennae arise near the border of the mouth.

Wings with a marginal vein and occasionally also with a stigmal; the unwinged genera without ocelli.....Subfamily **Scellioninae**.

Wings without marginal and stigmal veins; all genera with ocelli.

Subfamily **Platygasterinae**.

Abdomen not acutely margined; antennae arise far above the border of the mouth.

Hind wings without a trace of a median vein.

Hind wings very small, almost linear.....Subfamily **Mymarinae**.

Hind wings broader, not linear.....Subfamily **Diaprinae**.

Hind wings with a median vein.

Fore wings with or without a regular basal vein (*grundader*); flagellum without a ring-joint.....Subfamily **Belytinae**.

Fore wings with an abruptly broken basal vein, from one end of which arises a cubital vein distinguished by its irregular course; both together these form an irregular discoidal cell; flagellum with one ring-joint.....Subfamily **Helorinae**.

Subfamily DRYININÆ.

Vertex deeply impressed.

With wings.....* Genus **Dryinus** Latreille.

Without wings.....* Genus **Gonatopus** Ijumph.

Vertex convex, not impressed.

Occiput deeply concave; vertex and neck separated by a sharp angle.

Genus **Labeo** Haliday.

Occiput delicately concave; vertex and neck not so markedly separated.

Fore tarsi with scissor-like or pincer-like claws, ♀; pronotum visible above, but not longer than mesonotum, ♂.

Fourth tarsal joint of the fore tarsi much longer than third, ♀; pronotum as long as, or nearly as long as mesonotum, ♂ ♀.

† Genus **Chelogyne** Haliday.

Fourth tarsal joint as long as, or scarcely longer than third, ♀; pronotum much shorter than mesonotum, ♂ ♀.....Genus **Anteon** Jurine.

Fore tarsi not scissor- or pincer-like, ♀; pronotum above not visible, or longer than mesonotum, ♂.

Pronotum much longer than mesonotum; mesonotum without a trace of a furrow; wings short, spoon-shaped.

Genus **Mystrophorus** Foerster.

Pronotum above not, or very slightly visible; mesonotum very strongly developed; mesoscutum with distinct furrows; wings fully developed, ♂ ♀.....Genus **Aphelopus** Dalman.

Subfamily EMBOLEMINÆ.

Eyes arched, ocelli large; scape shorter than first funicle joint.

Genus **Embolemus** Westwood.

Eyes flat, ocelli very small; scape much longer than first funicle joint; wings rudimentary.....Genus **Pedinomma** Foerster.

Subfamily BETHYLINÆ.

Head without ocelli.....Genus **Sclerochroa** Foerster.

Head with ocelli.

Fore wings with a complete radial cell.....Genus **Sicrola** Cameron.

Fore wings with a nearly complete radial cell.

Basal vein with a backwards directed branch.

Antennæ 12-jointed, ♂ ♀.....Genus **Perisemus** Foerster.

Antennæ 13-jointed* Genus **Goniozus** Foerster.

Basal vein without a branch.

Parapsidal furrows plain; abdominal segments of almost equal length.

* Genus **Epyris** Westwood.

Parapsidal furrows wanting; abdominal segments of unequal length.

Genus **Isobrachium** Foerster.

Fore wings without a radial cell.

Fore wings with a marginal and a stigmal vein.

* Genus **Bethylus** Latreille.

Fore wings without marginal and stigmal veins.

Antennæ 13-jointedGenus **Ateleopterus** Foerster.

Antennæ 12-jointed.....Genus **Holopedina** Foerster.

Subfamily CERAPHRONINÆ.

Head flat, perfectly horizontal; vertex with a median furrow.

Genus **Synarsis** Foerster.

Head more rounded, not perfectly horizontal; vertex without a median furrow.

No ocelli.....Genus **Lagynodes** Foerster ♀.

With evident ocelli.

Wings without a plain radial cell, or narrow with a linear radial cell.

Head with a sharp tooth between the bases of the antennæ.

Genus **Lagynodes** Foerster ♂.

Head without such a tooth.....* Genus **Ceraphron** Jurine.

Wings with a broad radial cell.

Wings perfectly hairless.....Genus **Trichosteresis** Foerster.

Wings hairy.

Antennæ toothed or branched, ♂; eyes smooth, not hairy, ♀.

Mesonotum with furrows.....† Genus **Lygocerus** Foerster.

Mesonotum without furrows.....Genus **Atritonus** Foerster.

Antennæ filiform, ♂; eyes hairy, ♀.

† Genus **Megaspilus** Westwood.

Subfamily PROCTOTRUPINÆ.

This subfamily consists of the single genus *Proctotrupes*, which is sufficiently distinguished by its untoothed mandibles from all other Proctotrupid genera. A number of species of this genus are figured by Snellen Van Vollenhoven in his *Pinacographia* with more than his usual care. Several North American species have been described by Say, Provancher and Patton.

Subfamily SCELIONINÆ.

Antennal club not jointed.

Winged.....Genus **Thoron** Haliday, ♀.

Unwinged or with short wing-pads.

Without mesoscutellum.....† Genus **Brens** Haliday.

With an evident scutellum.....Genus **Acolus** Foerster.

Antennal club jointed.

Submarginal vein shortened, not reaching costa.† Genus **Braconera** Foerster.

Submarginal vein not shortened, reaching costa.

Marginal vein very long, at least four or five times as long as stigmal.

Mesoscutum with two sharp, distinct, complete furrows; antennæ of ♂ long, with whorled hairs (♀ club-shaped).

Genus **Xenomerus** Walker.

Mesoscutum not furrowed; ♂ antennæ not with whorled hairs.

Hind tarsi thickened; middle tibiæ with weak spurs.

† Genus **Teleas** Latreille.

Hind tarsi not thickened; middle tibiæ without spurs.

† Genus **Prosacantha** Nees.

Marginal vein short, usually shorter than stigmal.

First segment small, the abdomen not broadening from it.

Second segment largest.....* Genus **Telenomus** Haliday.

Third segment largest.

Stigmal vein thickened at base.....Genus **Anteris** Foerster.

Stigmal vein not thickened at base.....Genus **Baryconus** Foerster.

First segment broad; abdomen broadening from it.

Face with a sharp spur.....† Genus **Sparasion** Latreille.

Face without a spur.

Postmarginal vein strongly lengthened, longer than stigmal.

Metascutellum with a spur.....Genus **Trimorus** Foerster.

Without spur.

Antennæ filiform, ♀.....Genus **Apegus** Foerster.

Antennæ club-shaped ♀, or filiform ♂.

Marginal vein punctiform; last joint of antennal club twice as long as the preceding joint.....Genus **Gryon** Haliday.

Marginal vein half as long as the shaft of the stigmal; last joint of antennal club scarcely longer than preceding.

* Genus **Hadronotus** Foerster.

Postmarginal vein is wanting, or is shorter than stigmal.

Postmarginal wanting.....* Genus **Scelio** Latreille.

Postmarginal present, but much shorter than stigmal.

Genus **Idris** Foerster.

Subfamily PLATYGASTERINÆ.

Submarginal vein with a knob at tip.

Tarsi 4-jointed.....Genus **Iphetrachelus** Haliday.

Tarsi 5-jointed.

Antennæ 9-jointed, dentate with ♂Genus **Allotropia** Foerster.

Antennæ 10-jointed, not dentate with ♂.

Wings with a basal and a median vein.

The three last funicle joints much larger than the rest, forming a club.

Genus **Metaclisis** Foerster.

The last joint alone longer than the preceding.

Genus **Monocrita** Foerster.

Wings without basal and median veins.

The basal ocelli nearer the apical than to the inner border of the eye.

Genus **Isostasius** Foerster.

The basal ocelli nearer the inner border of the eye than to the apical ocellus.

The ♀ with a horn on first abdominal segment.

* Genus **Inostemma** Haliday.

The ♀ without such a horn.....Genus **Acerota** Foerster.

Submarginal vein without a knob at tip.

Scutellum more or less lengthened, never semi-circular, or when shortened it is compressed at the sides and furnished with an awl-shaped or warty tip.

Thorax strongly compressed from sides..... Genus **Catillus** Foerster.

Thorax not compressed.

Scutellum lengthened, without thorn-, awl-, or wart-shaped tip.

Parapsidal furrows deep, parallel behind.

Genus **Xestonotus** Foerster.

Parapsidal furrows very faint or absent.

Genus **Amblyaspis** Foerster.

Scutellum lengthened, with a thorn-, awl-, or wart-shaped tip.

Scutellum extended in a more or less strong thorn.

Basal ocelli nearer the eyes than to the apical ocellus; club of ♀

4-jointed.....† Genus **Leptacis** Foerster.

Basal ocelli not nearer the eyes; club of ♀ 3-jointed.

Genus **Isorhombus** Foerster.

Scutellum extended in an awl- or wart-shaped tip, is somewhat shortened and compressed laterally.

Abdomen very much lengthened.....Genus **Ectadius** Foerster.

Abdomen not especially lengthened.

Second ventral abdominal segment strongly compressed with ♀.

Genus **Sactogaster** Foerster.

Second ventral abdominal segment not compressed.

Genus **Synopens** Foerster.

Scutellum not lengthened, semi-circular; either flat or convex.

Scutellum quite flatGenus **Anopedias** Foerster.

Scutellum not flat.

Head cubical.....Genus **Isoeybus** Foerster.

Head not cubical.

- Scutellum with a tuft of hair at tip.....Genus **Trichacis** Foerster.
 Scutellum without a tuft of hair at tip.
 Border of abdomen very broadly turned over.
 Genus **Hypocampsis** Foerster.
 Border of abdomen not very broadly turned over.
 Scutellum pillow-shaped, separated from scutum by a deep furrow;
 scapulæ very broad.....Genus **Polygnotus** Foerster.
 Scutellum not separated from scutum by a deep furrow; scapulæ not
 very broad.....* Genus **Platygaster** Latreille.

Subfamily MYMARINÆ.

Tarsi 5-jointed.

Abdomen plainly petiolate.

Antennæ 10-jointed with ♂, 9-jointed with ♀.

Genus **Camptotera** Foerster.

Antennæ 13-jointed with ♂, 11-jointed with ♀.

Genus **Ooctonus** Haliday.

Abdomen sessile or nearly so.

Male.

Marginal vein reaches to middle of costa.

† Genus **Limacis** Foerster, ♂.

Marginal vein does not reach to middle of costa.

Antennæ 13-jointed.....Genus **Gonatocerus** Nees, ♂.

Antennæ 10-jointed.....Genus **Alaptus** Walker, ♂.

Female.

Antennæ 11-jointed.....Genus **Gonatocerus** Nees, ♀.

Antennæ with less than 11-joints.

Antennæ 9-jointed.....Genus **Litus** Haliday.

Antennæ 8-jointed.

Marginal vein reaches to middle of costa.

† Genus **Limacis** Foerster, ♀.

Marginal vein not reaching to middle of costa.

Genus **Alaptus** Walker, ♀.

Tarsi 4-jointed.

Antennal club with two rings.

Marginal vein very long; the four hind tarsi shorter than their tibiae.

Genus **Eustochus** Haliday.

Marginal vein very short; the four hind tarsi longer than their tibiae.

Genus **Doriclytus** Foerster.

Antennal club not ringed.

Abdomen plainly petiolate.

Fore wings widened only at tip.....Genus **Mymur** Haliday.

Fore wings not widened solely at tip.

Marginal vein punctiform.....* Genus **Cosmocoma** Foerster.

Marginal vein lengthened.

Metathorax with two carinæ; ♀ antennæ 9-jointed (♂ unknown).

Genus **Caraphractus** Walker.

Metathorax not carinate; ♂ antennæ 10-jointed, ♀ 9-jointed.

Genus **Stictothrix** Foerster.

Abdomen sessile, or nearly so.

Antennæ with the ♂ 12-jointed (with the female 9-jointed); marginal vein lengthened and somewhat thickened towards the tip.

* Genus **Anaphes** Haliday.

Antennæ with the ♂ 13-jointed (with the ♀ 9-jointed); marginal vein linear, not thickened towards tip.....Genus **Anagrus** Haliday.

Subfamily DIAPRINÆ.

Wings with a heart-shaped piece cut out from tip.

Genus **Entomacis** Foerster.

Wings entire.

Scape greatly developed (mesonotum without furrows).

Genus **Platymischus** Westwood.

Scape not especially developed.

Scape with a knot at middle; face greatly lengthened.

* Genus **Galesus** Curtis.

Scape without a median knot; face not greatly lengthened.

Submarginal vein not reaching costa.

Submarginal with a stigmal at tip.

* Genus **Aneurhynchus** Westwood.

Submarginal simple, without stigmal, ♀....Genus **Labolips** Haliday.

Submarginal reaching costa.

Male.

Antennæ 12-jointed.....Genus **Cephalonomia** Westwood, ♂.

Antennæ 13- or 14-jointed.

Antennæ 13-jointed.

First funicle joint hardly half as long as second.

Genus **Paramesius** Westwood, ♂.

First funicle joint as long as, or longer than second.

Second abdominal segment with one or more pits at base.

Marginal vein present.....Genus **Idiotypa** Foerster, ♂.

Marginal vein absent.....Genus **Hemilexis** Foerster, ♂.

Second segment without pits at base.

* Genus **Spilomicrus** Westwood, ♂.

Antennæ 14-jointed.

Wings without basal vein.....† Genus **Diapria** Latreille, ♂.

Wings with a basal vein.

First funicle joint shorter than second.

* Genus **Basalys** Westwood, ♂.

First funicle joint not shorter than second.

Genus **Loxotropa** Foerster, ♂.

Female.

Antennæ 12-jointed.

Head large and flat.....Genus **Cephalonomia** Westwood, ♀.

Head not large and flat.

Wings without basal vein.

Mesonotum with plain furrows.

Genus **Glyptonota** Foerster.

- Mesonotum without furrows...† Genus **Diapria** Latreille, ♀.
Wings with a basal vein.
Mesonotum with furrows; club 5-jointed.
Genus **Idiotypa** Foerster, ♀.
Mesonotum without furrows; club at most 4-jointed.
Genus **Loxotropa** Foerster, ♀.
Antennæ 13- or 14-jointed.
Antennæ 13-jointed.
Club with only one joint.....Genus **Monelata** Foerster, ♀.
Club with more than one joint.
Abdomen conically pointed.
Genus **Paramesius** Westwood, ♀.
Abdomen truncate at tip.
Marginal vein absent.....Genus **Hemilexis** Foerster, ♀.
Marginal vein present.....Genus **Splonimerus** Westwood, ♀.
Antennæ 14-jointed (mesonotum with furrows).
Genus **Polypeza** Foerster, ♀.

Subfamily BELYTINÆ.

Male.

Eyes naked.

Mesonotum without furrows.....Genus **Ismarus** Haliday.

Mesonotum with furrows.....Genus **Psilomma** Foerster.

Eyes hairy.

Postscutellum with a strong thorn.....Genus **Oxylabis** Foerster.

Postscutellum without a thorn.

Middle carina of metanotum divided before its end and enclosing a central space (radial cell open or closed).

† Genus **Belyta** Jurine.

Middle carina of metanotum not divided.

Radial cell wanting or open.

Stigmal and postmarginal so much shortened that the radial cell can scarcely be seen.

Basal vein not visible.....Genus **Synaera** Foerster.

Basal vein plainly present.....Genus **Pantolyta** Foerster.

Radial cell more or less plainly present.

Fore tibiae strongly bent outwards, with a blunt or sharp tooth or a sharp thorn.....Genus **Zygota** Foerster.

Fore tibiae not so bent.....Genus **Aclista** Foerster.

Radial cell closed.

Petiole of abdomen not longer, or scarcely longer than metanotum.

Border of scape at tip produced on one side into a tooth.

Genus **Acropiesta** Foerster.

Border of scape at tip not produced.

Last ventral segment very straight and punctured.

Genus **Anectata** Foerster.

Last ventral segment somewhat bent, not punctured.

Genus **Pantoclis** Foerster.

Petiole of abdomen almost twice as long as metanotum.

Marginal vein twice as long as radial cell.

Genus **Macrohyunis** Foerster.

Marginal vein not twice as long as radial cell.

Marginal vein as long as, or a little longer than stigmal, but much shorter than the radial cell..... Genus **Xenotoma** Foerster.

Marginal vein much longer than stigmal, about as long as radial cell.

Second abdominal segment laterally compressed, pear-shaped; petiole smooth above; scape as long as first funicle joint.

Genus **Leptorhaptus** Foerster.

Second abdominal segment not laterally compressed; abdomen becoming flatter behind this segment; petiole above more or less furrowed; scape longer than first funicle joint.

* Genus **Cinctus** Jurine.

Females.

Eyes naked.

Mesoscutum without furrows..... Genus **Ismarus** Haliday.

Mesoscutum with furrows Genus **Psilonoma** Foerster.

Eyes hairy.

Antennæ 12-jointed..... Genus **Synacra** Foerster.

Antennæ more than 12-jointed.

Antennæ 14-jointed.

Ocelli wanting..... Genus **Anommattum** Foerster.

Ocelli present.

Radial cell scarcely visible..... Genus **Pantolyta** Foerster.

Radial cell plain..... Genus **Aneetata** Foerster.

Antennæ 15-jointed.

Metascutellum with a strong thorn..... Genus **Oxylabis** Foerster.

Metascutellum without a thorn.

First funicle joint almost as long as all the rest together.

Genus **Diphora** Foerster.

First funicle joint much shorter than all the rest together.

Middle carina of metanotum divided; (radial cell open or closed).

† Genus **Belyta** Jurine.

Middle carina of metanotum not divided.

Third dorsal segment of abdomen much longer than fourth.

Marginal vein as long as radial cell; last funicle joint more than double as long as broad.

* Genus **Cinctus** Jurine.

Marginal vein much shorter than radial cell; last funicle joint not more than double as long as broad.

Genus **Xenotoma** Foerster.

Third dorsal segment not, or not much longer than fourth.

Abdomen with eight dorsal segments.

Radial cell closed.

Funicle joints only slightly shortened towards the end.

Genus **Zelotyptu** Foerster.

Funicle joints strongly shortened towards the end.

Genus **Pantoclis** Foerster.

Radial cell open.

Stigmal and postmarginal veins much shortened; stigmal given off at almost a right angle.

Genus **Zygota** Foerster.

Stigmal and postmarginal not much shortened; stigmal given off at a very oblique angle.

Genus **Aelista** Foerster.

Abdomen with less than eight dorsal segments.

Abdomen with seven dorsal segments.

Genus **Acropiesta** Foerster.

Abdomen with less than seven dorsal segments.

Marginal vein more than twice as long as radial cell.

Genus **Macrorhynnis** Foerster.

Marginal vein shorter, as long as, or scarcely longer than radial cell.

Abdomen with three dorsal segments, the second very much lengthened, almost reaching the tip of the abdomen, the third issuing from the second like a short style; marginal vein plainly shorter than radial cell.

Genus **Miota** Foerster.

Abdomen with three, very seldom with four dorsal segments, the second not greatly lengthened, the third equally large and strongly compressed laterally; marginal vein not shorter than radial cell.

Genus **Leptorhaptus** Foerster.

Subfamily HELORINÆ.

This subfamily consists only of the genus *Helorus* Latreille, which is sufficiently characterized in the subfamily synopsis. One undescribed species of the genus has been collected in this country. A single specimen was sent me by Mr. Cresson labeled "Canada."

The genus *Copelus* Provancher (*Petite Faune entomologique de Canada*, II, 539, 1883), seems, from the figures and description which Mr. Provancher gives, to be identical with *Helorus*. The author places it with the Braconidæ, and says: "The singular arrangement of the wing-veins with these insects renders them at once remarkable. The form of the abdomen would seem at first to place them with the Proctotrupidæ, but the perfect venation of the wings excludes them from this family."

The proper position of this genus has been a matter of considerable dispute. The full venation of the wings and its evident high organization must place it at the head of the Proctotrupidæ. The species which I have seen bears a strong superficial resemblance to the Sphégid genus *Tiphia*. Its habits are those of a parasite, and *H. anomadipes* Panz., has been bred from the pupa of a *Hemerobius*.