CLASSIFICATION OF THE POINTED-TAILED WASPS, OR THE SUPERFAMILY PROC-TOTRYPOIDEA. — II.

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Family LIV. DIAPRIIDÆ.

This family comes very close to the *Belytidæ*, the two having been treated as a single family by A. H. Haliday in 1839, but is readily separated by the absence of a basal cell in the hind wings and by the two-jointed labial palpi.

The genus *Lohoscelidia* Westwood, described from Sulu Island, was placed in this group, but I think incorrectly; it is apparently a Cynipoid and not a Procto-trypoid.

In habits the Diapriids agree with the Belytids, being parasites upon Dipterous larvæ.

The family may be divided into two subfamilies, as follows :

TABLE OF SUBFAMILIES.

Submarginal vein reaching the costa at about half the length of the wing or a little before; if it does not reach the costa it attains nearly half the length of the wing and ends in a stigma; costal cell most frequently closed.

Subfamily I. SPILOMICRINÆ. Submarginal vein shorter, never reaching the costa beyond one third the length of the

wing; costal cell most frequently open.....Subfamily II. DIAPRIINÆ.

Subfamily I. SPILOMICRINÆ.

The species falling in this group are as a rule considerably larger than those in the $Diapriin\alpha$, and are easily recognized by the much longer submarginal vein, which reaches the costa at about half the length of the wing, and the usually closed costal cell. In two genera, however, *Aneurhynchus* and *Labolips*, the submarginal vein does not reach the costa but ends in a stigma.

Table of Genera.

Fen	nales	I
Mal	les 1	3
Ι.	Antennæ less than 14-jointed	2
	Antennæ 14-jointed; mesonotum with two furrows.	
	Polypeza Förster (type unknown)).
2.	Antennæ 13-jointed	3
	Antennæ 12-jointed	8
3.	Mesonotum without furrows or at most only slightly indicated posteriorly	7
	Mesonotum with two distinct furrows.	
	Metathorax unarmed	4

March, 1903.] ASHMEAD: CLASSIFICATION OF PROCTOTRYPOIDEA.

	Metathorax at base armed with a curved spine or thorn; front wings with
	the basal nervure present
	(type H. pulchripennis ASHM.).
4.	Front wings with a distinct basal nervure 5
	Front wings without a distinct basal nervure
5.	Abdomen conically pointed, the second segment without sulci at base, overlap-
-	ping the apex of the petiole; marginal vein distinct.
	Spilomicrus Westwood (type S. stigmaticalis WESTW.).
	Abdomen rounded or truncate at apex, the second segment with sulci at base;
	marginal vein very short
6.	Abdomen rounded or truncate at apex; front wings with the costal cell open;
	stigmal vein often with a backward directed branch Hemilexis Förster
•	(type Diapria platyptera HAL.)
	Abdomen conically pointed: costal cell closed; stigmal vein simple.
	Paramesius Westwood (type P. rufibes WESTW.).
7.	Front wings without a basal nervure : stigmal vein longer than the marginal.
1.	Hemilexodes Ashmead (type H. floridanus ASHM.).
8.	Submarginal vein attaining the costa
0.	Submarginal vein not attaining the costa, ending in a stigma or knob 12
0.	Front wings with a basal nervure
9.	Front wings without a basal nervure
10	Mesonotum with two furrows : antennæ ending in a 5-jointed club.
	Idiotypa Förster (type Psilus maritimus HAL.).
	Mesonotum without furrows; antennæ ending in a 3-jointed club; face keeled
	at the sides
	(type T. clavata ASHM.).
11.	Mesonotum with two furrows.
	Antennæ ending in a 5-jointed club
	(type Diapria brachialis NEES).
	Antennæ ending in a 4-jointed clubGlyptonota Förster (type unknown).
12.	Mesonotum with two furrows.
	Stigma with a stigmal vein; abdomen with three sulca at base.
	Aneurhynchus Westw. (type A. galesiformis WESTW.).
	Stigma without a stigmal vein; abdomen with only one sulcus at base.
	Labolips Haliday (type L. innupta HAL.).
13.	Antennæ less than 15-jointed 14
	Antennæ 15-jointed.
	Mesonotum with two furrowsPolypeza Förster
14.	Antennæ 13-jointed 15
	Antennæ 14-jointed 19
15.	Mesonotum without furrows.
	Mesonotum with two furrows.
	Metathorax not armed at base with a curved spine 16
	Metathorax armed at base with a curved spine or thorn ; flagellar joints very
	long, cylindrical Hoplopria Ashmeaa
-	YTE die 1 1 de 1 1 de 1 de D. Commente Diel Contra

* To this genus belong the species described by Mr. P. Cameron, in Biol. Centr.-Amer., I, 1888, under the genus *Paramesius* Westw.

4

JOURNAL NEW YORK ENTOMOLOGICAL SOCIETY. [Vol. XI.

16.	Front wings with a basal nervure 17
	Front wings without a basal nervure 18
17.	Mesonotum longer than wide; first flagellar joint as long or longer than the
	second; costal cell closed.
	Abdomen without sulci at base
	Abdomen with sulci at baseIdiotypa Förster
	Mesonotum not longer than wide; first flagellar joint hardly as long as the second :
	costal cell open.
	Stigmal vein much longer than the marginal Hemilexis Förster
18.	First flagellar joint not half as long as the secondParamesius Westwood
19.	Submarginal vein not reaching the costa, ending in a stigma or knob 21
	Submarginal vein reaching the costa.
	Mesonotum with two furrows 20
	Mesonotum without furrows.
	Flagellar joints elliptic-ovalTropidopsis Ashmead
20.	Front wings without a basal nervure.
	Eyes hairySynacra Förster
21.	Stigma with a stigmal vein Aneurhynchus Westwood

Subfamily II. DIAPRIINÆ.

This group is distinguished by the brevity of the submarginal vein which reaches the costa at about one third the length of the wing; to it belong also some wingless forms.

Table of Genera.

Fen	nales I
Mal	es
Ι.	Antennæ less than 14-jointed
	Antennæ 14-jointed.
	Pronotum normal
	Pronotum abnormal, produced anteriorly into a long horn that extends for-
	ward over the head Notoxoides Ashm. g. nov.
	(type N. brasiliensis ASHM.).
2.	Mesonotum without furrows; front wings without a basal nervure.
	Myrmecopria Ashmead (type Loxotropa mellea ASHM.).
3	Antennæ 13-jointed
	Antennæ 12-jointed or less
4.	Mesonotum without furrows or only slightly indicated posteriorly.
т.	Scutellum foveated at base : club of antennæ I-jointed : basal nervure present.
	Basalys Westwood (type B. fumitennis WESTW.).
	Scutellum not foveated at hase : club of antennæ consisting of one en-
	larged joint Monelata Förster (type Dighrig hargula NEFS)
~	Antenna 12 jointed
5.	Antenna II-jointed
6	Face normal as not mostly longth and
0.	Face hormal or not greatly lengthened
	Face abnormal, greatly lengthened; mandibles rostritorm.
	Mesonotum with two furrows
	(type <i>Psilus cornutus</i> PANZER).

Mar	ch, 1903.] ASHMEAD: CLASSIFICATION OF PROCTOTRYPOIDEA. 31
7.	Apterous forms
	Winged 12
8.	Head large and flat, more or less quadrate ; ocelli wanting 9
	Head sometimes large, but quite differently shaped ; ocelli sometimes present. II
9.	Legs normal, not short and stout; scape of antennæ not dilated 10
	Legs short and stout; scape of antennæ dilated, flat Platymischus Westwood
10	(type <i>P. auatatus</i> WESTW.).
10.	long the flagellum subclayate the first three or four joints not short
	Platymischoides Ashmead (type P. molokaiensis Ashm.).
11.	Thorax elongate and much narrowed, compressed; head of an abnormal shape,
	and compressed, seen from above it is longer than wide but hardly wider than
	the thorax, seen from the side it is much shorter than high, the small eyes
	being placed low down near the anterior marginZacranium Ashmead
	(type Z. ohuensis ASHM.).
I 2.	Front wings without a basal nervure 13
	Front wings with a basal nervure
	Mesonotum without furrows; club of antennæ 3- or 4-jointed.
	Loxotropa Forster (type L. acolutha FERST.).
13.	Scutellum normal not ending in a spine
	Scutellum ending in a distinct spine
	(type A. crassicornis ASHM.).
14.	Head transverse or subglobose
	Head large, viewed from above pentagonal, the ocelli present; mesonotum with-
	out furrows; antennæ ending in a 5-jointed club, the funicle joints slender,
	subcylindrical, at least twice longer than thick Tetramopria Wasmann
	(type T. aurocincta WASM.).
15.	Scutellum not foveate at base 18
	Tip of contallum rounded or truncate, not compressed from the sides, equi-
	nate
	Tip of scutellum compressed from the sides the sides, the disk or apex with
	a median carina : abdomen usually conically pointed.
	Tropidopria Ashmead (type Diapria conica FABR.).
16.	Last joint of antennæ quite differently formed 17
	Last joint of antennæ enormously enlarged, oblong-oval.
	Megaplastopria Ashm. g. nov. (type M. brasilienis ASHM.).
17.	Abdominal petiole much longer than thick ; metathorax always with a distinct
	ridge or conic prominence at base.
	Diapria Latreille (type Diapria verticillata LATR.).
	abdominal petiole not longer than thick, densely woolly; metathorax most fre-
	Antennal club 2 jointed Ceratonria Ashmead (type C longicarnis A surt.)
	Antennal club 4- or 5-iointed
	(type T, pentaplasta Ashm.).

JOURNAL NEW YORK ENTOMOLOGICAL SOCIETY. [Vol. XI.

18.	Axillæ not separated.
	Front wings at apex entirePhænopria Ashmead
	(type P. minutissima ASHM.).
	Front wings at apex subemarginateAdeliopria Ashmead
	(type A. longii ASHM.).
19.	Head globose; mesonotum without furrows; abdomen with the second segment
	occupying most of the entire surface; flagellum subclavate, the joints 2-7
	transverse, the eighth quadrate, the club large, cone-shaped, unjointed.
	Solenopsia Wasmann (type S. imitatrix WASM.).
20.	Antennæ 14-jointed 21
	Antennæ 13-jointed or less
21.	Scape not especially developed 22
	Scape abnormally developed, broad and flat.
	Apterous; mesonotum without furrows
22.	Face not lengthened; mandibles not rostriform
	Face lengthened; mandibles rostriform.
	Mesonotum with two furrows; antennæ fillorm, the third joint small,
	rounded, the following long, cylindrical
23.	Apterous forms
	Front wings with a basal pervure
	Front wings without a basal nervure
24	First joint of the flagellum not shorter than the second
24.	First joint of the flagellum much shorter than the second Basalys Westwood
25.	Mesonotum without furrows
26.	Scutellum unarmed
	Scutellum ending in a distinct spine
27.	Scutellum not foveated at base
	Scutellum foveated at base.
	Scutellum at apex not compressed from the sides, rounded or truncate, with-
	out a carina 28
	Scutellum at apex compressed from the sides, the disk or apex with a median
	carinaTropidopria Ashmead
28.	Stigma more or less developed ; head not pentagonal 29
	Stigma not at all developed, head pentagonal; first joint of flagellum elongate,
	nearly twice longer than the pedicel, the second shorter than the first, curved
	and thickened at apex, the third small, quadrate, 5-12 globose.
	Tetramopria Wasmann
29.	Antennæ filiform or moniliform, the joints of flagellum not nodose-verticillate 30
	Antennæ with the joints of the flagellum pedunculated, nodose-verticillate.
	Diapria Latreille
30.	become nagenar joint longer and thicker than the first, usually curved or angu-
	fated towards one side, the joints beyond rounded, with long bristles.
	Second flagellar joint shorter than the first the first four or five joints twice
	longer than thick the joints beyond long-oval or moniliform with short hairs
	or the joints, after the second, moniliform, piloseTrichopria Ashmead
	longer than thick, the joints beyond long-oval or moniliform, with short hairs, or the joints, after the second, moniliform, piloseTrichopria Ashmead

March, 1903.] ASHMEAD: CLASSIFICATION OF PROCTOTRYPOIDEA.

31.	Second flagellar joint about as long as the first, the joints beyond long-oval or
	moniliformPhænopria Ashmead
32.	Mesonotum without furrowsLoxotropa Förster
33.	Scutellum not foveated at base 34
	Scutellum foveated at base.
	Mesonotum with two furrows or at least well defined posteriorly.
	First joint of flagellum as long as the second and third united.
	Basalys Westw.

34. Mesonotum without furrows.

First joint of flagellum not half as long as the second...... Monelata Förster

Family LV. CERAPHRONIDÆ.

Mr. A. H. Haliday, as early as 1839, was the first to correctly indicate this family as distinct from other Proctotrypids. It is a most interesting family, quite distinct in many particulars and exhibits very little affinity with any of the other families defined here.

The family is an extensive one, widely distributed over the entire world and is well represented by both genera and species, but still imperfectly known or studied.

The species attack plant-lice, *Aphididæ*, and Dipterous larvæ, belonging principally to the family *Cecidomyiidæ*. A few, however, have been recorded from Lepidoptera and Coleoptera, but I think incorrectly.

TABLE OF SUBFAMILIES.

Marginal vein stigmated; antennæ II-jointed, the same number of joints in both sexesSubfamily I. MEGASPILINÆ.
Marginal vein linear, never stigmated; antennæ with a less number of joints in the females than in the males; males with IO- or II-jointed antennæ, females 9- or IO-jointedSubfamily II. CERAPHRONINÆ.

Subfamily I. MEGASPILINÆ.

This subfamily is easily distinguished by the large, stigmated marginal vein, which thus resembles the stigma of the more specialized families in the Apoidea, Sphecoidea, etc. The wingless forms, which are rare, are only separated from those in the *Ceraphroninæ*, by the difference in the antennæ.

	Table of Genera.	
Fen	nales	I
Ma	les	9
Ι.	Mesonotum with three impressed lines	2
	Mesonotum without impressed lines, or with only one or two lines	6
2.	Metathorax not spined at base	3
	Metathorax with a forked spine at base	on
	(type Ceraphron scutellaris DALB.).

34	JOURNAL NEW YORK ENTOMOLOGICAL SOCIETY. [Vol. AL
3.	Apterous,
	Winged.
	Wings pubescent with cilia 4
	Wings bare, without cilia, glabrous Trichosteresis Förster
	(type Ceraphron glabra BOHEM.).
4.	Eyes usually bare; mesonotum not narrowed anteriorlyLygocerus Förster
	(type Ceraphron ramicornis BOHEM.).
	Eyes pubescent; mesonotum narrowed anteriorly Megaspilus Westwood
	(type Ceraphron abdominalis BOHEM.).
5.	Thorax not much narrowed; maxillary palpi 5-jointed, labials 3-jointed.
	Megaspilus Westw.
	Thorax much narrowed ; maxillary palpi 4-jointed, labials 2-jointed.
	Eumegaspilus Ashmead (type E. erythrothorax ASHM.).
6.	Mesonotum without impressed lines
	Mesonotum with one or two impressed lines.
	Mesonotum with one impressed line down the center
	Mesonotum with two impressed linesDichognus Thomson
	(type D. dimidiatus 1 Homs.).
7.	Eyes small; ocelli wanting. ApterousLagy nodes Porster
	(type Ceraphron palitaus BOHEM.).
	Eyes large; ocelli present. Winged
0	(type A. tottophugus reast.).
δ.	Lyes large, bare; ocent distinct
~	Mesonetum with three impressed lines
9.	Mesonotum with three impressed lines or with one or two impressed lines 12
TO	Metathoray normal without a forked spine at base
10.	Metathorax with a forked spine at base Habropelte Thomson
TT	Wings pubescent, with cilia
	Wings bare, glabrous, without cilia Trichosteresis Förster
	Anterous. Antennæ filiform Eumegaspilus Ashmead
12.	Antennæ dentate or ramoseLygocerus Förster
	Antennæ filiform, simple, not dentate
13.	Mesonotum without an impressed line 14
- 5	Mesonotum with one or two impressed lines.
	Mesonotum with two impressed linesDichogmus Thomson
	Mesonotum with one impressed line Atritomus Förster
14.	Antennæ toothed or serrate Atritomus Förster
	Antennæ with five long branches, a branch on each of the first five flagellar joints.

Dendrocerus Ratzburg (type D. lichtensteini RATZEB).

Subfamily II. CERAPHRONINÆ.

The species falling in this subfamily are distinguished by antennal characters, the males having more joints in the antennæ then the females, and by the *linear*, never stigmated, marginal vein.

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Fem	nales 1
Mal	es
Ι.	Anteunæ 10-jointed 2
	Antennæ 9-jointed
2.	Apterous 5
	Winged.
	Mesonotum without a furrow 4
	Mesonotum with a medinm impressed line 3
3.	Scutellum flat or subconvex, with a marginal frenumCeraphron Jurine
	(type C. sulcatus JURINE).
	Scutellum convex, acuminate, without a frenum Aphanogmus Thomson
	(type A. fumipennis THOM.).
4.	Antennæ subclavate 6
5.	Mesonotum with a median impressed line.
	Scutellum flat or subconvex, with a frenumCeraphron Jurine
	Scutellum convex, without a frenumAphanogmus Thomson
6.	Scutellum distinctAphanogmus Thomson
	Scutellum not at all differentiated Ecitonetes Brues
	(type E. subapterus BRUES).
7.	Mesonotum with a median impressed line Neoceraphron Ashmeaa
	(type Ceraphron macroneurus ASHM.).
8.	Antennæ 11-jointed
	Antennæ 10-jointed
9.	Mesonotum with a median impressed line
	Mesonotum without a median impressed line.
10.	Scutellum depressed or flat, without a frenum; antennæ simple, not serrate.
	Ceraphron Jurine
	Scutenum convex, acuminate, without a frenum; antennæ serrate.
	Aphanoginus Inomson
11.	Antenne There Ther
10	Mesonetum with a median improved line
12.	Antenno fliform
	Antennæ mnorm

NOTES ON COCCINELLIDÆ.

BY CHARLES W. LENG, B.S.

Major Thomas L. Casey's "Revision" of this family, printed in this Journal (Vol. VII, pp. 71–169), describes several new species; and the following notes result mainly from a study of his work and of the material in the collections of Messrs. Schaeffer, Roberts, Love, O'Conner, Luetgens, Marshall, Ouellet, Knaus, Wickham and Davis,



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