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LARVA OF PARASA CHLORIS, H.-SCH.

BY G. H. FRENCH, CARBONDALE, ILL.

Length .50 of an inch, elliptical, as is the usual shape of the *Lymacodes* group, nearly .20 of an inch high and about the same width. The dorsum has four lines of purplish black alternating with white, and bordered outside with yellowish white or pale yellow. The region of the subdorsal line is a bright vermilion ridge with yellowish white tubercles arising from joints 2, 3, 4, 7, 10 and 12, those on joint 2 moderately short, but those on joints 4 to 12 are nearly one fourth of an inch long; all of them spiny. There are short bunches of spines on the intervening joints, as it were representatives of missing tubercles. In the subdorsal space are four scarlet lines alternating with lines of yellowish white, the middle yellowish line instead of being continuous, consists of alternate blotches of vermilion and yellowish white. The substigmatal line is vermilion, bordered as the subdorsal with pale yellow, and this also has its row of yellowish white spiny tubercles, each about one sixteenth of an inch long. Below this is a single dark purple line bordered each side with a lighter shade, and below this a vermilion line or rather a series of tubercles without spines in place of the prolegs. Legs 6, no prolegs, but the under side of the body consisting of a muscular pad upon which the insect glides along instead of walking. Head brown, retractile when at rest into the joint back of it.

The food plants of this peculiar larva seem to be apple and rose. In 1880 one was brought to me on an apple leaf. This one soon died; but last season, September 18, 1884, another was found on a rose leaf that soon spun its cocoon, but it did not change to a chrysalis till the following spring. As soon as found the larva was placed in a jelly glass, and it spun on the under side of the cover with the cocoon touching the side. When the cover was taken off this broke the cocoon, leaving a small piece attached to the glass. Through this small opening the larva could be seen every time the cover was removed to moisten the contents of the

dish, till after the warm spring weather had roused the most of insect life into activity. The imago appeared July 14, 1885. The cocoon was .50 of an inch long, dark brown, smooth, egg-shaped like the others of the group, and smooth on the inside. The empty pupa skin is thin, pale brown.

A PRELIMINARY LIST OF THE ARTHROGASTRA OF NORTH AMERICA (EXCLUDING MEXICO.)

BY LUCIEN M. UNDERWOOD, PH. D., SYRACUSE, N. Y.

The Arthrogastra of North America have scarcely been studied except in two or three families, the principal part of the American literature consisting of scattered notes and descriptions. Two or three more pretentious papers have been published by Wood, Putnam and Hagen. A broad field for study is open for future investigators. In order to call attention to the group and secure such co-operation of collectors as may be possible, the following preliminary list of twenty genera and fifty-nine species has been prepared. A few forms are added from Lower California and Cuba which will probably be found within the limits of the United States. Additions and corrections to the list are solicited, as well as specimens from all parts of the country, for which a suitable return will be made.

FAMILY PHRYNIDÆ.

1. PHRYNUS, Oliv.

1. *P. ASPERATIPES*, Wood. Proc. Phila. Acad. 1863, 111: Jour. Phila. Acad. 2nd series, v., 375 (1874).

Hab. Lower California.

FAMILY THELYPHONIDÆ.

1. THELYPHONUS, Latr.

1. *T. GIGANTEUS*, Lucas. Magazin de Zoologie (Guerin) 1835. Wood, Jour. Phila. Acad., 2nd series, v., 374 (1874).

T. excubitor, Girard, in Marcy's Rep. Exploration Red River, 265, Pl. xvii., fig. 1-4 (1854).

Hab. Southwest United States.

FAMILY SOLPUGIDÆ.

I. DATAMES, Simon.

1. *D. FORMIDABILIS*, Simon. *Annales de la Soc. Entom. de France*, ix., 136 (1879).

D. striatus, Putnam. *Proc. Davenport Acad.*, iii. 255, 266, Pl. i., fig. 1, Pl. ii., fig. 7 (1883).

Hab. California, Arizona.

2. *D. PALLIPES*, Simon. *Ann. de la Soc. Entom. de France*, ix., 139 (1879). *Putnam*, *Proc. Davenport Acad.*, ii., 184 (1880); *Ibid.*, iii., 267, Pl. i., fig. 6 (1883).

Galeodes pallipes et subulata, Say., in Long's *Exped. to Rocky Mts.* (1823).

Hab. Kansas, Colorado, Utah, Wyoming, Nevada.

3. *D. SULFUREUS*, Simon. *Ann. de la Soc. Entom. de France*, ix., 142 (1879). *Putnam*, *Proc. Davenport Acad.*, iii., 267 (1883).

Hab. Georgia, Texas, Colorado.

4. *D. CALIFORNICUS*, Simon. *Ann. de la Soc. Entom. de France*, ix., 143 (1879). *Putnam*, *Proc. Davenport Acad.*, iii., 266, 267; Pl. iv., fig. 32-40 (1883).

Hab. California, Arizona.

5. *D. GIRARDII*, Putnam. *Proc. Davenport Acad.*, iii., 257, 267, Pl. ii., fig. 12 (1883).

Galeodes subulata, Girard, in Marcy's *Rep. Expl. Red River*, 241 (1854). (Not *G. subulata*, Say.)

Hab. Texas, New Mexico, Arizona.

6. *D. GENICULATUS*, Simon. *Ann. de la Soc. Entom. de France*, ix., 136 (1879). *Putnam*, *Proc. Davenport Acad.* iii., 268 (1883).

Gluvia geniculata, Koch. *Archiv für Naturgesch.*, viii., 355 (1842).

Hab. Texas.

II. GLUVIA, C. Koch.

1. *G. ELONGATA*, Koch. *Archiv für Naturgesch.*, viii., 350-356 (1842). *Putnam*, *Proc. Davenport Acad.*, iii., 268 (1883).

Hab. Texas.

III. CLEOBIS, Simon.

1. *C. CUBÆ*, Simon. Annales de la Soc. Entom. de France, ix., 149 (1879). Putnam, Proc. Davenport Acad., iii. 268, Pl. i., fig. 5 (1883).

Galeodes Cubæ, Lucas, in Histoire physique, politique et naturelle de l'Isle de Cuba, par M. Ramon de la Sagra, Pl. v., fig. 6 (1857).

Cleobis Stimpsoni, Putnam. Proc. Davenport Acad., iii., 261 (1883).

Hab. Florida, Cuba.

FAMILY SCORPIONIDÆ.

I. BUTHUS, Leach.

1. *B. BIACULEATUS*, Latr., in Coll. de Museum. Wood Jour. Phila. Acad., 2nd series, v., 368 (1874).

Hab. Florida.

2. *B. BOREUS*, Wood, Jour. Phila. Acad., 2nd series, v., 368 (1874).

Scorpio boreus, Girard, in Marcy's Rep. Exploration Red River, 238, Pl. xvii., fig. 5-7 (1854).

Hab. Utah.

3. *B. CALIFORNICUS*, Wood, Jour. Phila. Acad., 2nd series, v., 364 (1874).

Scorpio Californicus, Girard, in Marcy's Rep. Exploration Red River, 240 (1854).

Hab. California.

4. *B. CAROLINIANUS*, Wood, Jour. Phila. Acad., 2nd series, v., 363 (1874).

Scorpio Carolinianus, Beauv., Insect. Rec. en Afrique et en Amerique, 190, Pl. v., fig. 3 (1805).

Buthus vittatus, Say., Jour. Phila. Acad., ii., 61 (1821): Coll. Writings, ii., 11.

? *Scorpio Sayi*. Girard, in Marcy's Exploration Red River, 240 (1854).

? *Væjovis Carolinus*, Koch, Die Arachniden, x., 7, fig. 759.

Hab. So. States, Texas, Kansas.

5. *B. EMARGINATICEPS*, Wood. Proc. Phila. Acad., 1863, 109; Jour. Phila. Acad., 2nd series, v., 367, Pl. 40, fig. 1, 1a, 1b, 1c (1874).

Hab. Lower California.

6. *B. EUSTHENEURA* [U. S.] Wood. Proc. Phila. Acad., 1863, 109; Jour. Phila. Acad., 2nd series, v., 368 (1874).

Hab. Lower California.

7. *B. EXILICAUDA* [U. S.] Wood. Proc. Phila. Acad., 1863, 107; Jour. Phila. Acad., 2nd series, v., 366 (1874).

Hab. Lower California.

8. *B. HIRSUTUS*, Wood. Proc. Phila. Acad., 1863, 108; Jour. Phila. Acad., 2nd series, v., 367, Pl. 40, fig. 1, 1a, 1b, 1c (1874).

Hab. Lower California.

9. *B. LESUEURII*, Gervais, Archiv du Museum, iii., 226, Pl. xi., fig. 27-29, (1844); Apteris, iii., 61, (1844); Wood, Jour. Phila. Acad., 2nd series, v., 365, (1874).

Hab. Cuba.

10. *B. PUNCTIPALPI*, Wood. Proc. Phila. Acad., 1863, 109; Jour. Phila. Acad., 2nd series, v., 369 (1874).

Hab. Lower California.

11. *B. SPINIGERUS*, Wood. Proc. Phila. Acad., 1863, 110; Jour. Phila. Acad., 2nd series, v. 370, Pl. 40, fig. 2, 2a, 2b (1874).

Hab. Texas.

II. CENTRURUS, Gervais.

1. *C. PHAIODACTYLUS*, Wood. Proc. Phila. Acad., 1863, 111; Jour. Phila. Acad., 2nd series, v., 372, Pl. 40, fig. 3, 3a, 3b (1874).

Hab. Utah.

III. SCORPIO, DeGeer.*

1. *S. ALLENII*, Wood. Proc. Phila. Acad. 1863, 107; Jour. Phila. Acad., 2nd series, v., 372 (1874).

Hab. Lower California.

IV. UROCTONUS, Thorell.

1. *U. MORDAX*, Thorell. Ann. and Mag. Nat. Hist., xvii., 11.

Hab. California.

* I have omitted from the list DeGeer's species, *S. punctatus*, *S. maculatus*, *S. testaceus*, *S. australis*, as unrecognizable.—Cf. Memoirs Insectes, vii., 343-348.

FAMILY CHERNETIDÆ.

I. CHELIFER, Geoff.

1. *C. CANCROIDES*, Latr. Hist. Nat. Crust., etc., vii., 141, Pl. 6, fig. 2 (1804). *Hagen*, Record Amer. Entom., 1868, 51; Amer. Nat., ii., 216 (1869); Proc. Boston Soc., N. H., xiii., 264 (1870).

Hab. U. S., generally to California (Simon).

2. *C. MURICATUS*, Say. Jour. Phila. Acad., ii., 63 (1821); Coll. Writings, ii., 11; *Hagen* Record Amer. Entom., 1868, 51; Proc. Boston Soc., N. H., xiii., 266 (1870).

Hab. "North America" (Say).

3. *C. SCABRICULUS*, Simon. Ann. de la Soc. Entom. de France, series v., viii., 154 (1878).

Hab. California.

4. *C. ACUMINATUS* Simon. Ann. de la Soc. Entom. de France, series v., viii., 156 (1878).

Hab. California.

5. *C. ALIUS*, Leidy. Proc. Phila. Acad., 1877, 261.

Hab. Pennsylvania.

6. *C. WRIGHTII*, Hagen. Record Amer. Entom., 1868, 52; Proc. Boston Soc., N. H., xiii., 267 (1870).

Hab. Cuba.

II. CHERNES, Menge.*

1. *C. OBLONGUS*, Hagen. Record of Amer. Entom., 1868, 51; Proc. Boston Soc., N. H., xiii., 268 (1870).

Chelififer oblongus, Say. Jour. Phila. Acad., ii. (1821); Coll. Writings, ii., 12.

Hab. "North America" (Say).

2. *C. SANBORNII*, Hagen. Record of Amer. Entom., 1868, 51; Proc. Boston Soc., N. H., xiii., 268 (1870).

Hab. Massachusetts.

* Simon reunites the genera *Chelififer* and *Chernes*, which were separated by Menge, who was followed by L. Koch. He claims that the characters hitherto regarded as generic, are merely gradal, and that while certain widely separated species have these characters clearly marked, in others they gradually approach each other. In deference to American writers I leave them for the present. Cf. Les Arachnides de France, vii., 19 (1879).

III. CHTHONIUS, C. Koch.

- 1.
- C. CÆCUS*
- , Packard. Amer. Nat., xviii., 203 (1884).

Hab. Virginia.

- 2.
- C. PACKARDII*
- , Hagen.

- 3.
- C. PENNSYLVANICUS*
- , Hagen. Record of Amer. Entom., 1868, 52 ;
-
- Proc. Boston Soc., N. H., xiii., 268 (1870).

Hab. Pennsylvania.

IV. OBISIUM, Leach.*

- 1.
- O. BRUNNEUM*
- , Hagen. Record of Amer. Entom., 1868, 52 ;
-
- Proc. Boston Soc., N. H., xiii., 269 (1870).

Hab. "North America."

- 2.
- O. CAVICOLA*
- , Packard. Amer. Nat., xviii., 202 (1884).

Hab. Virginia.

- 3.
- O. THEVENETI*
- , Simon. Ann. de la Soc. Entom. de France, series
-
- v., viii., 156 (1878).

Hab. California.

- 4.
- O. MACILENTUM*
- Simon. Ann. de la Soc. Entom. de France, series
-
- v., viii., 157 (1878).

Hab. California.

FAMILY GONYLEPTIDÆ.

I. PHRIXIS.

- 1.
- P. LONGIPES*
- , Cope. Third and Fourth Geol. Rep. Indiana, 180
-
- (1872).

Hab. Indiana.

FAMILY PHALANGIDÆ.

I. PHALANGODES, Tellkampff.

- 1.
- P. ARMATA*
- , Tellkampff. Archiv für Naturgeschichte, 1844, 320,
-
- Pl. viii., fig. 7-12.

Acanthocheir armata, Lucas. Annales de la Societè Entom. de
France, viii., 977 (1860). *Wood*, Comm. Essex Inst., vi., 36 [Sep. 27]
(1868).*Hab.* Mammoth Cave, Kentucky.* This genus has usually been credited to Illiger, but as Simon shows (*Les Arachnides de France*, vii., 51) it properly belongs to Leach.

2. *P. FLAVESCENS*, Simon. Les Arachnides de France, vii., 156, note (1879).

Erebomaster flavescens, Cope. Amer. Nat., vi., 420 (1872); Third and Fourth Geol. Rep. Indiana, 180 (1872).

Scotolemon flavescens, Packard. Bull. U. S. Geol. Survey (Hayden) iii., 165 (1877).

Hab. Wyandotte Cave, Indiana.

3. *P. ROBUSTA*, Simon. Les Arachnides de France, vii., 156, note (1879.)

Scotolemon robustum, Packard. Bull. U. S. Geol. Survey (Hayden) iii., 164 (1877).

Hab. Utah.

II. PHALANGIUM, L.

1. *P. BICOLOR*, Wood, Comm. Essex Inst. vi., 28 [19]. (1868).

Hab. Pennsylvania.

2. *P. CALCAR*, Wood. Comm. Essex Inst. vi., 26 [17]. (1868).

Hab. Virginia.

3. *P. CINEREUM*, Wood. Comm. Essex Inst. vi., 25 [16]. (1868).

Hab. New York.

4. *P. DORSATUM*, Say. Jour. Phila. Acad. ii., 66 (1821); Coll. Writings ii., 13; *Wood*, Comm. Essex Inst. vi., 18 [9]. (1868).

Hab. New York, Pennsylvania, Dist. of Columbia.

5. *P. EXILIPES*, Wood. Comm. Essex Inst. vi., 23 [14]. (1868).

Hab. Nevada, California.

6. *P. FAVOSUM* Wood. Comm. Essex Inst. vi., 28 [19]. (1868).

Hab. Nebraska.

7. *P. FORMOSUM* Wood. Comm. Essex Inst. vi., 30 [21]. (1868).

Hab. Pennsylvania, Dist. of Columbia.

8. *P. GRANDE* Say. Jour. Phila. Acad. ii., 67 (1821); Coll. Writings ii., 14; *Wood*, Comm. Essex Inst. vi., 34 [25]. (1868).

Hab. So. States.

9. *P. MACULOSUM*, Wood. Comm. Essex Inst. vi., 31 [22]. (1868).

Hab. Pennsylvania, Virginia.

10. *P. NIGROPALPI*, Wood. Comm. Essex Inst. vi., 22 [13]. (1868).

Hab. Pennsylvania.

11. *P. NIGRUM*, Say. Jour. Phila. Acad. ii., 66 (1821); Coll. Writings, ii., 14; *Wood*, Comm. Essex Inst. vi., 34 [25]. (1868).

Hab. North Carolina, South Carolina, Georgia, Texas, Nebraska.

12. *P. PICTUM*, Wood. Comm. Essex Inst. vi., 30 [21]. 1868.

Hab. Massachusetts.

13. *P. VENTRICOSUM*, Wood. Comm. Essex Inst. vi., 32 [23]. (1868).

Hab. Pennsylvania, Nebraska.

14. *P. VERRUCOSUM* Wood. Comm. Essex Inst. vi., 29 [20]. (1868).

Hab. United States.

15. *P. VITTATUM*, Say. Jour. Phila. Acad. ii., 65 (1821); Coll. Writings ii., 13; *Wood*, Comm. Essex Inst. vi., 20 [11]. (1868).

Hab. So. States, Texas, Nebraska.

III. CYNORTA.

1. *C. ORNATA*, Simon (?)

Gonyleptes ornatum, Say. Jour. Phila. Acad. ii., 68 (1821); Coll. Writings ii., 15; *Wood*, Comm. Essex Inst. vi., 37 [28]. (1868).

Hab. Georgia, Florida.

IV. NEMASTOMA, C. Koch.

1. *N. TROGLODYTES*, Packard. Bull. U. S. Geol. Survey (Hayden) iii., 160 (1877).

Hab. Utah.

2. *N. INOPS*, Packard. Amer. Nat. xviii., 203 (1884).

Hab. Kentucky.

V. OLIGOLOPHUS, C. Koch.*

1. *O. BICEPS*.

Mitopus biceps, Thorell. Bull. U. S. Geol. Survey (Hayden) iii., 525 (1877).

Hab. Colorado, Idaho.

VI. PHLEGMACERA, Packard.

1. *P. CAVICOLEUS*, Packard. Amer. Nat. xviii., 203 (1884).

Hab. Kentucky.

VII. TARACUS, Simon.

1. *T. PACKARDI*, Simon. Comptes rendus Societe Entom. de Belgique, 2nd series, No. 64 (1879).

Hab. Colorado.

* *Mitopus* Thorell is joined to *Oligolophus* C. Koch by Simon, Les Arachnides de France, vii., 239 (1879).