BULLETIN
OF THE
ILLINOIS STATE LABORATORY
OF
NATURAL HISTORY.

VOLUME III.

ARTICLE I.—*Notes on Some Illinois Microgasters: with Descriptions of New Species.* By CLARENCE M. WEED, M. Sc.

[In working over the material by which the interesting group of Microgasters is represented in the collections of the Laboratory, so much of interest was found that it was thought worth while to record at this time some of the more important facts. The writer desires to express his thanks to Prof. S. A. Forbes for permission to study the collections and use the notes, as well as for many other favors; to Dr. C. V. Riley, who has very kindly verified the determinations; and to Dr. A. S. Packard, Prof. H. Garman, and Mr. Chas. W. Woodworth for favors received.]

MICROPLITIS CERATOMIÆ, Riley.

This species was bred by Dr. Riley from *Ceratomia quadricornis*, in Missouri.* During the summer of 1885, from a larva of the sphinx just mentioned, confined in a breeding cage at Champaign, there emerged eighty-four of the Microplitis grubs, which spun parallel, leathery, ribbed cocoons upon the back of their host. The cocoons were formed in two longitudinal series, one on each side of the dorso-median line of the larva, which were connected with a posterior transverse series. On the 25th of May, 1886, the adults began to emerge, and continued to issue until June 5. They agree with Riley's description (l. c.), except that they are larger, the majority of them being 3 mm. long, and some even reaching 3.5 mm. The

*Notes on North American Microgasters, Trans. St. Louis Acad. Sci., Vol. IV., p. 303 [8].

depth of coloring of the costa and stigma varies considerably in the same lot of specimens, in the majority of them being of the normal piceous, but in occasional specimens becoming lighter. From another lot of Ceratomia larvæ, there were obtained August 1 of the same season, similar cocoons, the adults from which began to emerge August 12, and all had issued within a few days thereafter. Dr. Riley mentions (l. c.) having bred this large variety from masses of cocoons spun regularly side by side, as were our specimens, but having no ribs as ours have.

Microplitis mamestræ, sp. n.

Under this name I describe a well-marked species bred from the larvæ of *Mamestra picta*, at Normal, in 1884. In a breeding cage containing a large lot of Mamestra larvæ there were noticed July 2, two specimens, each having a peculiar ribbed cocoon fastened transversely between the anal prolegs. These cocoons were isolated, and August 23 there had emerged from them the two *Microplitis* females here described.

Cocoon.—5 mm. long, 2 mm. wide. Reddish brown, cylindrical, with a pointed cap at each end, and about ten slightly oblique ribs running longitudinally. Tough and without loose threads. The cap forms a perfect circle, and in the specimens at hand one on each cocoon had been entirely separated by the insect before emerging. The corners are well developed, so that a longitudinal section, without the caps, would be of the form of a rectangular parallelogram.

Described from two specimens found attached, singly, between the anal prolegs of larvæ of *Mamestra picta*, Harr.

Imago, ♀.—Length, 3 mm. Black; antennæ, mandibles, and labrum, reddish brown; palpi, and legs, including whole of coxæ, and more or less of the under side of abdomen, together with a portion of the margins of terga of first and second abdominal segments ferruginous; claws blackish. Wings hyaline; tegulæ, with inner portions of costa and nervures, approaching ferruginous (being slightly more yellowish than legs), and outer portion testaceous. Inner half of stigma same color as inner portions of costa, nearly transparent; outer portions darker, clouded. Antennæ not quite as long as body; joints 3–15,

slightly constricted at middle, the terminal joint appearing flattened when seen from above, and enlarged at the middle and tapering to a point when seen from the side. Mesonotum confluently punctured. Metanotum coarsely reticulated, the posterior margin of the metascutum being raised, and the metascutellum having a prominent longitudinal median carina. Abdomen shorter than thorax; basal segment vertical, the tergum finely reticulated, with a median groove extending from anterior margin two thirds of its length, and a slight tubercle on middle of posterior margin; tergum of second and following segments smooth and shining, with sparse pubescence. Radial vein arising from middle of stigma, nearly forming a right angle with basal nervure of the quadrate areolet; a white spot on cubital vein at base of areolet, and another on the vein closing the areolet exteriorly, just before its juncture with the cubital vein. Side of stigma bordering first cubital cell very slightly swollen; that bordering radial cell straight. Apical nervures slender, but easily seen.

Described from two females bred from *Mamestra picta*, Harr.

This species is very distinct from *M. ceratomiæ*, Riley, and is easily distinguished from *M. gortynæ*, Riley, by its larger size, quadrate areolet, red posterior coxæ, etc.

Apanteles congregatus, Say.

A long series of this abundant and variable species is to be found in the Laboratory collections. Adult specimens have been taken with the sweep-net at Normal, McLean County, July 1, 1882, and June 27, 1883; at Anna, Union County, September 13, 1883; and at Urbana, Champaign County, June 15, 1885. Some were also collected in woods near Pekin, Tazewell County, August 14, 1883, and still others were found among some collections made by beating the foliage of *Ampelopsis quinquefolia* at Urbana, May 23, 1885.

Large numbers of specimens of this Apanteles have also been bred at various times from the larvæ of our two common species of tomato-worms, — *Phlegethontius carolina*, and *P. celeus*. Cocoons obtained from the former species were received from Swanwick, Ill., Sept. 1, 1884, and within five days

the flies had all emerged. Another lot was bred at Normal during the same season, the dates of emergence from the cocoons being almost the same as for those just mentioned. In 1879, another series was bred from larvæ of this sphinx in August. During August, 1882, and September, 1884, these parasites were also bred from *P. celeus*, one lot being collected at Normal, and the other at Godfrey. The cocoons of all these specimens were of the usual white kind, with little loose silk.

The variety of *A. congregatus* bred by Mr. Scudder from *Pieris rapæ*, described by Dr. Packard* as *Microgaster pieridis*, and referred by Dr. Riley† to the species mentioned (the variety name *pieridivora* being substituted for *pieridis*, because the latter was preoccupied), was frequently bred during the summer of 1886 from larvæ of *Pieris rapæ*, brought to the Laboratory because they showed signs of disease. Especial mention may be made of three lots of the parasites bred by Prof. Garman, the cocoons of one lot being of a lemon-yellow color; those of another being of about the same shade, excepting a slight greenish tinge in some specimens; and those of the third being creamy white, with scarcely a trace of yellow. Yet there is no mentionable difference in the adults of the different lots. There were, on an average, about thirty cocoons obtained from each *Pieris* larva.

The Apanteles larvæ of one set emerged from the skin of their host August 11, and came forth from the cocoons as adults August 29. Another lot formed cocoons September 2, and the adults were found dead in the breeding box September 22.

On page 104 of the Twelfth Report of the State Entomologist of Illinois, Prof. Forbes has described an Apanteles bred from the larvæ of *Mesographe (Orobena) rimosalis*, Guenée, under the name *Apanteles orobenæ*. A critical examination of a larger series of specimens than was then at hand, shows that this is but a variety of *Apanteles congregatus*, distinguished by the dark anterior and intermediate coxæ and trochanters. In some specimens these parts of the front and middle legs are almost as light-colored as in the normal specimens from sphinx

*Proc. Bost. Soc. Nat. Hist., Vol. XXI., p. 26.

†Am. Nat., Vol. XVI., p. 680.

larvæ. Hence these insects should be known as *A. congregàtus*, Say, var. *orobenæ*, Forbes.

APANTELES MILITARIS, Walsh.

This well-known species, as would be expected from a knowledge of its habits, was found in especial abundance during the years when the army worm was destructive. In 1882 specimens were sent to the office by Mr. D. S. Harris, of Cuba, Ill., with the statement that he had bred them from the army worm, which was then very abundant in that vicinity. During the same season, this notorious pest was destructively abundant in certain portions of McLean County, but its operations were rapidly checked by *A. militaris*, which is the species referred to by Prof. Forbes on page 102 of his First Report (the twelfth of the series). Describing the history of a brood of worms observed in a certain field, he writes: "When first noticed, on the 24th of June, these worms were doing serious damage to a heavy growth of timothy on high ground, marching from one side of the lawn to the other. By the 3d of July, the season for the transformation to pupæ had been reached, but apparently not over twenty-five per cent. of the worms succeeded in effecting the change, the remainder dying in such numbers that the ground was reeking with a sickening stench. At the same time clusters of the cocoons of one of the common parasites of the army worm were found everywhere abundant on the surface of the ground, and in some cases on the dried remains of the army worm itself. Of seventy-six pupæ of the worm, collected in this field at this time, but one reached maturity." From cocoons collected in this field July 2, the adult Apanteles continued to emerge until July 20.

The only specimens bred in 1886 were from a mass of thirty-nine white cocoons loosely fastened togther, parallel to each other, found on a leaf of Indian corn in the field, August 2. The flies emerged August 11.

APANTELES CACŒCIÆ, Riley.

A single specimen (♀) of this species was bred during May, 1886, from a larva of *Teras minuta*, Robinson (*malivorana*, Le B.; *cinderella*, Riley). The cocoon was attached to a leaf. It is thin and white, 6 mm. long and about one third as wide.

APANTELES SARROTHRIPÆ, sp. n.

On June 30, 1884, there was noticed in a breeding cage, at Normal, containing larvæ of *Sarrothripa lintneriana*, a dead larva in an imperfect cocoon, surrounded by cocoons of some hymenopterous parasite. A few days later there emerged from the latter six specimens of a well-marked Apanteles, for which I propose the above name. Unfortunately the cocoons were not saved, so that I am unable to describe them at this time.

Imago.—Length 2.5 mm. ♂, ♀. Black; palpi white; labrum and mandibles testaceous; antennæ ferruginous; legs light red except posterior coxæ, which are black. Wings hyaline; tegulæ whitish; veins pale yellow except apical portion of costa which, with the stigma, is testaceous. Lateral membranous margins of terga of the three anterior segments, posterior portion of tergum of third segment, and sides and ventrum of abdomen, testaceous, lighter anteriorly. Dorsal portion of abdomen, except the two anterior terga, piceo- testaceous. Mesonotum shining, with distant, very shallow, punctures, many specimens having a slightly depressed area on the posterior portion of the mesoscutum, each side of the dorso-median line. Scutellum of metathorax with punctures on its anterior portion, and finely reticulated posteriorly; without median carina. Tergum of first abdominal segment longer than wide, finely rugose, narrowing behind. Tergum of second segment also finely rugose, the wrinkles diverging obliquely from the anterior margin: sides membranous. Terga of remaining segments smooth and shining. Ovipositor concealed. Radial vein arising slightly beyond the middle of the stigma.

Described from six specimens (5 ♀, 1 ♂) bred from a larva of *Sarrothripa lintneriana.*

Much resembling *A. congregatus* and *A. smerinthi*, but easily distinguished from former by its shining mesonotum, and from latter by the rugose abdominal terga.

APANTELES ORNIGIS, sp. n.

In the mines made by the larvæ of the apple Ornix *(O. geminatella,* Pack.) in apple leaves, at Normal, there were found March 21, 1886, many peculiar white, banded, cocoons of some hymenopterous parasite. Between April 27 and May 10 there

emerged specimens of a new species of Apanteles, for which the above name is proposed. When the cocoons were collected, the Apanteles larvæ had not yet changed to pupæ.

This seems to be a common parasite of the Ornix named, as it was very abundant in the Normal nursery; and I have found it almost everywhere in the State where its host has been observed.

Cocoon.—Length, 3 mm. Width, 1 mm. Oblong cylindrical; smooth, white, with a darker appearing central band about .5 mm. wide. The darker appearance of this band is caused, not by any difference in the color of the silk, but because the cocoon is there very much thinner than at the ends. To each end is attached a cord of fine silken threads, which are also fastened to the sides of the leaf-mine, thus suspending the cocoon after the manner of a hammock.

Imago.—Length 2 to 2.5 mm. ♂, ♀. Black; palpi white; labrum and mandibles piceo-testaceous. Legs of female light red except base of posterior coxæ, apical half of posterior tibiæ, and posterior tarsi, which are dusky. First pair of legs of male light red, except coxæ and apical joint, which are blackish; second pair with more or less black on coxæ, femora, and tibiæ; posterior pair fuscous, with proximal portions of femora and tibiæ lighter, and coxæ black. Sides and ventral portions of anterior segments of the abdomen with more or less testaceous coloring, especially in the males. Wings hyaline; tegulæ piceous; veins testaceous; stigma darker. Antennæ piceous; slightly longer than the body. Scutum of mesothorax with rather distant shallow punctures, shining; scutellum also shining, with a few very shallow punctures. Scutellum of metathorax large, quadrate, reticulated, without median carina. Terga of first two abdominal segments and base of tergum of third segment finely reticulate; remainder smooth and shining. Tergum of basal segment narrowing posteriorly, with membranous testaceous borders. Ovipositor one third as long as abdomen. Radial vein arising beyond the middle of the stigma.

Described from twelve specimens (8 ♂, 4 ♀), bred from *Ornix geminatella*, Pack.

APANTELES CRAMBI, sp. n.

On the 13th of June, 1886, I found in a breeding cage containing larvæ of the root web worm, *Crambus zeëllus*, Fernald, collected in the vicinity of Champaign, a Crambus cocoon containing a dead larva and several Microgaster cocoons. From the latter there emerged between June 19 and 22 several specimens of a well-marked species of Apanteles, for which the above name is proposed. Specimens exactly similar were bred during July from larvæ of *Crambus exsiccatus* infesting lawns at Champaign. Doubtless this insect will aid materially in checking the ravages of these species of Crambus which are so difficult to subdue by artificial means.

Cocoon.—Length, 3 mm. White, thin, loosely fastened together within the cocoon of the host.

Imago.—Length, 2 mm. ♂, ♀. Black; palpi white; mandibles testaceous; ventrum of abdomen, together with the tergum of the third abdominal segment testaceous, lighter anteriorly. Terga of segments posterior to third, piceo-testaceous. Legs light red, except claws of front and middle pair, and tips of femora, together with the tarsi of posterior pair, which are piceo-testaceous, and posterior coxæ, which are black, tipped with red. Wings hyaline; tegulæ and proximal portion of costa testaceous; stigma and apical portion of costa darker, nearly piceous; veins whitish. Antennæ piceous; those of female shorter than the body, of male slightly longer. Mesothorax closely punctured, shining. Scutellum of metathorax reticulate. Terga of two first abdominal segments longitudinally rugulose, remainder smooth and shining. Ovipositor concealed. Radius arises slightly beyond the middle of the stigma.

Described from many specimens, bred from larvæ of *Crambus zeëllus*, Fernald, and *C. exsiccatus*, Zeller.

ADDENDA AND ERRATA.

To complete the list of species recognized by Stål as belonging to this family, the following are appended, not from the belief that they belong here, but because there should be no hasty change made in the classification of the Homoptera until they have been more carefully studied.*

SUBFAMILY CENTROTINÆ, Stål.

LXVI. Tolania, Stål.

276. T. opponens, Walk.

1858. *Centrotus opponens.* Walk. List Hom. B. M. Suppl. 159.

1862. *Tolania opponens.* Stål. Öf. Vet.-Akad. Förh. 491.

Hab.—Mex. (*Walker*).

LXVII. † Æthalion, Latr.

277. A. gratus, Walk.

1858. *Æthalion gratum.* Walk. List Hom. B. M. Suppl. 169.

1864. *Æthalion dilatatum.* Stål, Hem. Mex. 73, 450.

1869. *Æthalion gratus.* Stål, Bid. Memb. Kän. 299, 14.

Hab.—Mex. (*Walker*).

278. A. nervoso-punctatus, Sign.

1851. *Æthalion nervoso-punctatum.* Sign. Ann. Ent. Soc. France, Sér. 2, ix, 679, 14, pl. 14, fig. 10.

1858. *Æthalion nervoso-punctatum.* Walk. List Hom. B. M. Suppl. 168.

1869. *Æthalion nervoso-punctatus.* Stål. Bid. Memb. Kän. 299, 12.

Hab.—Mex. (*Walker*).

---

*None of the species mentioned here have a prolongation of the prothorax backward, and they rightfully belong with the Jassidæ.

† There are 68 instead of 67 genera represented in this catalogue, and 282 species instead of 278, XIV., 41, 42, 43, and 44 being duplicated.

The following additional localities have been obtained since this catalogue was put in the printer's hands:

For numbers 7, 8, 140, 177, 203, 204, 205, 206, 211, and *Aconophora lanceolata*, Fairm., Guatemala (*Henshaw*); 14, 27, and 142, Me. and Mass. (*Henshaw*); 15, Ia. (*Osborn*), N. Y. (*Van Duzee*); 19, Mich. (*Cook*), Pa. (*Rathvon*), Me. (*Henshaw*); 21, N. Y. (*Lintner*); 14, 19, 22, 27, 28, 41, 53, 65, 71, 76, 85, 96, 107, 131, 216, 223, 261, Neb. (*Barber*); 28, Mich. (*Cook*), Me., Fla., Tex., Calif., and B. C. (*Henshaw*); 34, 44, 66, 91, 116, 122, 132, and 145, Mich. (*Cook*); 41, B. C. (*Henshaw*), Nev. (*Hillman*); 43, Miss. (*Weed*), Mich. (*Cook*); 46, Mass. (*Henshaw*), Mich. (*Cook*); 52, Mich. (*Cook*), Ia. (*Osborn*), Va. and Md. (*Henshaw*); 55, Mich. (*Cook*), Pa. (*Rathvon*), Ia. ? (*Osborn*), Me. (*Henshaw*); 57, Ill. (*Goding*); 65, 68, 75 (recorded as *jugata* Uhler, which is a MS. name), 131, and 261, Ia. (*Osborn*); 67, Mich. (*Cook*), Mass. and Me. (*Henshaw*); 72, Mass. (*Henshaw*); 73, 83, and 85, Ia. ? (*Osborn*); 86, Mass. and Pa. (*Henshaw*); 95, Pa. (*Rathvon*); 97, and 119, Ia. (*Osborn*), Mich. (*Cook*); 114, Mich. (*Cook*), Tex. (*Henshaw*); 121, Pa. (*Henshaw*); 136, and 192, Va. (*Henshaw*); 137, N. Mex. (*Townsend*), Col. (*Gillette*); 138, Col. (*Goding*); 188, Va., Tex., and Vict. (*Henshaw*); 194, Mass., Tex., Calif., Vict. (*Henshaw*); 198, Cent. Am. (*Henshaw*); 217, Me. (*Henshaw*); 223, Mich. (*Cook*), Anticosti, Mass., Pa., Md., Va., D. C., Oregon, and Wash. (*Henshaw*); 248, Tex. (*Henshaw*).

Page 391, line 19, for *Entomolgique* read *Entomologique*.

Page 393, for No. 5 substitute as follows: *

P. DISPAR, Fabr.

1803. *Darnis dispar.* Fabr. Syst. Rhyng. 32, 23.
1836. *Entylia dispar.* Burm. Silb. Rev. iv, 182, 2.
1869. *Parmula dispar.* Stål, Hem. Fabr. ii, 29, 1.

Hab.—Mexico (*Goding*).

Page 397, between lines 12 and 13 from bottom insert as follows: 1893. *Entilia sinuata.* Rice, Insect Life, v, 243.

Page 399, line 7, after "one" insert *female*.

* *P. munda*, Walk., belongs to Pha[illegible] (*Fide* Fowler)

Page 400, between lines 9 and 10 insert as follows: 1851. *Cyphonia rectispina.* Walk. List Hom. B. M. 597, 6; line 19, for *postfaciata* read *postfasciata.*

Page 401, line 4, for *bubalus* read *diceros.*

Page 402, at bottom of page add as follows:

1891. *Ceresa bubalus.* Fletcher, Rep. Ent. and Bot. Can. 191.

1892. *Ceresa bubalus.* Osb. Trans. Ia. Hort. Soc. 119, fig. 30.

1893. *Ceresa bubalus.* Osb. Fruit and Forest Tree Ins. 24, fig. 30.

Page 403, line 21, for the interrogation point substitute a period; between lines 2 and 3 from bottom insert as follows:

1892. *Ceresa taurina.* Osb. Trans. Ia. Hort. Soc. 119.

1893. *Ceresa taurina.* Osb. Fruit and Forest Tree Ins. 24.

Page 409, between lines 4 and 5 from bottom insert as follows: *Stictocephala gillettei*, ♂. Godg. Ent. News, iii, 200.

Page 411, line 2, for *nigripes*, Stål, read *munda*, Walk.; between lines 2 and 3 insert as follows: 1858. *Parmula munda.* Walk. List Hom. B. M. Suppl. 152; line 4, for Mex. (*Stål*), read Mex. and Guatemala (*Walk.*).

Page 412, between lines 11 and 12 from bottom insert as follows:

1892. *Thelia cratægi.* Osb. Trans. Ia. Hort. Soc. 119.

1893. *Thelia cratægi.* Osb. Fruit and Forest Tree Ins. 24.

Page 413, line 12 from bottom, and page 414, line 1, for *acuminata* read *acuminatus.*

Page 414, line 11, for *Hyphinæ* read *Hyphinoë.*

Page 416, line 3 from bottom, for *Telamona* read *Membracis.*

Page 417, line 1, for *1841* read *1851.*

Page 422, between lines 8 and 9 insert as follows: 1892. *Telamona mexicana?* Godg. Ent. News. iii, 108.

Page 424, line 9, for *top* read *tips.*

Page 425, line 6, dele "fig."; line 2 from bottom, for *galata* read *galeata.*

Page 427, line 4 from bottom, for *Membracis* read *Acutalis.*

Page 429, line 15, after "lower" insert *edge.*

Pages 435 and 436. *Note.*— An examination of the types shows that numbers 122 to 126 belong to Cyrtolobus.

Page 437. After the numbers 128, 129, and 130, for *A.* read *E.* *

Page 441, line 17 from bottom, for *V.* read *Amastris* †; line 4 from bottom, insert (?) before *V.*

Page 442, between lines 8 and 9 insert as follows: 1851. *Thelia expansa.* Walk. List. Hom. B. M. 563, 26; between lines 14 and 15 from bottom, insert as follows: *Thelia marmorata.* Walk. List. Hom. B. M. 555, 4.

Page 444, line 15 from bottom, after "scar" insert as follows: Apical cell much longer than in *marmorata,* the length exceeding the breadth more than twice, while in *marmorata* the cell is but a little longer than broad; line 14 from bottom, after "fuliginous" and "yellow" substitute semicolons for commas; line 7 from bottom, after "process," add as follows: in not being suddenly depressed a short distance before apex, in not having the median carina flat from this depression, and in being much more depressed anteriorly.

Page 445, line 8. *Note.*—Through the kindness of Rev. W. W. Fowler, of Lincoln, England, I have had the opportunity to examine Stål's type of the genus Optilete, and, as surmised, it proves to be a typical *marmorata,* Say. Between lines 16 and 17 from bottom insert as follows: 1851. *Hemiptycha longicornis.* Walk. List Hom. B. M. 569, 7.

Page 449, line 10 from bottom, *Note.*— Walker's *Darnis lineola* belongs to Phacusa (*Fide* Fowler).

Page 452, No. 181, for *prunitia,* Butler, read *hastata,* Stål (*Fide* Fowler).

---

* Ashmeadea being preoccupied, the name was changed to Evashmeadea.

† A more careful study of the species places it in Amastris.