Page 47, line 6, page 48, line 8, and page 49, lines 5, 9, and 10 from bottom, for *clitellus* read *clitellum*.

Page 79, line 9, for *Opilonca* read *Opilionca*.

Page 108, line 11, for *longitudinal* read *circular*.

Page 109, line 8, for *worms* read *body*.

Page 115, line 1, dele initial *R*.

Page 122, line 10, for *ten* read *twenty*.

Page 138, line 16, for *Blackisded* read *Black-sided*.

Page 185, line 13 from bottom, page 228, line 17, and page 229, line 7 from bottom, for *troosti* read *troostii*.

Page 187, line 12 from bottom, page 272, line 6 from bottom, and page 275, line 1, for *kirtlandi* read *kirtlandii*.

Page 187, line 15 from bottom, for *lineata* read *lineatum*.

Page 213, line 17 from bottom, for 7 read .7.

Page 214, line 7, for 7 and 3 read .7 and .3.

Page 224, line 13 from bottom, for *Tortoise* read *Tortoises*.

Page 225, line 3, for *picta* read *marginata*.

Page 240, line 6 from bottom, for *1824* read *1825*, and before pp. insert IV.

Page 242, line 8 and 12 from bottom, and page 243, line 1, for *Macroclemys* read *Macroclemmys*.

Page 252, line 11, for *Crematogaster* read *Cremastogaster*.

Page 269, line 22 from bottom, and page 271, line 1, for *fasciatus* read *fasciata*.

Page 272, line 9 from bottom, and page 273, lines 7 and 14 from bottom, for *grahami* read *grahamii*.

Page 293, line 13 from bottom, for *elapsoidea* read *elapsoideus*.

Page 295, line 6, for *triangulum* read *triangulus*.

Page 309, lines 5 and 6 and line 3 from bottom, for *amœnus* read *amœna*.

Page 349, line 3 from bottom, for *A* read *W*.

Page 352, line 16, for *Ichyomorpha* read *Ichthyomorpha*.

Page 353, line 4 from bottom, for *Menopomidæ* read *Cryptobranchidæ*.

Page 366, line 16, and page 367, line 14 from bottom, for *erythronota* read *erythronotus*.

Page 367, line 8 from bottom, for *relations* read *relation*.

Page 371, line 11 from bottom, for *cingulata* read *cingulatum*.

Page 378, line 7, dele period after prehension. S. Garman is authority for last sentence of paragraph only.

Page 385, line 4 from bottom, dele comma after its.

Page 410, line 18 from bottom, for *sublata* read *subulata*.

Page 411, line 11, for *bimabulata* read *bimaculata*.

Page 431, line 16 from bottom, for *mutica* read *muticus*.

Page 435, line 12 from bottom, for *querci* read *quercus*

Page 441, line 19, for *Salamandra* read *salamandra*.

Page 451, line 14 from bottom, for *Anonophora* read *Aconophora*.

Page 486, line 4, for *limabta* read *limbata*.

Page 494, line 2 from bottom, and page 495, lines 13 and 16, for *lineatus* read *lineata*.

*See also pp. 478–481 of Article XIV.

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*).

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*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*.

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* *P. munda*, Walk., belongs to Phatnoma (*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).

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

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

ARTICLE XI.— *Descriptions of new Cynipidæ in the Collection of the Illinois State Laboratory of Natural History**. By C. P. GILLETTE, of the Iowa Experiment Station.

FAMILY CYNIPIDÆ.

SUBFAMILY CYNIPINÆ.

GENUS DIASTROPHUS HARTIG.

D. scutellaris n. sp.

GALL-FLY.— Female.—Head, thorax, and scutellum black; mandibles, antennæ, legs, and abdomen yellow-rufous. Length, 3 mm.

Head black, shining, face coarsely striate and sparsely haired, frontal carina rather prominent and striate, a deep groove extending up on the front, from between the antennæ, containing the middle ocellus at its upper end, the ridges or carina on either side of the groove finely aciculate, the outer ocelli borne on the summit of the vertex, the latter shining and having a few punctures in the vicinity of the ocelli; occiput aciculate. *Thorax:* collar covered with a growth of rather long hair, mesothorax black, polished, and covered with a network of microscopic depressed lines, humeri coarsely aciculate

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* The following descriptions of new Cynipidæ were made during a recent vacation visit at the Illinois State Laboratory of Natural History, and it is through the kindness of the Director, Dr. S. A. Forbes, and Hon. R. P. Speer, Director of the Iowa Experiment Station, that I am permitted to publish them in this Bulletin.

I wish here to express my most hearty thanks to Dr. Forbes for the free use allowed me of the library, collection, microscopes and other laboratory equipments during my visit, and also for the excellent cuts made under his direction to illustrate the present paper. Mr. C. A. Hart and Mr. John Marten I have to thank for many favors received.

Types of all the species here described may be found in the collection of the Laboratory.

or wrinkled, pleuræ finely aciculate and rufous in color. The parapsidal grooves and median groove are broad and very deep near the scutellum, but become narrower and shallower as they extend forward; the parapsides extend to the collar, but the median groove disappears on reaching the posterior ends of the two parallel lines extending back from the collar. The lateral grooves* are very distinct. Scutellum bifoveate, coarsely sculptured, and remarkable for being much drawn out posteriorly. The length of the scutellum is nearly equal to the distance from the scutellum to the collar. *Abdomen* entirely yellow-rufous, 2d segment occupying about one half of the dorsal surface, 3d segment about two thirds as long as the 2d, following segments very narrow; surface polished, impunctured. *Feet*, including coxæ, entirely yellow-rufous. *Wings* hyaline or very slightly smoky, radial nervure very distinctly bowed, the tip being thrown towards the costa; 1st and 2d transverse nervures very heavy, the usual dark stain at the base of the radial nervure present, areolet medium.

Described from a single female taken by sweeping in a wheat field 20th May, 1884. Accessions number, 1881. Illinois.

Gall unknown.

Genus Antistrophus Walsh.

A. silphii n. sp.

Galls. — Abrupt sub-globular swellings from 1 to $1\frac{3}{4}$ inches in diameter at the tips of the stems of *Silphium integrifolium* and *perfoliatum* (Plate IX., Fig. 1). The inner portion of the gall is made up almost entirely of a rather dense pithy material that cuts with some difficulty. Interspersed through the gall are numerous oval larval cells, and also open spaces or cavities that do not contain insects. (Plate IX., Fig. 2.) The larval cells are not woody, as is usually the case in cynipidous galls, but their walls are of pith like the surrounding gall substance.

* The short grooves starting on the mesothorax at a point near the outer angles of the scutellum and extending outside of the parapsides to a point about opposite the bases of the wings, I shall term *lateral grooves* in these descriptions to distinguish them from the other lines of the mesothorax.

These galls are very common in the vicinity of Champaign, Ill., on stems of *Silphium integrifolium*, and Mr. Hart had collected similar galls at Normal, Ill., from *S. perfoliatum*, from which flies were reared that were in every way identical with those from galls of the other species.

Gall-fly.—Female.— Black, head and thorax opaque, abdomen shining, antennæ, except first two joints, spot on mandibles, and anterior and middle pairs of tibiæ, ferruginous or dusky ferruginous. Length, 3–4 mm.

Head: Face deeply and densely striate, median ridge, below the insertion of the antennæ, densely and finely sculptured but not striate; genæ, vertex, and occiput densely sculptured, the sculptures being in the form of minute shining pits, as seen under a power of 70 diameters. *Thorax:* collar and mesothorax finely and deeply sculptured, parapsidal grooves distinct, median groove broad at scutellum and traceable to collar, lateral grooves distinct, all of the mesothoracic furrows sculptured at the bottom. The two parallel lines running back from the collar appear smooth and shining. Scutellum bifoveate, coarsely wrinkled posteriorly and finely and densely sculptured throughout, including the bottom of the foveæ and the spaces between the wrinkles; pleuræ opaque and sculptured like the mesothorax but less deeply. The sculpturing of this insect may be described as a net-work of raised lines enclosing smooth shining spots. *Abdomen* piceous black, polished, 2d joint occupying one half of the dorsal surface, 3d joint one half as broad as the second, succeeding joints to 7th usually plainly visible, 4th and succeeding joints finely punctured. A power of 70 diameters shows slight punctures on 3d segment also. *Antennæ* 14-jointed, rufous, except the first two joints, which are usually black, but sometimes inclined to rufous, joints 1 and 2 stout, joints 3 and 4 equal in length, last joint once and a half as long as the preceding, length of entire antennæ 2–4 mm. *Wings:* hyaline, radial cell open, radial nervure reaching costal margin, all the nervures very slender, areolet wanting. The entire insect is very free from pubescence.

The male differs from the female by being but $2\frac{3}{4}$ to 3 mm. in length, on account of its smaller abdomen, and by having

the last joint of the antennæ as long as the two preceding joints.

Described from 60 bred specimens bearing accessions numbers 1928, 5206, 15605, and 15665, all from Illinois.

The flies live over winter in the galls and emerge from them during the months of May and June of the following year.

A. laciniatus n. sp.

Galls.—Individual galls are egg-shaped, from 4 to 5 mm. in length, and occur in clusters on the receptacles of the flowers of *Silphium laciniatum.* (Plate IX., Fig. 3.) Mr. C. A. Hart has collected a number of these gall-clusters and in description of them says: "They always occur in well-ripened, healthy-looking flower heads, but do not show until the weather has removed the uninfested flowerets. They are always produced in the sterile flowers of the disk, towards the center."

Gall-fly. — Female. — Head and thorax opaque black, abdomen shining rufo-piceous, antennæ black; length, 3 mm.

Head: face between eyes and mouth rather coarsely aciculate, median ridge with a few coarse punctures or pits, entire surface of head finely and densely sculptured, as in the preceding species, middle ocellus at the upper extremity of a broad furrow extending up from the antennæ, the two outer ocelli on the summit of the vertex, mandibles rufous on median portion. Antennæ black, 13-jointed, joints 3 and 4 equal, last joint almost as long as the two preceding; length, 2.3 mm. *Thorax*, including scutellum, as in the preceding species. *Abdomen* rufo-piceous, polished, rather globose, 2d segment occupying scarcely more than one third of the dorsum, 3d segment broad, 3d and succeeding segments densely punctured. *Wings* hyaline, pubescent, nervures very light, areolet wanting. *Feet*, including coxæ, black; tip of femora, tarsi, and anterior tibiæ rufous.

Male.— Length, 2 mm.; antennæ 14-jointed, as long as the body ; abdomen black, 2d segment occupying fully one half of the dorsum ; otherwise as the female.

This species is easily distinguished from *A. silphii* by the black antennæ, which are 13-jointed in the female, by its much

less robust thorax, by its more globose abdomen, and by having the third abdominal segment densely punctured.

Described from three males and three females bred from galls collected at Champaign, Ill., by Mr. John Marten. Accessions number, 15073.

A. rufus n. sp.

While looking through the Laboratory collection for Cynipidæ I was much interested in finding a vial containing a section of a stem of *Silphium laciniatum* and a number of two species of Cynipidæ bred from it. There was not the slightest indication of a gall upon the stem, and it was found that the flies had emerged from little cells in the pith exactly like the cells in the pithy substance of the galls of *A. silphii*, above described. In company with Mr. C. A. Hart I visited fields where this species of *Silphium* was growing, and we found that the majority of the stems were more or less infested with cynipidous larvæ, hundreds of which could, in some cases, be found in a single stem; but in no case was there any indication of the formation of a gall. An illustration of a stem containing these cells is given at Fig. 4, (Pl. IX). After finding the stems of *Silphium laciniatum* so much infested, we pushed our investigations farther and found similar larval cells abundant in *Silphium perfoliatum*, *S. terebinthinaceum*, and *S. integrifolium*. Whether the flies when bred from these stems will all prove to be one or the other of the two species here described, cannot yet be told.

Gall-fly.— Female.— Color, rufous; vertex, mesonotum, and scutellum black; head and thorax opaque; length, 3 mm.

Head and thorax minutely sculptured throughout as described in the two preceding species, face finely aciculate between eyes and mouth, vertex and the portion of the occiput immediately back of it black, tips of the mandibles infuscate, the remainder of the head rufous. Antennæ 13-jointed, 4th joint a trifle longer than the 3d, the last joint as long as the two preceding and bearing a connate suture that in some positions makes it appear to be two joints, rufous in color, and 2 mm. in length. *Thorax:* parapsidal furrows extending to collar, median groove not quite reaching the two parallel lines from

collar; lateral grooves distinct. The median portion of the pleuræ appears finely aciculated, but they are finely sculptured throughout. Scutellum bifoveate and more coarsely sculptured than the mesonotum but not wrinkled like the two species just described. Foveæ broad and shallow and sculptured at bottom like the rest of the scutellum. *Abdomen* dark rufous, almost black above, 2d segment occupying somewhat less than half of the dorsum, apical portion of 3d segment feebly punctured, following segments, except 7th, more strongly and densely punctured, 7th segment covered with a net-work of fine lines but no punctures. *Wings* hyaline, nervures, except the two transverse, very slender, areolet wanting. *Feet*, including coxæ, entirely rufous, tibiæ of the hind pair in a few cases rather dark.

Male.—Length, 2.2 mm., 2d abdominal segment occupying half of the dorsum, antennæ 14-jointed, last segment once and a half as long as the preceding; otherwise as female.

Described from numerous bred specimens from alcohol; accessions number 5500. Illinois.

A. minor n. sp.

Bred from the same stem of *Silphium* as the preceding species and about half as numerous.

Gall-fly.—At first sight the flies of this species appear to be miniatures of *A. rufus*, but there are structural differences that make it necessary to give them a separate description. They differ from *rufus* as follows:

Length of females 2 mm., of males 1½ mm.; collar deeper rufous. The most apparent structural differences are in the mesothorax and scutellum. The parapsidal and median grooves in *minor* do not appear as sharply defined furrows but only as broad slightly depressed lines with sloping sides. The foveæ of the scutellum are rather deep at base, extend far back, and are not separated by a sharply defined septum but by a broad slightly elevated ridge. The scutellum is also longer in proportion to its breadth and is perceptibly narrowed at the sides, about midway of the length.

Accessions number, 5500.

A. bicolor n. sp.

Gall-fly.—Female.—Head and thorax opaque black, abdomen and antennæ rufous; length, 3 mm.

Head black, finely and densely sculptured, mandibles except tips rufous, face between eyes and mouth coarsely aciculate, frontal ridge rather prominent, ocelli in nearly a straight line. Antennæ dark rufous, 13-jointed, 3d and 4th joints equal in length, 13th joint about as long as the two preceding taken together. *Thorax*, including pleuræ, densely and finely sculptured, parapsidal and median furrows distinct and extending to the collar, lateral furrows and two parallel lines plainly marked. Scutellum sculptured like the mesonotum, bifoveate. Abdomen rufous, polished, 2 l segment occupying a little more than one third of the dorsum, 3d segment very broad, and microscopically punctured on apical portion, succeeding segments to the 7th all exposed and rather densely punctured as seen under a power of 70 diameters, venter rather prominent, and ovipositor sheaths projecting slightly. *Feet*: the tarsi, tibiæ of front pair, and joints of all the legs are more or less rufous, the remaining portions black. *Wings* hyaline, radial cell open, all the nervures, except the two transverse, very weak, areolet entirely wanting.

Described from a single specimen from Normal, Ill., accessions number 2584. Gall unknown.

Genus Acraspis Mayr.

A. compressus n. sp.

Gall.—Small sub-globular bodies from 2 to 3 mm. in diameter attached to the under side of the leaves of the red oak, *Quercus rubra*, in the fall, about the time the leaves are beginning to turn brown. The galls appear like wax, and are either pure white or tinged with red while on the leaves, and when cut into are fleshy and juicy like a potato. The galls fall to the ground with or a little before the leaves, and each develops a single larva which gets its growth in the fall but does not emerge until the following summer. Only a very thin shell of the gall is left after the fly emerges.

Gall-fly.—Females.—Head and thorax rufous, abdomen black, head nearly twice as broad as thorax, the latter very small and narrow, abdomen very much compressed and, when viewed from the side, appearing twice as large as the head and thorax together.

Head: face and genæ reddish brown, vertex and occiput dark brown, mandibles black, clypeus punctured and with few hairs, the entire head covered with a net-work of depressed lines; antennæ rufous, 14-jointed. *Thorax* very small and narrow, seeming, when viewed from above, out of all proportion with the comparatively large and very broad head; sculptured like the head without the usual furrows; scutellum very narrow and much elevated posteriorly, and appearing, when viewed laterally, in the shape of a crow's beak; a shining transverse groove but no foveæ at base. *Abdomen* very strongly compressed, not broader in the thickest part than the thorax, shining black in color with some rufous at base, free from hairs or punctures, as deep as long, its length compared with that of the entire insect being as 3 to 5 and the 2d segment occupying fully two thirds of the dorsum. *Feet* dark reddish brown. *Wings* entirely wanting.

Described from two specimens cut from galls taken at Ames, Iowa, where they are common.

Genus Dryophanta Forst.

D. lanata n. sp.

Galls.—During late summer and autumn the galls of this species are found on the under side of leaves of *Quercus rubra* and *Q. coccinea*, appearing externally as little bunches of compact brown wool (Pl. IX., Fig. 5), and hardly distinguishable in outward appearance from the galls of *Andricus flocci* Walsh. The galls seldom occur singly, but usually in clusters of from four to eight. A cluster of eight galls when fully grown will measure about $\frac{3}{8}$ of an inch in width by $\frac{5}{8}$ of an inch in length. An individual gall when denuded of its covering is in the form of an irregularly shaped cone with a bulging base, the diameter of the base being three or four sixteenths of an inch, which is nearly twice the height.

PLATE IX.

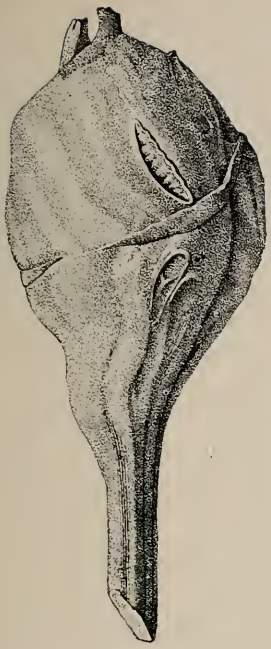

FIG. 1.

FIG. 4.

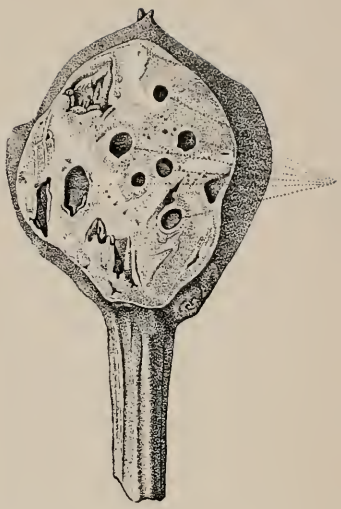

FIG. 2.

FIG. 3.

FIG. 5.

The galls fall to the ground in the autumn in advance of the leaves, and the flies emerge the following summer. The galls are abundant at Ames, Iowa, and I have taken a number in the vicinity of Champaign, Ill.

GALL-FLY.—A robust, black species, with more or less rufous on face, mesonotum, scutellum, and sides of abdomen. Length, 3½ to 4 mm.

Head: Face scabrous, shining, with very few hairs; vertex black, sub-opaque, finely and densely sculptured; ocelli considerably elevated, clypeus polished, emarginate, punctured; antennæ black, 14-jointed (in one specimen 13-jointed), a trifle over 2 mm. in length; joints 1 and 2 stout, the latter subglobular, joint 3 one third longer than joint 4, last joint scarcely longer than the preceding. *Thorax*: mesothorax covered with a fine net-work of depressed lines leaving irregular raised portions that are highly polished, parapsides narrow but well defined, polished at the bottom and reaching the collar, median groove showing plainly at scutellum but soon disappearing as it runs forward; the two parallel grooves from the collar narrow at first, then spreading out in broad furrows with sloping sides traceable about one third of the way to the scutellum; lateral grooves plainly marked, extending well forward, and approximating the parapsides at their anterior extremity; pleuræ finely aciculate and shining. Scutellum bifoveate, the foveæ shallow, separated, not by a septum, but by a number of polished raised lines that run into the smooth surfaces of the bottoms of the foveæ; lateral borders of the scutellum strongly aciculate anteriorly, the lines becoming crooked and broken posteriorly and forming a densely and deeply rugose surface; scutellum black at base and tip and rufous in the middle. *Abdomen* dark rufous to almost black, 2d segment occupying one half of tergum, posterior half of the second segment and all of the following segments rather densely punctured, all of the segments highly polished. *Feet* uniformly colored, very dark rufous to almost black. *Wings* hyaline, rather densely ciliate, 4 mm. long, submedian and 1st and 2d transverse nervures stout and black, areolet medium.

Described from two bred females from galls taken at Ames, Iowa. Male unknown.

Genus Chilaspis Mayr.

C. ferrugineus n. sp.

This genus has hitherto had no recognized representative in this country. Dr. Gustav Mayr, in his paper on "Die europäischen Arten der gallenbewohnenden Cynipiden," gives a single species. *C. nitida* Gir., for Europe. Giraud's species is given as producing galls on the leaves of *Quercus cerris*, while the species here described is either a guest or a parasite, as two of them were captured in the act of ovipositing in immature galls, one of *Dryophanta lanata*, described above, and one in a very similar gall of an undescribed species; both were taken 1st Sep., 1890, at Ames, Iowa.

I have never seen a specimen of *C. nitida*, and it is possible that the species here described will require a new genus, but by the use of Mayr's synopsis these flies are readily traced to *Chilaspis*.

Flies.—Females.—General color yellow-rufous, abdomen shading into black on apical dorsal portion, tips of mandibles black, posterior tibiæ and tarsi somewhat infuscate, length 2 mm.

Head: face finely rugulose and having the appearance of being covered with scales like the body of a fish, a few scattering hairs, clypeus in the upper and middle portion sculptured like the rest of the face but with a broad polished margin below, mandibles punctate, vertex and occiput covered with a fine net-work of depressed lines and blackish in color; antennæ 13-jointed, 3d and 4th joints equal in length, last joint twice as long as the preceding, ferruginous, reaching to the middle of the abdomen. *Thorax:* mesothorax ferruginous, quite dark in one specimen, sculptured like the face, parapsides distinct throughout but in the middle showing as broad shallow grooves without well-defined sides, median groove absent, parallel lines from the collar plainly marked, lateral grooves distinct and reaching to opposite the bases of the wings; pleuræ covered with a net-work of slightly raised lines; scutellum with polished basal groove crossed by many shining ridges, coarsely rugose posteriorly and with a narrow blackish rugose margin; metathorax coarsely rugulose and with three longitudinal

carinæ running to the base of the abdomen. *Abdomen*, with 2d segment occupying fully half of the dorsum, 3d segment about one third as long as the 2d, seven segments visible, ovipositor sheaths projecting above the dorsum, venter considerably extended posteriorly, the last two characters reminding one of *Ceroptes* sp. *Wings* hyaline, with distinct dusky patch surrounding the second transverse nervure, radial cell entirely open, the radial and subcostal nervures ending abruptly just before reaching costal margin, the subcostal, radial, and first and second transverse nervures stout, the others very slight, the areolet, consequently, rather faint but of medium size.

Described from two females taken while ovipositing in galls as above mentioned and one specimen captured at large; all from Ames, Iowa.

Genus Aulax Hartig.

A. bicolor n. sp.

Gall-fly. — Female. — Head and thorax black, feet and abdomen yellow-ferruginous; length 2½ mm.

Head black, shading into rufous between the eyes and mouth, mandibles except tips rufous, face finely wrinkled, vertex and occiput finely sculptured, the sculpturing of the genæ making them appear to be covered with scales like the body of a fish, ocelli on a flat or somewhat depressed surface; antennæ dark rust-brown, darkest toward the tips, 13-jointed, joints 3 and 4 equal in length, last joint as long as the two preceding. *Thorax* black, shoulders rufous, mesothorax finely sculptured, opaque, clothed with sparse recumbent pubescence, parapsidal grooves very distinct and rather deep, median groove very short and much broadened at scutellum so as to be almost triangular. The lateral grooves appear as polished lines only, and the two parallel lines from the collar are rather indistinct; pleuræ densely and rather coarsely aciculate. Scutellum black, with two small, shallow, oblique foveæ, rather coarsely rugose, the surface somewhat obscured by pubescence. *Abdomen* rufous, shining, 2d segment occupying about one third of dorsum, 3d joint a little more than half as long as the 2d, following joints to the 7th gradually shorter, joints 3–7 inclusive

finely punctured. *Feet*, including coxæ, of the same color as the abdomen. *Wings* hyaline, rather densely ciliate, radial cell closed, areolet medium.

Described from two females, one taken in a wheat field at Mt. Carmel, Ill., 27th May, 1885 (accessions number 1781), and one taken at Champaign, 9th July, 1885 (accessions number 6422).

SUBFAMILY INQUILINÆ.

Genus Synergus Hartig.

S. magnus n. sp.

Head rufous-yellow, vertex and thorax entirely black, abdomen rufous-yellow, except a narrow black stripe along the tergum of the 2d segment, feet light yellow, except the tibiæ and tarsi of the hind pair which are infuscate; length 4 mm.

Head: face coarsely striate, vertex and occiput microscopically rugulose and with broad punctures; antennæ black, as long as the insect, 15-jointed, 3d joint but little longer than the 4th. *Thorax* with coarse transverse wrinkles, parapsides distinct throughout, median groove reaching the posterior ends of the parallel lines; the lateral grooves appear more like ridges and are short and oblique; shoulders coarsely wrinkled, pleuræ very coarsely aciculated below and very finely aciculated above, with a smooth shining spot midway upon the most prominent part. Scutellum with two small foveæ and coarsely rugose. *Abdomen:* first segment, as well as the petiole of metathorax, coarsely wrinkled or fluted, 2d segment occupying nearly the whole surface of the abdomen, ovipositor sheaths long and projecting upward above the line of the tergum, venter considerably projecting. *Wings* long, narrow and slightly smoky, areolet medium.

Described from a single specimen from my private collection that was reared from a gall of *Amphibolips cookii* at Lansing, Mich.

S. villosus n. sp.

The front, above the insertion of the antennæ, the vertex, a broad stripe extending over the occiput to the collar, the entire thorax, a broad blotch on second abdominal segment

extending far down at the sides, the tips of the mandibles, and a spot upon the tergum of the 5th abdominal segment, black; feet, including coxæ, very light yellow, orbits and antennæ slightly rufous, other parts light yellow.

Head: face rather finely striate, vertex and occiput with numerous coarse punctures on a microscopically sculptured surface, antennæ 15-jointed, nearly as long as the body. *Thorax:* mesonotum with fine transverse ridges, the furrows between bearing coarse but shallow and somewhat confluent punctures, parapsidal grooves very distinct, median groove narrow and extending but a short distance, parallel lines and lateral furrows not very distinct, pleuræ coarsely aciculated below, finely above, and with a smooth polished median spot. Scutellum bifoveate, rather coarsely sculptured, foveæ shallow, the sculpturing somewhat obscured by pubescence. *Abdomen:* first joint, as well as petiole of metathorax, fluted, 2d segment occupying nearly the entire surface and deeply notched on posterior margin of the tergum, exposing the tergites of three or four following segments, ovipositor sheaths projecting above the surface of the abdomen, venter rather prominent. *Wings* hyaline, areolet rather indistinct.

Described from two specimens bred from the galls of *Acraspis villosus*, taken in Iowa.

SUBFAMILY FIGITINÆ.

Genus Coptereucoila Ashm.

C. marginata n. sp.

Female.—Black, 1.2 mm. in length, antennæ clavate, apical margin of the wings emarginate.

Head black, mandibles ferruginous, face and vertex smooth and shining, occiput finely rugose. Antennæ 13-jointed, clavate, joints 1, 2, 11, 12, and 13 thick, and joints 1, 11, 12, and 13 about equal in length; joint 2 globose and about equal to joint 3 in length; joints 3–10 slender and joints 4–10 but little longer than broad; last three joints suddenly and greatly enlarged. *Thorax:* collar narrow, mesonotum smooth and shining, without grooves. Scutellum deeply bifoveate, polished. The rather

narrow but much elevated central area appears as a broadening out of the carina separating the foveæ, and has a rather large pit near its posterior margin and two conspicuous punctures immediately in front of it. The broad deeply depressed margin of the scutellum is finely wrinkled or aciculate. *Abdomen* at base with a dense growth of fine woolly hair, and there is also a small patch of similar hair on either side of the metathorax ; 2d segment occupying nearly the entire surface of the abdomen, abdomen rather long and pointed. *Feet* and antennæ in one specimen are entirely yellow-ferruginous, in two others the feet are dark ferruginous and the antennæ are black. *Wings* hyaline, broadly and rather deeply emarginate on apical margin, ciliate, heavily fringed, and the triangular radial cell open on the costal margin.

Described from three specimens from Illinois. Accessions numbers, 1661, 3336, 5437. Male unknown.

Genus Eucoila West. (*Cothonaspis Hartig*).

E. 7-spinosa n. sp.

Female.—Black; feet, mandibles, and antennæ clear shining rufous ; length, 3 mm.

Head: face smooth and polished, with a puncture just beneath the insertion of each antenna and about six punctures near the lower inner orbit of each eye, also a few scattered punctures on vertex, just back of the ocelli. *Thorax:* dorsal margin of collar elevated and emarginate and with a conspicuous growth of coarse yellow hairs upon either side, mesonotum and pleuræ smooth and polished and without grooves or sculptures. Scutellum deeply bifoveate, the elevated central area with a large pit near its posterior margin, and in front of this pit, near the margin on either side, are three coarse setigerous punctures. The broad depressed margin of the scutellum is coarsely rugose. *Abdomen* with a narrow girdle of rather coarse short hairs, 2d segment occupying nearly the entire surface, smooth and highly polished. *Wings* without pubescence on their surface, posterior border of anterior wings fringed towards base, radial area closed, areolet not at all developed, subcostal vein with seven stout setæ or spines.

Described from a single female formerly in the private collection of Mr. C. A. Hart and bearing accessions number 547. Taken in southern Illinois. Male unknown.

Genus Eucoilidea. Ashm.

E. rufipes n. sp.

Female.— Black; feet, mandibles, and antennæ rufous, mesonotum with parapsides converging and uniting in a broad sculptured area; length, 1.8 mm.

Head: face between eyes and mouth somewhat aciculate, about six aciculations on each side, front smooth, polished, and convex, vertex and occiput smooth and polished, head with scattering gray hairs. Antennæ 13-jointed, joints 3 and 4 equal in length, gradually incrassate towards the tip, hardly shorter than the body and freely set with short gray hairs. *Thorax:* mesothorax smooth and polished and along the suture bordering the collar, both dorsally and laterally, is a margin of deep pit-like sculptures; a row of these sculptures beginning at the outer posterior angle of the mesonotum, runs past the base of the wing and then along the lateral border of the mesonotum to the place where the parapsidal furrow usually terminates; from this point the row of sculptures extends over the mesonotum in the usual direction of the parapsidal groove and, after running a little more than one half of the distance to the scutellum, suddenly broadens out and, with the similar sculpturing of the other side, forms a broad deeply sculptured area reaching to the scutellum. There is a narrow median carina, forked at its posterior extremity, separating this sculptured area of the mesonotum into two equal parts. The sculptured lines divide the smooth surface of the mesothorax into three nearly equal areas. The elevated central portion of the scutellum has its large pit or depression centrally located, and there are about six punctures along either lateral border. The edge of this central area extends on all sides in a thin knife-like margin. The depressed border of the scutellum is coarsely rugose and punctate. *Abdomen* smooth, polished, and without show of hairy girdle at base; 2d segment occupying the entire surface of the abdomen. *Wings* fringed and rather coarsely ciliate, radial area closed.

EXPLANATION OF PLATE.

FIG. 1. Gall of *Antistrophus silphii* on *Silphium integrifolium*, slightly enlarged.

FIG. 2. Another gall of same species, with side cut away, showing internal cavities; *a*, larval cells; natural size.

FIG. 3. Galls of *Antistrophus laciniatus* on *Silphium laciniatum*, enlarged three diameters.

FIG. 4. Galls of *Antistrophus rufus* and *A. minor* in *Silphium laciniatum*, natural size.

FIG. 5. Galls of *Dryophanta lanata* on *Quercus*, natural size; *a* denuded gall, enlarged five diameters.