

# Article XI.—THE NORTH AMERICAN SPECIES OF *AYLAX* AND THEIR GALLS.

BY WILLIAM BEUTENMÜLLER.

The present paper is the eighth installment of a series of papers on North American Cynipidæ and their galls and treats of the genus *Aylax* Hartig. This name was changed by the same author to *Aulax* without explanations. I have used the term *Aylax* as originally spelled, to conform with the strict rules of nomenclature, as there seems to be no valid reason for changing the name. The genus is allied to *Diastrophus*.

## *Aylax* Hartig.

*Cynips* (in part) LINNÉ, Syst. Nat., Edit. X, 1758, p. 535.

*Diptolepis* (in part) LATREILLE, Hist. Nat. Crust. et Ins., Vol. XIII, 1805, p. 207.

*Aylax* HARTIG, Zeitsch. für Ent., Vol. II, 1840, p. 186; *ibid.*, Vol. III, 1841, p. 334.

*Aulax* HARTIG, Zeitsch. für Ent., Vol. IV, 1843, p. 412; SCHENCK, Jahrb. Ver. Nat. Nassau, Vol. XVII, 1862, p. 170; OSTEN SACKEN, Proc. Ent. Soc. Phila., Vol. II, 1863, p. 34; MAYR, Gen. Gallenb. Cynip., 1881, p. 20; Gen. Europ. Gallenb. Cynip., 1882, p. 6; CRESSON, Synop. Hymen. N. Am., pt. I, 1887, pp. 32, 35; KIEFFER, Bull. Soc. Hist. Nat. Metz, ser. 2, Vol. X, 1902, p. 92, DALLA TORRE and KIEFFER, Gen. Ins. Hymen. Fam. Cynip., 1902, p. 73; ASHMEAD, Psyche, Vol. X, 1903, p. 213.

*Isocolus* FÖRSTER, Verh. Zool.-Bot. Ges. Wien, Vol. XIX, 1869, p. 334; Zool. Rec. (1869) 1870, p. 322; MAYR, Gen. Gallenb. Cynip., 1881, p. 20; KIEFFER, Bull. Soc. Hist. Nat. Metz, ser. 2, Vol. X, 1902, p. 93; DALLA TORRE and KIEFFER, Gen. Ins. Hymen. Fam. Cynip., 1902, p. 74; ASHMEAD, Psyche, Vol. X, 1903, p. 213.

*Eubothrus* FÖRSTER, Verh. Zool.-Bot. Wien, Vol. XIX, 1869, p. 336; Zool. Rec. (1869), 1870, p. 323; MAYR, Gen. Gallenb. Cynip., 1881, p. 20; KIEFFER, Bull. Soc. Hist. Nat. Metz, ser. 2, Vol. X, 1902, p. 93; DALLA TORRE and KIEFFER, Gen. Ins. Hymen. Fam. Cynip., 1902, p. 74; ASHMEAD, Psyche, Vol. X, 1903, p. 213.

*Liposthenes* FÖRSTER, Verh. Zool.-Bot. Ges. Wien, Vol. XIX, 1869, p. 336; Zool. Rec. (1869), 1870, p. 323; Gen. Gallenb. Cynip., 1881, p. 21; KIEFFER, Bull. Soc. Hist. Nat. Metz, ser. 2, Vol. X, 1902, p. 93; DALLA TORRE and KIEFFER, Gen. Ins. Hymen. Fam. Cynip., 1902, p. 74; ASHMEAD, Psyche, Vol. X, 1903, p. 213.

*Antistrophus* WALSH, Am. Ent., Vol. II, 1869, p. 74; KIEFFER, Bull. Soc. Hist. Nat. Metz, ser. 2, Vol. X, 1902, p. 93; DALLA TORRE and KIEFFER, Gen. Ins. Hymen. Fam. Cynip., 1902, p. 74; ASHMEAD, Psyche, Vol. X, 1903, p. 214.

*Asclepiadiphila* ASHMEAD, Can. Ent., Vol. XXIX, 1897, p. 74; Psyche, Vol. X, 1903, p. 214; KIEFFER, Bull. Soc. Hist. Nat. Metz, ser. 2, Vol. X, 1902, p. 93; DALLA TORRE and KIEFFER, Gen. Ins. Hymen. Fam. Cynip., 1902, p. 74.

*Gilletia* ASHMEAD, Psyche, Vol. VIII, 1897, p. 69; *ibid.*, Vol. X, 1903, p. 212; KIEFFER, Bull. Soc. Nat. Hist. Metz, ser. 2, Vol. X, 1902, p. 93; DALLA TORRE and KIEFFER, Gen. Ins. Hymen. Fam. Cynip., 1902, p. 74.

Head large, cheeks broad, sides of face aciculated. Antennæ filiform, 12-14-jointed in the female, 14-15 in the male. Thorax opaque, or semi opaque, with two more or less well defined parapsidal grooves and with the posterior margin truncate. Anterior parallel line, median and lateral grooves present. Scutellum rugose with two large foveæ at the base. Wings hyaline, radial area open at the costa, areolet wanting.

*Type, Cynips rhoeades* Bouche of Europe.

### ***Aylax glechomæ* (Linné).**

— PANKOW, Herbar. Portat., 1656, p. 709; VELSCH, Scalig. Observ. Hecat., I, 1660, pl. ix, fig. 1; MALPHIGI, Op. Omnia, Vol. I, pt. II, 1686, p. 22, pl. ix, fig. 24; BLANKAART, Schou-Burg. der Ruspen, 1688, p. 186; REAUMUR, Mem. Hist. Insect., Vol. III, 1737, p. 640, pl. xlii, figs. 1-5; LINNÉ, Fauna Suec., 1746, p. 949; Wästgöta Resa, 1747, p. 107.

*Cynips glechomæ* LINNÉ, Syst. Nat. ed. X, 1758, p. 553; *ibid.*, ed. 12, 1767, p. 917; Fauna Suec., ed. 2, 1761, p. 386; BRÜNNICH, Prod. Insect. Siaelland, 1761, p. 16; SCOPOLI, Entom. Carn., 1763, p. 273; MÜLLER, Fauna. Insect. Fridrichdal, 1764, p. 67; Zool. Dan. Prodr., 1776, p. 147; FABRICIUS, Syst. Ent., 1775, p. 315; Spec. Insect., Vol. I, 1781, p. 403; Mant. Insect., Vol. I, 1787, p. 252; Entom. System., Vol. II, 1793, p. 101; Syst. Piez., 1804, p. 143; BERKENHOUT, Outlin. Nat. Hist. Gr. Brit., Vol. I, 1769, p. 162; FOURCROY, Entom. Paris, Vol. II, 1785, p. 386; VILLERS, Linnæi Entom., Vol. III, 1789, p. 70; GMELIN, Linné, Syst. Nat., ed. 13, 1790, p. 2649; OLIVIER, Encycl. Method. Insect., Vol. V, 1790, p. 788; CHRIST, Naturg. der Insect., 1791, p. 480, pl. 57, fig. 2; FISCHER, Vers. Naturg. Lievland, Ed. II, 1791, p. 341; CEDERHJELM, Faun. Ingric. Prodr., 1798, p. 143; SCHRANK, Fauna Boica, Vol. II, 1802, p. 219; SCHRÖKENSTEIN, Verz. d. Halbkäfer, 1802, p. 19; WALCKENAER, Fauna Paris, Vol. II, 1802, p. 26; JURINE, Nouv. Meth. Class. Hymen., 1807, p. 286; INCHBALD, Ent. Weekly Intell., Vol. X, 1861, p. 171 (adult and gall).

*Diplolepis glechomæ* LATREILLE, Hist. Nat. Crust and Insect., Vol. XIII, 1805, p. 207; LAMARCK, Hist. Nat. Animal. sans Vert., Vol. IV, 1817, p. 163; *ibid.*, ed. 2, Vol. IV, 1835, p. 372 (galls only); DUMÉRIL, Mem. Acad. Sci. Paris, Vol. XXXI, 1860, p. 965 (adult).

*Aylax glechomæ* HARTIG, Zeitsch. für Ent., Vol. III, 1841, p. 342; KALTENBACH, Ver. Natur. Preuss. Rheinl., Vol. XIX, 1862, p. 22; Pflanzenf., 1874, p. 488; MAC-LACHLAN, Trans. Ent. Soc. Lond., Vol. V, Ser. 3, 1866, p. ix; WEYENBERGH, Tijdschr. Entom., Vol. XVII, 1874, p. 167.

*Aulax glechomæ* HARTIG, Zeitsch. für Ent., Vol. IV, 1843, p. 412; TASCHENBERG, Hymen. Deutschl., 1866, p. 132; THOMPSON, Opusc. Entom., 1877, p. 809; MAYR, Europ. Gallenb. Cynip., 1882, p. 7; Verh. Zool.-Bot. Gesell. Wien, Vol. VII, 1902, p. 287; CAMERON, Ent. Month. Mag., Vol. I, ser. 2, 1890, p. 314; HIERONYMUS, Ergänzungsheft. Schles. Gesell., 1890, p. 194; DALLA TORRE, Cat. Hymen., Vol. II, 1893, p. 120; KIEFFER, Bull. Soc. Hist. Nat. Metz, ser. 2, Vol. X, 1902, p. 94.

*Diastrophus glechomæ* SCHENCK, Jahrb. ver. Natur. Nassau, Vol. XVII-XVIII, 1862-63, pp. 211, 212, 248; RUDOW, Arch. Ver. Fr. Natur. Mecklenburg, Vol. XXIX, 1875, pp. 43, 63; MAYR, 15 Jahrb. Comm. Oberrealsch. Wien, 1876, p. 7.

*Aulax glechomatis* MARSHALL, Ent. Month. Mag., Vol. IV, 1868, p. 274; MULLER, Entom. Annual, 1872, p. 10.

*Liposthenes glechomæ* FÖRSTER, Verh. Zool.-Bot. Gesell. Wien, Vol. XIX, 1869, p. 336.

*Liposthenes glechomatis* MARSHALL, Entom. Annual, 1874, p. 117.

*Diastrophus similis* BASSETT, Can. Ent., Vol. XIII, 1881, p. 95; ASHMEAD, Trans. Am. Ent. Soc., Vol. XII, 1885, p. 294; *ibid.*, Vol. XIV, 1887, p. 134; DALLA TORRE, Cat. Hymen., Vol. II, 1893, p. 109; MAYR, Verh. Zool.-Bot. Gesell. Wien, Vol. LII, 1902, p. 287; COOK, Ohio Nat., Vol. III, 1903, p. 428, figs. 66-69; *ibid.*, Vol. IV, 1904, pp. 119, 120, 126, figs. 86, 106 a. b.

*Aulax similis* DALLA TORRE and KIEFFER, Gen. Insect. Hymen. Fam. Cynip., 1902, p. 75.

*Female.* Head black, finely rugoso-punctate on the vertex and posteriorly, face roughly and distinctly aciculate, median ridge rugoso-punctate. Antennæ 13-jointed, rufous. Collar black, aciculate with a patch of dull golden yellow hairs laterally. Thorax black, somewhat shining but not polished, evenly reticulately punctate. Parapsidal grooves broad, deep, very distinct and narrowly converging at the scutellum. Median line at scutellum very short. Anterior parallel lines rather long, shining and distinct. Lateral grooves long and distinct. Pleuræ aciculate. Scutellum black, rugose, foveæ at base large, deep and shining. Abdomen black or piceous, shining. Legs rufous, claws black. Wings hyaline, veins yellowish brown. Cubitus not reaching the first cross-vein. Radial area open. Areolet wanting. Length, 2.5-3 mm.

*Gall.* (Plate XIV, Figs. 1, 2, 3.) On the petioles, leaves and sometimes on the stems of ground ivy (*Glechoma hederacea*). Monothalamous when simple, polythalamous when compound. The simple galls are round, green, and covered with short hairs. When compound they are very irregular in form and size and have two or more larval cells, which are held in position by coarse fibres. When dry and old the galls are brown, with a thin paper-like outer covering, which sometimes disappears when lying on the ground through the winter and the bleached fibres surrounding the larval cells look like little burrs. Diameter, 6-25 mm.

*Habitat.* Europe; Massachusetts; New York; New Jersey; Connecticut; Ohio; Illinois.

### ***Aylax leavenworthi* (Bassett).**

*Antistrophus leavenworthi* BASSETT, Trans. Am. Ent. Soc., Vol. XXVI, 1900, p. 310.

*Aulax leavenworthi* KIEFFER, Bull. Soc. Hist. Nat. Metz., ser. 2, Vol. X, 1902, p. 94; DALLA TORRE and KIEFFER, Gen. Ins. Hymen. Fam. Cynip., 1902, p. 74.

*Antistrophus silphii* GILLETTE, Bull. Ill. St. Lab. Nat. Hist., Vol. III, 1891, p. 192, pl. ix, fig. 1 and 2; DALLA TORRE, Cat. Hymen., Vol. II, 1893, p. 107.

*Aulax silphii* KIEFFER, Bull. Soc. Hist. Nat., Vol. X, ser. 2, 1902, p. 95; DALLA TORRE and KIEFFER, Gen. Ins. Hymen. Fam. Cynip., 1902, 74; MAYR, Verh. Zool.-Bot. Gesell. Wien, LII, 1902, p. 288.

*Female.* Head black, opaque, very minutely and densely striate, median ridge somewhat flattened, mandibles rufous, vertex and cheeks densely sculptured, in form of microscopic pits. Antennæ 14-jointed, dark rufous, first two joints darker. Thorax black opaque, very finely and densely punctured. Parapsidal grooves distinct. Median groove broad at the scutellum and traceable to the collar. Lateral grooves distinct. Anterior parallel lines rather long. Pleuræ opaque, finely punc-

tate. Scutellum black, rugoso-punctate, foveæ large and deep, somewhat shining. Legs: anterior pairs dark rufous, middle and hind pair very dark pitchy brown. Abdomen pitchy black polished. Wings hyaline, veins delicate and rather faint, radial area open. Areolet wanting. Length, 3-4 mm.

*Male.* Differs from the female by being smaller and the antennæ 15-jointed. Length, 2.75-3 mm.

*Gall.* (Plate XIV, Figs. 4, 5.) On the tips of the stems of rosin-weeds (*Silphium integrifolium* and *Silphium perfoliatum*). Polythalamous. Abrupt, sub-globular, tumor-like swellings, usually stunted with aborted growths of leaves and stems. Green when fresh, dark brown and woody when dry. Internally (fig. 5) it is composed of white pith in which are many larval cells. Length, 30-75 mm.

*Habitat.* Illinois (Champaign and Normal); Virginia (Petersburg); Mts. of Georgia (Macon Co.).

The types of *A. leavenworthi* and *A. silphii* are before me and I cannot find any differences between the two. The gall on Plate XIV was made from one of Prof. Gillette's types of *A. silphii*. The type of *A. leavenworthi* is in the collection of the American Entomological Society and the gall is in poor condition.

### ***Aylax laciniatus* (Gillette).**

*Antistrophus laciniatus* GILLETTE, Bull. St. Lab. Nat. Hist., Vol. III, 1891, p. 194, pl. ix, fig. 3; DALLA TORRE, Cat. Hymen., Vol. II, 1893, p. 106.

*Aulax laciniatus* KIEFFER, Bull. Soc. Hist. Nat. Metz, ser. 2, Vol. X, 1902, p. 94. DALLA TORRE and KIEFFER, Gen. Ins. Hymen. Fam. Cynip., 1902, p. 74.

*Female.* Head black, opaque, face rather coarsely aciculate, median ridge with a few coarse punctures or pits, vertex and sides densely sculptured, vertex with a broad furrow extending up from the antennæ. Mandibles rufous on the median portion. Antennæ 13-jointed, black. Thorax black, opaque, finely and deeply sculptured. Parapsidal grooves distinct. Median groove continuous from the scutellum to the collar. Lateral grooves distinct. Anterior parallel line short and somewhat shining. Scutellum coarsely wrinkled, bifoveolate. Abdomen rufopiceous, polished, globose. Legs including the coxæ black, tip of femora, tarsi and anterior tibiæ rufous. Wings hyaline, veins faint. Areolet wanting. Length, 3 mm.

*Male.* Like the female, except with the abdomen black and 14-jointed antennæ. Length, 2 mm.

*Gall.* (Plate XIV, Fig. 6.) In clusters on the receptacles of the flowers of rosin weed (*Silphium laciniatum*). Individual galls are egg-shaped and from 4 to 5 mm. in length.

*Habitat.* Illinois (Champaign).

According to Mr. C. A. Hart the galls occur in well-ripened, healthy looking flower heads, but do not show until the weather has removed the unfested flowerlets. They are always produced in the sterile flowers of the disk, toward the center.

The types are in the Illinois State Laboratory of Natural History and a pair was sent to me for study by Mr. Hart. The species is closely allied to *A. leavenworthi*. The figure of the gall on Plate XIV is a copy of Gillette's illustration, and is much enlarged.

### ***Aylax rufus* (Gillette).**

*Antistrophus rufus* GILLETTE, Bull. St. Lab. Nat. Hist., Vol. III, 1891, p. 195; DALLA TORRE, Cat. Hymen., Vol. II, 1893, p. 107.

*Aulax rufus* MAYR, Verh. Zool.-Bot. Gesell. Wien, Vol. LII, 1902, p. 288; KIEFFER, Bull. Soc. Hist. Metz, ser. 2, Vol. X, 1902, p. 95; DALLA TORRE, Gen. Ins. Hymen. Cynip., 1902, p. 74.

*Female*. Head rufous, vertex black or blackish, very finely and minutely punctate. Antennæ 13-jointed, rufous. Thorax black, very finely and densely punctate. Parapsidal groove fine and distinct. Median groove not quite reaching the two very short anterior parallel lines. Lateral grooves distinct. Pleuræ and sides of collar rufous. Scutellum very finely sculptured with two large, broad, shallow foveæ at the base. Abdomen rufous, somewhat darker dorsally. Legs entirely rufous. Wings hyaline, veins faint and delicate. Areolet wanting. Length, 2.50-3 mm.

*Male*. Similar to the female but with 14-jointed antennæ. Length, 2-2.20 mm.

*Gall*. (Plate XIV, Fig. 7.) In the stems of rosin weeds (*Silphium laciniatum*, *Silphium perfoliatum*, *Silphium integrifolium* and *Silphium terebinthinaceum*). There is not the slightest indication of a swelling upon the outer part of the stem and the larvæ live in small oval cells in the pith of the plants.

*Habitat*. Illinois.

Two type specimens were sent to me by Mr. C. A. Hart. They are in the Illinois State Laboratory of Natural History. The figure of the gall on Plate XIV was made from one of Prof. Gillette's types.

### ***Aylax gillettei* Kieffer.**

*Antistrophus minor* GILLETTE, Bull. Ill. St. Lab. Nat. Hist., Vol. III, 1891, p. 196; DALLA TORRE, Cat. Hymen., Vol. II, 1893, p. 106.

*Aulax gillettei* KIEFFER, Bull. Soc. Hist. Nat. Metz, ser. 2, Vol. X, 1902, p. 95; DALLA TORRE and KIEFFER, Gen. Ins. Hymen. Fam. Cynip., 1902, p. 74.

*Male and female*. Allied to *A. rufus*, but the collar is deeper rufous. The parapsidal and median grooves 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 the 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. Length of male, 1.50 mm.; of female, 2 mm.

*Gall*. Same as in *A. rufus*.

This species was bred by Prof. C. P. Gillette from the same stems of

*Silphium* containing *A. rufus*. Two types of *minor* are before me and I regard this species to be nothing more than small specimens of *A. rufus* with ill-defined parapsidal and median grooves. The types are in the Illinois State Laboratory of Natural History. The name *A. minor* is pre-occupied by a European species.

### ***Aylax pisum* (Walsh).**

*Antistrophus pisum* WALSH, Am. Ent., Vol. II, 1870, pp. 73, 74, fig.; ASHMEAD, Trans. Am. Ent. Soc., Vol. XII, 1885, p. 294; *ibid.*, Vol. XIV, 1887, p. 134; GILLETTE, Ent. News, Vol. III, 1892, p. 247; DALLA TORRE, Cat. Hymen., Vol. II, 1893, p. 106.

*Aulax pisum* KIEFFER, Bull. Soc. Hist. Nat. Metz, ser. 2, Vol. X, 1902, p. 95; DALLA TORRE and KIEFFER, Gen. Ins. Hymen. Fam. Cynip., 1902, p. 74.

*Asclepiadiphila stephanotidis* ASHMEAD, Can. Ent., Vol. XXIX, 1897, p. 263.

*Aulax stephanotidis* KIEFFER, Bull. Soc. Hist. Nat. Metz, ser. 2, Vol. X, 1902, p. 95; DALLA TORRE and KIEFFER, Gen. Ins. Hymen. Fam. Cynip., 1902, p. 75.

*Female*. Head varying from rufous to almost black, vertex usually black, confluent and almost microscopically punctate. Antennæ 13-jointed, terminal joints rufous, sometimes darker. Thorax rufous, sometimes marked with black or almost wholly brown black, opaque, very finely and confluent punctate. Parapsidal grooves fine, but distinct, rather widely separated at the scutellum. Median groove not quite extending forward to the end of the anterior parallel lines which are smooth and shining. Lateral grooves present. Scutellum rufous or blackish brown, rugoso-punctate, foveæ large, broad and almost confluent, and only faintly separated by a fine ridge. Abdomen dark brown, polished. Legs rufous. Wings hyaline, veins delicate. Radial area closed; cubitus very faint and delicate. Areolet wanting. Length, 2.75–3.50 mm.

*Male*. Darker than the female. Head and thorax very dark rufous or brown, abdomen almost black. Antennæ 14-jointed. Legs very dark brown, joints sometimes paler. Length, 2–2.75 mm.

*Gall*. (Plate XIV, Fig. 10.) On the stems of *Lygodesma juncea*. Monothalamous. Round or oval, pea-like, containing a central cavity. It is soft, pithy and internally consists of a dense whitish spongy substance which ultimately becomes quite hard and compact. Diameter, 5–12 mm.

*Habitat*. Nebraska; Missouri; South Dakota; Oregon.

I have examined the types of the flies and galls of *Asclepiadiphila stephanotidis* in the United States National Museum, and I cannot find any differences between these and those of *Antistrophus pisum*, neither specifically nor generically. The galls of *stephanotidis* are from Oregon and Missouri and are said to be found on a species of *Stephanotis*.

### ***Aylax taraxaci* (Ashmead).**

*Gillettea taraxaci* ASHMEAD, Psyche, Vol. VIII, 1897, p. 69.

*Aulax taraxaci* KIEFFER, Bull. Soc. Hist. Nat. Metz, ser. 2, Vol. X, 1902, p. 95; DALLA TORRE and KIEFFER, Gen. Ins. Hymen. Fam. Cynip., 1902, p. 75.

*Female.* Head black, face subopaque, shagreened; top of head feebly and microscopically shagreened. Mandibles pale rufous with black teeth, bidentate. Antennæ 14-jointed, nearly as long as the body, brown black with tip of pedicel and first joint of flagellum honey yellow. Mesothorax polished with the disk microscopically shagreened. Sides subopaque and more distinctly shagreened. Parapsidal grooves distinct, parallel and widely separated. Median groove vaguely defined. Anterior parallel lines short, and only visible in certain lights. Scutellum smooth or nearly so, with two narrow, oblique foveæ at the base. Abdomen black, polished. Legs: coxæ black, femora brown black, toward the apex as well as all the tibiæ and tarsi, honey yellow, the tibiæ at the middle and the two or three terminal joints of the tarsi obfuscated. Wings hyaline, veins blackish, radial area open. Areolet distinct, small, triangular. Length, 1.50 mm.

*Male.* Similar to the female. The antennæ are slightly longer, the third joint honey yellow only at the base. All the femora, except the anterior tips, black. Marginal and costal cells more or less confluent. Length, 1.10 mm.

*Gall.* (Plate XIV, Fig. 8.) Along and surrounding the petiole or midrib of the leaf of the common dandelion (*Taraxacum taraxacum*). Polythalamous. Pithy, irregular, oblong swellings, usually composed of knotty swellings and occurring together and forming, oblong irregular galls. Length 25–50 mm.

*Habitat.* Minnesota (Winona); New York; Canada (Ontario).

### ***Aylax chrysothamni* Beutenmüller.**

*Aylax chrysothamni* BEUTENMÜLLER, Journ. N. Y. Ent. Soc., Vol. XVI, 1908, p. 45, pl. ii.

*Male and female.* Head rufous, vertex piceous in the female, wholly black in the male, very finely and minutely punctate, opaque. Antennæ 14-jointed in the female, rufous; 15-jointed in the male, black. Thorax black in both sexes, very minutely and evenly punctate, subopaque. Parapsidal grooves obliterated anteriorly, very fine posteriorly and convergent at the scutellum. Anterior parallel lines very indistinct and scarcely reaching the middle of the thorax. Median groove wanting. Lateral grooves somewhat distinct. Pleuræ finely striate. Scutellum black, rugose with two pit-like foveæ at the base. Abdomen black in both sexes. Legs rufous. Wings hyaline, veins distinct, brown, radial area open. Areolet wanting. Length of male, 1.50 mm.; of the female, 2.50 mm.

*Gall.* (Plate XIV, Fig. 9.) On the stems, usually at the tips, of a species of *Chrysothamnus* (*Bigelovia*). Polythalamous. White and densely covered with a white felt-like pubescence. Elongate, rounded or club-shaped, enlargements of the twigs. White and pithy inside with many scattered larval cells. Sometimes two or three galls are in a row on the same branch. Length, 15–30 mm. Diameter 12–20 mm.

*Habitat.* Arizona (Tucson).

### ***Aylax bicolor* (Gillette).**

*Antistrophus bicolor* GILLETTE, Bull. Ill. St. Lab. Nat. Hist., Vol. III, 1891, p. 197; DALLA TORRE, Cat. Hymen., Vol. II, 1893, p. 106.

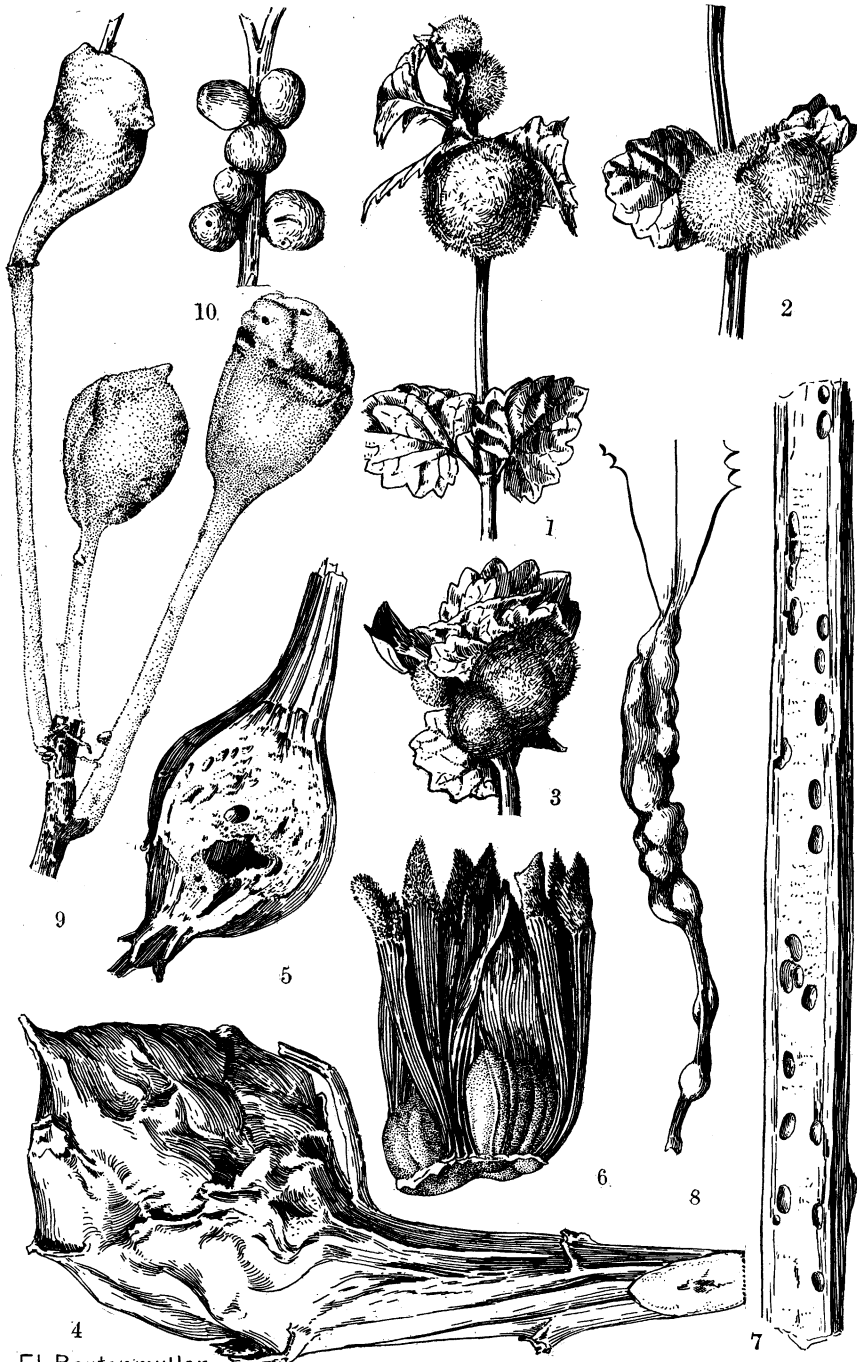
*Aylax bicolor* KIEFFER, Bull. Soc. Hist. Nat. Metz, ser. 2, Vol. X, 1902, p. 94; DALLA TORRE and KIEFFER, Gen. Ins. Hymen. Fam. Cynip., 1902, p. 74.

*Female.* 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, third and fourth joints equal in length, 13th joint about as long as the two preceding together. Thorax, including pleuræ, densely and finely sculptured. Parapsidal and median grooves distinct and extending to the collar. Lateral grooves and anterior parallel lines plainly marked. Scutellum sculptured like the mesothorax, foveæ at base scarcely separated, and appearing as a deep transverse groove. Abdomen rufous, polished, second segment occupying a little more than one third of the dorsum; third segment very broad, and microscopically punctured on the apical portion; succeeding segments to the seventh all exposed and rather densely punctured as seen under a high power lens; venter rather prominent, and ovipositor sheath projecting slightly. Feet: the tarsi, tibiæ of front pair, and joints of all the legs more or less rufous, the remaining portions black. Wings hyaline, radial cell open, all the veins except the two transverse, very weak. Areolet entirely wanting. Length, 3 mm.

*Habitat.* Illinois (normal).

The type of this species was sent to me for examination by Mr. C. A. Hart. In general appearance and color it is like *Aulacidea bicolor*, but the parapsidal grooves are different, the radial area is open at the costa, and the cubitus almost reaches the first cross-vein. The gall is not known.





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| 1-3. <i>Aylax glechomae</i> (Linné).   | 7. <i>Aylax rufus</i> (Gillette).      |
| 4, 5. " <i>leavenworthi</i> (Bassett). | 8. <i>Aylax tarazaci</i> (Ashmead).    |
| 6. " <i>laciniatus</i> (Gillette).     | 9. " <i>chrysothamni</i> Beutenmüller. |
| 10. <i>Aylax pisum</i> (Walsh).        |  |

