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The Insect Galls of Cedar Point and Vicinity

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THE INSECT GALLS OF CEDAR POINT AND VICINITY.

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The following list is based on rather careful collections made during the summer of 1914. Since the list contains many forms common throughout Ohio, I have aimed to make the synonymy fairly complete to date, as an aid to students, while the bibliography has been limited to original description (where possible) and some more recent notice which should be helpful.

In the course of this work I have become deeply indebted to Mr. W. J. Kostir, of Ohio State University, while Prof. Herbert Osborn, Prof. B. W. Wells, Prof. Myron Swenk, Miss Edith Patch, Mr. Nathan Banks and others have shown me various kindnesses.

Figure 1. **Salix longifolia** affected by the mite **Eriophyes aenigma.** Walsh.

Cecidomyia salicis-aenigma Walsh.
Acarus salicis-aenigma Walsh. Proc. Ent. Soc. Phil. III:608.
Stebbins, Bull. 2 Springfield Museum: 10.

Terminal bud-gall, made up of an irregular cluster of yarn-like masses, each about 1-2 mm. in diameter, the whole 2 x 3 cm. Whitish tomentose, turning brown and remaining in situ. July. Fairly common.

Fig. 2. **Salix longifolia** affected by the mite **Eriophyes salicicola** Garman.

Phytoptus salicola Garman. 12th Rep. Ills. Ent. X.
Cook, Ins. Galls Ind.:862.

Leaf-gall, tiny, globular to irregular, often massed, on either surface of leaf, at times projecting through. .25–3 mm. across. Light green to completely crimson. July. Common.

Fig. 3. **Salix longifolia** affected by the gall-gnat **Rhabdophaga brassicoides** Walsh.

Cecidomyia salicis-brassicoides Walsh. Proc. Ent. Soc. Phil. III:577.
Cecidomyia brassicoides Beutenmueller.
Stebbins, Bull. 2 Springfield Museum:11.

Twig-gall, evident as telescoping of terminal twig-structures, with abnormal down-production, and great broadening of leaves, whole extending back 10 cm. or more. Frequent.

Fig. 4. **Salix longifolia** affected by the gall-gnat **Rhabdophaga strobiloides** O. S.

Cecidomyia strobiloides Osten Sacken, Mon. N. A. Dipt. pt. 1:203.
Cecidomyia salicis-strobiloides Walsh.
Stebbins, Bull. 2, Springfield Mus.:11.

Terminal bud-gall, showing as a rounded conical mass of closely appressed scale-like leaves. Green, with a whitish silky covering. 2.5–3 x 4 cm. Usually abundant, but scarce this year.

Fig. 5. **Salix** sp. affected by a saw-fly, probably **Cryptocampus nodus** Walsh.

Euura salicis-nodus Walsh. Proc. Ent. Soc. Phil. VI:253.
Cryptocampus salicis-nodus Rohwer.
Stebbins, Bull. 2, Springfield Mus.:12.

Twig-gall, being a spindle-shaped enlargement of the herbaceous or young woody twigs, concentric with the stem as a rule, about 1 cm. in diameter, and ranging up to 3.5 cm. in length. Color that of normal twig.

Fig. 6. **Salix longifolia** affected by the saw-fly **Pontania pomum** Walsh.

Nematus salicis-pomum Walsh. Proc. Ent. Soc. Phil. VI:255.
Nematus pomum Beut.
Cook, Appendix to Ins. Galls Ind.:5.

Leaf-gall, spherical to spherical constricted, on lower surface, and projecting slightly through. 5–10 mm. diameter. Color ranging from light green to red, depending upon light relation. Minute cork-specks frequently present. Very common. July 1st.

Fig. 7. **Salix longifolia** affected by the saw-fly **Pontania desmidoides** Walsh.

Nematus salicis-desmidoides Walsh. Proc. Ent. Soc. Phil. VI:257.
Nematus inquilinus Walsh.
Pontania inquilina Marlatt.
Cook, App. Ins. Galls Ind.:5.

Leaf-gall, flattened bean-shaped, bisected by leaf, usually centered on a lateral vein, one to several galls on a leaf. 5–8 mm. long, 4–5 mm. broad and thick. Color various, usually crimson. Abundant in a restricted area. July 23.

Fig. 8. **Populus deltoides** affected by the louse **Pemphigus populicaulis** Fitch.

Byrsocrypta populicaulis Walsh.
Fitch, Rep. N. Y. Ent. V:845.
Cook, Ins. Galls Ind.:849.

Dome-shaped gall at junction of leaf and petiole, the opening at base of dome being a spiral slit caused by the complete curving of the petiole on itself. 5–10 x 10–15 mm. Color normal, with gray flecks of cork. Very common. July.

Fig. 9. **Populus deltoides** affected by the louse **Pemphigus populitransversus** Riley, Bull. U. S. Geol. Surv. V:15.

Cook, Ins. Galls Ind.:850.

Petiole gall, being a spherical, subspherical, or spindle-shaped enlargement, rarely involving base of leaf, and developing a small transverse median slit for emergence of the lice. 8–12 mm. diameter, color being that of normal petiole. July. Very common.

Fig. 10. **Populus deltoides** affected by the louse **Pemphigus vagabundus** Walsh.

Byrsocrypta vagabunda Walsh. Proc. Ent. Soc. Phil. I:306.
Cook, Ins. Galls Ind.:850.

Terminal bud-gall of leathery texture, flatly saccate, but very irregularly lobed and branched, developing labiate openings at peripheral points for emergence of parasites. Size varies greatly up to 1 dm. in diameter. Color light yellow-green, with tinges of red, rapidly discoloring on maturity. July 1. Very common.

Fig. 11. **Betula** sp. affected by the mite **Eriophyes brevitarsus** Focksu (?), Rev. Biol. Nord. France III:3.

Banks, Cat. N. A. Acarinae.

Tiny pouch-gall, irregularly scattered over leaf, and opening on under surface. .5–1. mm. diameter. Green, rapidly discoloring.

Fig. 12. **Betula** sp. affected by the louse **Hamamelistes spinosus** Shimer.

Hormaphis papyraceae Oestlund.
Shimer, Trans. Am. Soc. I:284.
Patch, Bull. 220, Me. Ag. Exp. Sta.:279.

Leaf-gall, being a fold along the lateral veins, opening on under side of leaf, which is often seriously deformed by the presence of one or more such galls. Fold filled with white flocculent excreta. This louse is found on the witch hazel an alternate host, hence the generic name of the insect.

Fig. 13. **Hicoria ovata** affected by an unknown gall-gnat.

Leaf-gall on under surface, having the form of a stout inverted cone, attached by its apex, and with the free base surrounded by a conspicuous fringe. 3–4 mm. high, 4–5 mm. in diameter. Green to light yellow-green. Huron, July 25. Quite rare, and, I believe, hitherto unreported.

Fig. 14. **Hicoria ovata** affected by an undetermined gall-gnat, doubtless the same figured by Miss Stebbins as **Cecidomyia caryaecola,** Bull. 2, Springfield Mus. :13, 70.

Leaf-gall, conical, on underside, with a sharply pointed tip, which is elongated and curved as a rule. The broad base, as gall matures, developes a thin wide flange parallel and close to plane of leaf. 4 x 5 mm. Common at Huron in late July.

Fig. 15. **Hicoria ovata** affected by the gall-gnat **Caryomyia persicoides** O. S.

Cecidomyia persicoides Osten Sacken, Mon. Dipt. N. Am. pt. 1:193. Felt, Journ. Sc. Ent. IV:456.

Globular leaf-gall, on lower surface, along mid-vein, and heavily covered with silken down, "like that of a peach and looking like a very diminutive fruit of this kind." (Beutenmueller). 2–4 mm. diameter. Light brown. Huron, late July. Common.

Fig. 16. **Hicoria ovata** affected by the gall-gnat **Caryomia holotricha** O. S.

Cecidomyia holotricha Osten Sacken, Mon. Dipt. N. Am. pt. 1:193. Felt, Journ. Ec. Ent. IV:456.

Leaf-gall, on underside, sub-globular, papillate on flattened free end, and finely pubescent over all. Single-chambered. About 4 mm. diameter. Yellow-green to red-brown.

Fig. 17. **Hicoria glabra** affected by the gall-gnat **Caryomyia caryaecola** O. S.

Cecidomyia Caryaecola Osten Sacken, Mon. Dipt. N. Am. pt. 1:192. Felt, Journ. Ec. Ent. IV:456.

Leaf-gall, smooth, conical, attached to under surface of leaf by rounded base, and lying close to veins. "Onion-shaped"—Beutm.; "elongate onion-shaped,"—Ost. Sack. 5x3 mm. Thin-shelled, glaucous green, becoming brown and brittle in August. Huron, late July. Common.

Fig. 18. **Hicoria glabra** affected by the gall-gnat **Caryomia inanis** Felt.

Felt, Journ. Ec. Ent. IV:456.

Leaf-gall, on upper surface, globular flattened with terminal nipple, and false chamber at free end. Thin-shelled, green, rapidly discoloring. 4 x 3 mm. Huron, late July. Common.

Fig. 19. **Hicoria ovata** affected by the gall-gnat **Caryomyia tubicola** O. S.

Cecidomyia tubicola Osten Sacken, Mon. Dipt. N. Am. pt. 1:192.
Felt, Journ. Ec. Ent. IV:456.

Leaf-gall, on underside. Cylindrical, set in a socket from which it readily detaches. 1.5 x 6 mm. Light green to red. Fairly common. Huron, late July.

Fig. 20. **Quercus velutina** affected by the gall-gnat **Cecidomyia oruca** Walsh (?) in company with an undetermined mite.

Felt, Journ. Ec. Ent. IV:467.

Leaf-gall, evident as a fold snug alongside veins on under surface. Pouches isolated at times, but usually confluent and present in great numbers. Brownish opening on upper surface, resembling swollen lips of a knife-cut. In southern Ohio I have seen every leaf on a good-sized tree dying from this gall, as early as June. (The figure shows what are doubtless galls of **Cecidomyia foliora** Russ. & Hook., evident as infoldings of the edge.)

Fig. 21. **Quercus imbricaria** affected by the gall-wasp **Andricus futilis** O. S.

Cynips futilis Osten Sacken, Proc. Ent. Soc. Phil. I:63.
Andricus (Callirhytis) futilis Bassett.
Beutenmueller, Bull. Am. Mus. IV, No. 1:254.

Leaf-gall, woody, flattened spherical, resembling a wart on the upper surface and showing as a slight, nippled projection on lower surface. Usually present in great numbers, on both Q. imbricaria and Q. velutina. 2–4 mm. diameter, often confluent. Dark brown. Quite common. July-August.

Fig. 22. **Quercus imbricaria** affected by the gall-wasp **Andricus singularis** Bassett.

Cynips quercus-singularis Bassett, Proc. Ent. Soc. Phil. II:326.
Cynips singularis O. S.
Cook, Appendix Ins. Galls. Ind., p. 3.

Leaf-gall, globular, about 18 mm. diameter and showing greater part of its bulk on under surface of leaf. Larval chamber, 2–3 mm. diameter, is supported in center by slender branching filaments, radiating in all directions. Light brown and papery when old. June 25. Fairly common.

Fig. 23. **Quercus alba** affected by the gall-wasp **Andricus clavula** Bassett.

Cynips arbor Fitch.
Cynips clavula Bassett, Proc. Ent. Soc. Phil. III:686.
Andricus (Callirhytis) clavula Bassett.
Beutenmüller, Bull. Am. Mus. IV, No. 1:255.

Twig-gall, being a club-shaped swelling of the extreme tip. 1.5 x 2–3 cm. Green, single-chambered, becoming woody and dark after emergence of insect in midsummer. Surface often corrugated and covered with cork spots. Cedar Point and Huron. Common.

Fig. 24. **Quercus imbricaria** affected by the gall-wasp **Amphibolips nubilipennis** Harris.

Cynips nubilipennis Harris, Rep. Ins. Mass. Inj. Veg. 1841:399.
Callaspidea nubilipennis Fitch.
Cynips quercus sculptus Bassett.
C. quercus sculpta Walsh.
Amphibolips sculpta Mayr.
Beutenmüller, Bull. Am. Mus. XXVI.

Leaf-gall, globular, succulent, translucent, "about 12–20 mm. in diameter and has a very striking resemblance to a large white grape," (Beutm.) Not common.

Fig. 25. **Quercus rubra** affected by the gall-wasp **Amphibolips confluens**—form **spongifica** O. S.

Cynips confluens Osten Sacken, Proc. Ent. Soc. Phil. I:56.
C. quercus coccinea O. S.
Amphibolips cocciniae Ashmead.
C. Q. spongifica O. S. (and Riley later).
Amphibolips spongifica Reinhard.
Amphibolips confluentus Beutenmüller, Bull. Am. Mus. XXVI.

Leaf-gall, globular, suppressing part or all of leaf, at first green, soon becoming light brown, with shiny, papery wall, containing a spongy mass of radiating fibres covered with down, which hold in place the oblong central larval chamber. 3–5 cm. in diameter. Common at Huron. This insect shows an alternation of generations, hence the long list of synonyms.

Fig. 26. **Quercus macrocarpa** affected by the gall-wasp **Holcaspis mamma** Walsh.

Cynips q. mamma Walsh, Am. Ent. I:102.
Holcaspis duricoria Mayr.
Cynips duricaria Packard.
Holcaspis duricaria Beutenm.
Diplolepis q. macrocarpa Karsch.
Cynips macrocarpae Dalla Torre.
Andricus macrocarpae Dalla Torre and Kieffer.
Beutenmüller, Bull. Am. Mus. XXVI:31.

Twig gall, acorn-like, globular to elongate, with prominent conical projections at end. Single larval chamber in center of a brown, woody mass. Diameters variable, 5–12 mm. Common at Huron late in July.

Fig. 27. **Quercus imbricaria** affected by the gall-wasp **Holcaspis globulus** Fitch.

Callaspidea globulus Fitch, 5th Rep. Nox. Ins. N. Y. 1858:811.
Cynips globulus O. S.
Beutenmüller, Bull. Am. Mus. XXVI.

Twig gall, spherical, 5–15 mm. diameter, usually in clusters. Yellow and pink-flushed, tough in texture when young, brown and corky when old. Common in Huron. July.

Fig. 28. **Quercus macrocarpa** affected by the gall-wasp **Neuroterus floccosus** Bassett.

Cynips floccosa Bassett, Can. Ent. XIII:111.
Neuroterus exiguissima Bassett.
N. exiguissimus Dalla Torre and Kieffer.
Beutenmüller, Bull. Am. Mus. XXVIII:123.

Leaf gall, single-chambered, evident as a yellow-green blister on upper surface, and especially as a circular, convex, rust-colored patch of pubescence on lower surface. 3–4 mm. diameter. Common. Huron, late July.

Fig. 29. **Ulmus racemosa** affected by the mite **Eriophyes ulmi** Garman.

Phytoptus ulmi Garman, 12th Rep. Ills. State Ent. 1882.
Cook, Ins. Galls Ind. 861.

Leaf gall on upper surface, showing as a tiny spherical pouch with narrow constricted neck. Green Island, July 20. Uncommon.

Fig. 30. **Ulmus americana** affected by the louse **Colopha ulmicola** Fitch.

Byrsocrypta ulmicola Fitch, 5th Rep. Nox. Ins. N. Y. 1858:843.
Thelaxes ulmicola Walsh.
Pemphigus ulmicola Packard.
Glyphina ulmicola Thomas.
Colopha compressa Koch.
Colopha eragrostis Middleton.
Patch, Bull. 181 Me. Ag. Exp. Sta. 196.

Leaf gall on upper surface, of the well-known cock's-comb type, being an elongated pouch or fold, dorsally crested. 10–30 mm. long x 5–10 mm. high. Green, soon discoloring.

Fig. 31. **Ulmus americana** affected by the louse **Schizoneura lanigera** Riley.

Schizoneura americana Riley in part.
Patch, Bulls. 203 and 217 Me. Ag. Exp. Sta.

Leaf gall, being a worm-like inrolling of the edge toward the under side, quite variable in size. Found empty in midsummer, and hence assumed to be caused by S. lanigera, which, as Miss Patch has found, differs from S. americana in migrating to the apple after the spring brood has formed galls on the elm.

Fig. 32. **Celtis occidentalis** affected by a mite **Eriophyes** sp.

Phytoptus sp. with fungus *Sphaerotheca phytoptophila* Kell et al. Kan. Ag. Exp. Sta. Rep. 1888:302.
Cook, Ins. Galls Ind. 862.

"Witch-broom" gall, evident as a multiplication of twigs from a single source, accompanied by profusion of buds which often telescope and abort, giving base of tuft a scaly appearance. Confined mainly to smaller branches, less than ½ in. diameter. Common. The fungus which formerly shared blame with the insect is now thought by many to be merely a secondary and incidental affair, the real culprit being the mite.

Fig. 33. **Celtis occidentalis** affected by a gall-gnat, undetermined.

Leaf gall, on under side, stoutly conical and nippled at tip. Succulent, pale green, and covered with fine bloom when young. 3 x 4 mm. Present in great numbers. Larva white.

Fig. 34. **Celtis occidentalis** affected by a gall-gnat, undetermined.

Stoutly acorn-shaped gall, crowded along sides of green twig and on either surface of leaf. Lower third ridged, whole finely bristled, light green and 3–6 mm. diameter. Very abundant. Larva light orange.

Fig. 35. **Celtis occidentalis** affected by a gall-gnat, undetermined.

Leaf gall, present in great numbers on underside. A "peg-shaped" gall, cylindrical when young, and developing a thickened base as it grows. Pale green, stragglingly hirsute, 2–3 mm. long. Very common. Larva red.

Fig. 36. **Celtis occidentalis** affected by the gall-gnat, **Cecidomyia unguicula** Beutenm.

Beutenmüller, Bull. Am. Mus. XXIII:388.

Leaf gall of unmistakable "carpet-tack" form, usually found on lower surface. Tip breaks off clean for emergence of insect. Green to straw-color, 1.5–4 x 3–5 mm. Quite abundant, often in company of one or more of the three preceding forms.

Fig. 37. **Celtis occidentalis** affected by the psyllid **Pachypsylla celtidis-gemmae** Riley.

Riley, 5th Rep. U. S. Ent. Com. 618.
Beutenmüller, Bull. Am. Mus. IV, No. 1:275.

Bud gall, being a rounded swelling and deformation of woody consistency and about 5–10 mm. diameter. Rare.

Fig. 38. **Celtis occidentalis** affected by the psyllid **Pachypsylla celtidis-mamma** Riley.

Riley, Johnson's Univ. Encyc. 1876.
Cook, Ins. Galls Ind. 844.

Leaf gall, evident as a pit in upper surface, and as a subspherical gall with constricted base on lower surface. Green-glaucous, often brown-mottled. 3–5 x 4–6 mm. Abundant. June-July.

Fig. 39. **Rosa** sp. affected by the gall-wasp **Rhodites rosaefoli**[i] Cockerell.

Rhodites lenticularis Bassett.
Cockerell, Ent. M. Mag. XXV:324.
Beutenmüller, Bull. Am. Mus. XXIII:646.

Leaf gall, convex discoidal, projecting from both surfaces. White and fairly hard. .5 x 4–5 mm. Common in July.

Fig. 40. **Rosa sp.** affected by the gall-wasp **Rhodites nebulosus** Bassett.

Lytorhodites nebulosus Kieffer.
Bassett, Trans. Am. Ent. Soc. XVIII:63.
Beutenmüller, Bull. Am. Mus. XXIII:644.

Leaf gall on under side, globular, light green to golden brown, and covered with short spines. Diameter 5–8 mm. Castalia, July. Rather scarce.

Fig. 41. **Rubus nigrobaccus** affected by the gall-wasp **Diastrophus nebulosus** O. S.

Osten Sacken, Proc. Ent. Soc. Phil. II:36.
Stebbins, Bull. 2, Springfield Mus. 36.

"Cane gall," being an irregular swelling of varying length (5–8 cm.) and showing several longitudinal ridges, each forming the abode of an individual larva. Occasional at Castalia.

Fig. 42. **Prunus serotina** affected by the mite **Eriophyes serotinae** Beutenm.

Acarus serotinae Beutenmüller, Bull. Am. Mus. IV:278.
Stebbins, Bull. 2, Springfield Mus. 40.

Leaf gall, usually on upper surface, showing as a small pouch with long, slender neck, opening below. 5–10 mm. long, 1–3 mm. wide, leaf-green to rose. Chalcid inquilines are frequently present.

Fig. 43. **Prunus virginiana** affected by a mite, **Eriophyes sp.**

The gall is very like the preceding, undergoing a simultaneous cycle, but is very much smaller, 1–2 mm. in length. Either the well-known chemical differences of the two kinds of leaves cause them to respond differently to the attacks of the same species of mite, or what is more probable, two species or varieties of mites are indicated.

Fig. 44. **Prunus virginiana** affected by the gall-gnat **Contrinia virginiana** Felt.

Cecidomyia virginiana Felt.

Flower of fruit gall, evident as an abnormal swelling of the green fruit. On June 29, when normal fruits were 4–5 mm. diameter, galled specimens were 7-10 mm. and of a sickly yellow-green color. Quite common.

Fig. 45. **Gleditschia triacanthos** affected by the gall-gnat **Dasyneura gleditschiae** O. S.

Cecidomyia gleditschiae Osten Sacken, Proc. Ent. Soc. Phil. VI:219.
Felt, Journ. Ec. Ent. IV:461.

Pod-like gall, caused by the closure and subsequent distension of leaflets. Of varying size and extent within each leaflet. Frequently showing inquiline mites and aphids. Common.

Fig. 46. **Rhus toxicodendron** affected by the mite **Eriophyes rhois** Stebbins.

Phytoptus sp. Garman, 12th Rep. St. Ent. Ills. 138.
Eriophyes sp. Cook.
Stebbins, Bull. 2, Springfield Mus. 41.

Leaf gall on either surface made up of tiny bulges and occasional pouches, giving the leaf a granular appearance. The open side of the gall shows considerable down—or trichome-production. Very abundant.

Fig. 47. **Rhus aromatica** affected by a mite, **Eriophyes sp.**

Leaf gall, differing from preceding in always consisting of one pouch, or several fused, on upper surface of leaf. Usually red-tipped or entirely red, and about 1 x 3 mm. A form hitherto unreported, I believe.

Fig. 48. **Impatiens biflora** affected by the gall-gnat **Lasioptera impatientifolia** Felt.

Cecidomyia impatientis O. S. in part.
Felt, 22nd Rep. Ins. N. Y. 105.
Stebbins, Bull. 2, Springfield Mus. 43.

Leaf-gall, frequently involving stems or buds, sub-spherical, several chambered. 4-12 mm. diameter. Greenish translucent, becoming tinged with pink. Common.

Fig. 49. **Vitis vulpina** affected by the louse **Phylloxera vastatrix** (Fitch) Planchon.

Phylloxera vitifoliae Fitch, 1st Rep. Ins. N. Y. 158.
Pemphigus vitifoliae Fitch.
Brysocrypta vitifoliae Walsh.
Stebbins, Bull. 2, Springfield Mus. 44.

Leaf gall, present in great numbers on under side, and being very rough and irregularly spherical, usually bristle-tipped. Leaf-green, single-chambered and often showing inquiline arachnids and cecidomyid larvae. 2–5 mm. diameter. This is the louse so destructive to grapes in France, by virtue of its root-infesting proclivities. Frequent.

Fig. 50. **Vitis vulpina** affected by the gall-gnat **Schizomyia coryloides** Walsh & Riley.

Cecidomyia vitis-coryloides Walsh and Riley, Am. Ent. I:106.
Stebbins, Bull. 2, Springfield Mus. 44.

Bud gall, being a spherical mass 15–50 mm. diameter, of small, lozenge-shaped galls, each about 5 x 15 mm. Leaf-green, covered with a felty yellow or orange pubescence. Infrequent.

Fig. 51. **Vitis vulpina** affected by the gall-gnat **Cecidomyia viticola.**

Cecidomyia viticola Osten Sacken, Mon. N. Am. Dipt. pt. 1:202.
Beutenmüller, Bull. Am. Mus. IV, pt. 1:272.

Leaf gall on lower surface, straight, conical, narrowly tapering. Light yellow-green, red or black tipped. 3–10 x 2 mm. Uncommon.

Fig. 52. **Vitis vulpina** affected by the gall-gnat **Schizomyia petiolicola** Felt.

Felt, Journ. Ec. Ent. IV:475.

Petiole gall, more or less elongated or spindle-shaped, and mainly on outer (lower) side of petiole. Color normal. 5–10 x 15–30 mm. Not common.

Fig. 53. **Tilia americana** affected by the mite **Eriophyes abnormis** Garman.

Phytoptus abnormis Garman, 12th Rep. Ills. St. Ent.
Cook, Ins. Galls Ind. 860.

Leaf gall, being a small pouch with constricted neck and fissured tip, usually on upper surface of leaf. Fairly common.

Fig. 54. **Tilia americana** affected by a gall-gnat (?), undetermined.

"Undetermined"—Wells, Oh. Nat. XIV, No. 6:294.

Bulbous enlargement of the petiole, more or less elongated, usually eccentric and near the base. Normal color, 5–8 mm. long, 2–3 mm. diameter. Seldom found.

Fig. 55. **Tilia americana** affected by the gall-gnat **Cecidomyia verrucicola** Osten Sacken, Can. Ent. VII:200.

Cook, Ins. Galls Ind. 838.

Leaf-gall, flattened, spherical, projecting about equally from both surfaces of leaf. Green and red, becoming brown when mature, and providing for emergence of insect by means of a hinged lid, which is usually below. Common.

Fig. 56. **Cornus stolonifera** affected by the gall-gnat **Cecidomyia** (?) **tuba** Stebbins.

Stebbins, Bull. 2, Springfield Mus. 46.

Leaf gall on underside, tubular, with swollen base and cleft tip, not unlike a kettle-spout. Bright red and finely pubescent like underside of leaf. 1–2 x 5–8 mm. Very rare.

Fig. 57. **Acer saccharum** affected by the mite **Eriophyes crumena** Riley.

Acarus aceris-crumena Riley, Am. Ent. II:339.
Phytoptus acericola Garman.
Eriophyes acericola Cook.
Stebbins, Bull. 2, Springfield Mus. 42.

Leaf gall, being a very slender, spindle-formed pouch on the upper surface. Green, rapidly discoloring. Abundant in a restricted area. .5 x 4–6 mm. Green Island. July.

Fig. 58. **Fraxinus americana** affected by the mite **Eriophyes fraxini** Garman.

Phytoptus fraxini Garman, 12th Rep. St. Ent. Ills.
Cook, Ins. Galls Ind. 862.

Leaf gall, hemispherical, projecting on upper surface and showing trichomatous (fuzzy) opening below. Heavily clustered. Green, later discoloring. 1–2 mm. diameter. Not common. Rye Beach, July 19.

Fig. 59. **Stachys aspera** affected by a gall-gnat, undetermined.

Bulbous stem enlargement, usually at base of petioles, which are often involved. Size various, 5–20 mm. diameter. Color normal. The gall is thoroughly tunneled by the orange larvae before they emerge. Common. Late July.

Fig. 60. **Teucrium canadense** affected by a gall-gnat, undetermined.

Stem gall of the same general character as the preceding, and like it, probably unreported. May be on main stem, petiole or peduncle, singly or in chains. 5–8 x 8–20 mm. Fairly common. July 22.

Fig. 61. **Cephalanthus cornutus** affected by the mite **Eriophyes cephalanthi** Cook.

(Identification by Mr. Nathan Banks).

Leaf gall of minute size, usually so abundant as to give leaf a granular appearance. Evident as small hemispherical projection from upper surface, open beneath and lined copiously with fine fuzzy (trichomatous) growth. Young leaves are frequently seriously deformed and stunted by these galls. Common. Mid-July.

Fig. 62. **Solidago canadensis** affected by the trypetid fly **Eurosta solidaginis** Fitch.

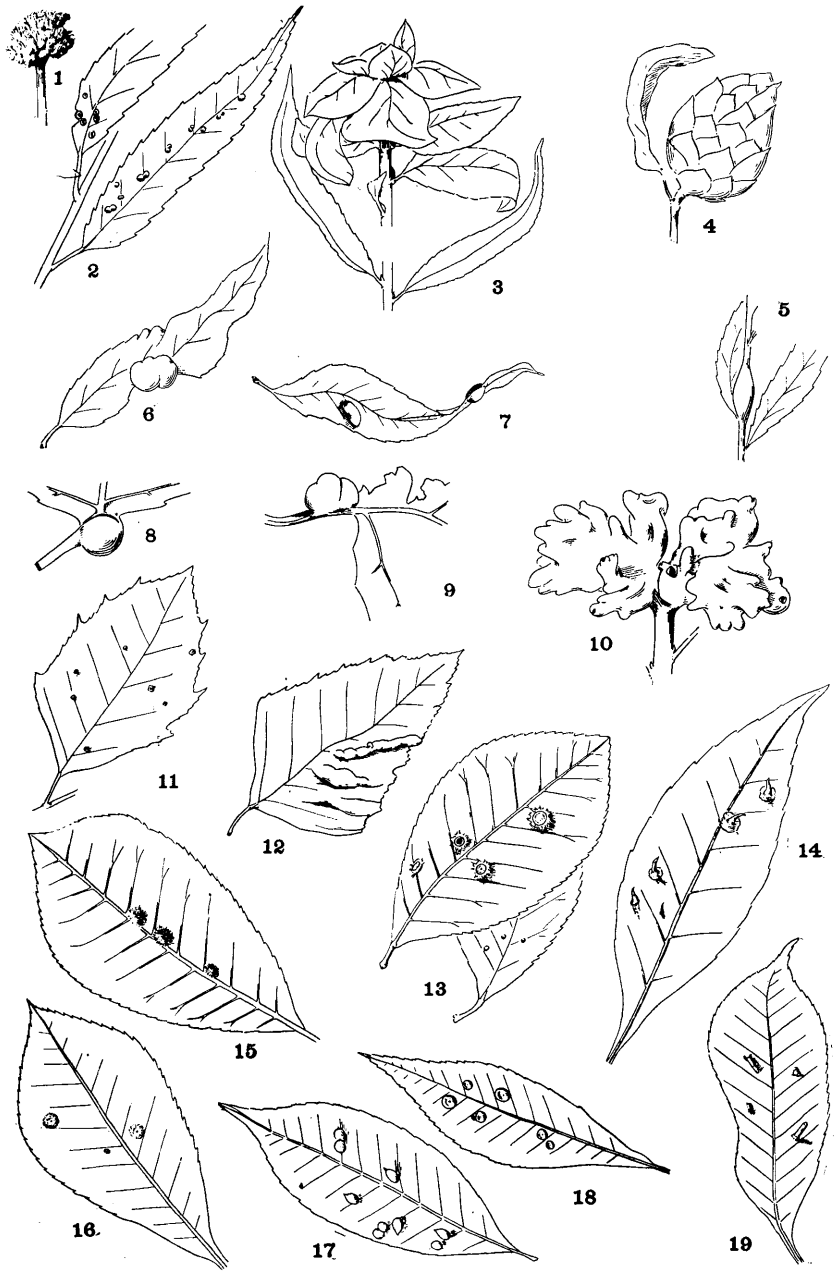
Acinia solidaginis Fitch, 1st Rep. Ins. N. Y. 771.
Tephritis asteris Harris.
Trypeta solidaginis Cook et al.
Stebbins, Bull. 2, Springfield Mus. 51.

Spherical stem gall, with a single central larval chamber, containing a maggot. Green, smooth, 2 cm. in diameter. Fairly abundant, especially at Huron.

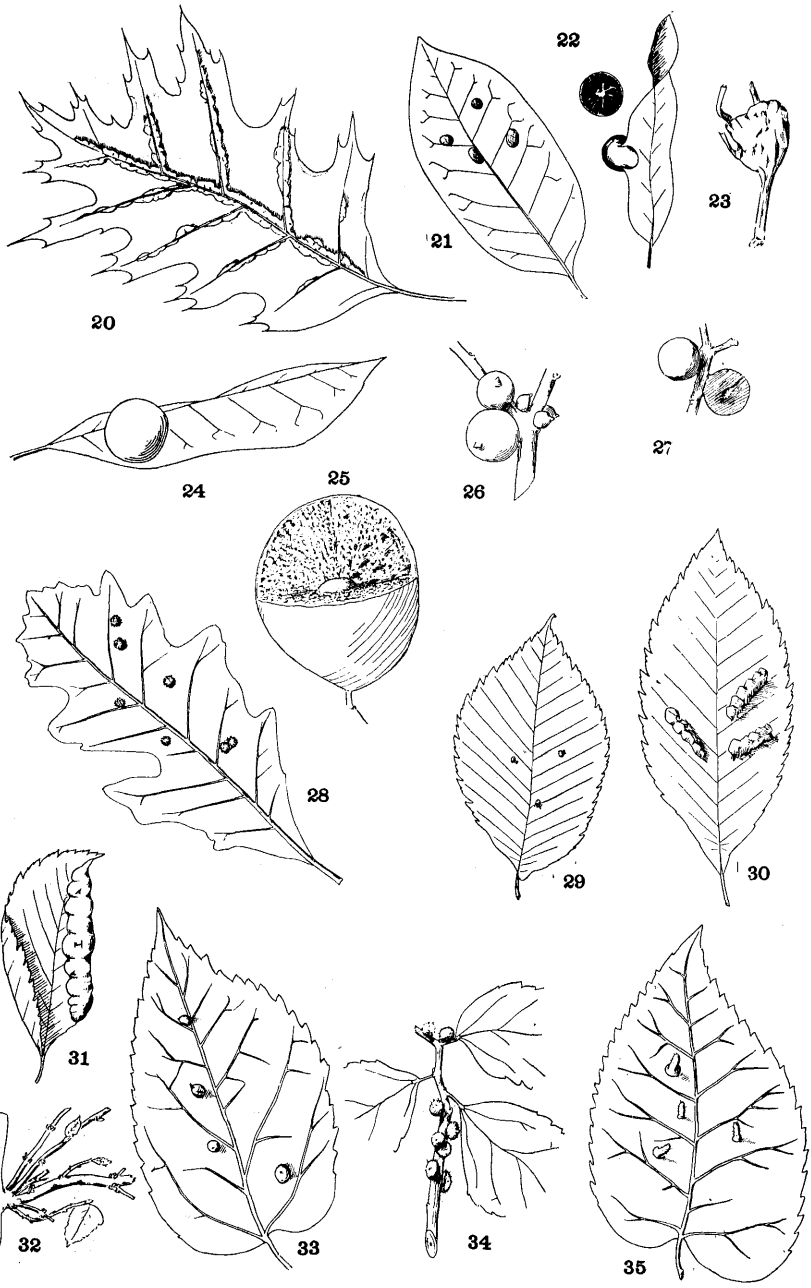
Fig. 63. **Solidago canadensis** affected by the moth **Gonorimoschema gallae-solidaginis** Riley.

Gelechia gallae-solidaginis Riley, 1st Rep. Ins. Mo. 173.
Stebbins, Bull. 2, Springfield Mus. 51.

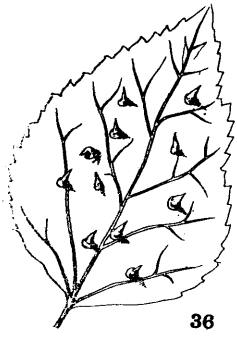
Stem gall, being an elongate spherical to spindle-shaped swelling, normal color, containing single lepidopterous larva in large central chamber. 30–40 mm. long, and 10–20 mm. wide. Common.



Sears on Insect Galls.



Sears on Insect Galls.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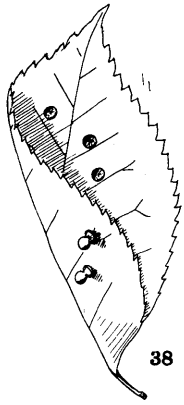
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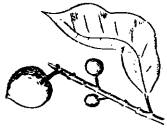
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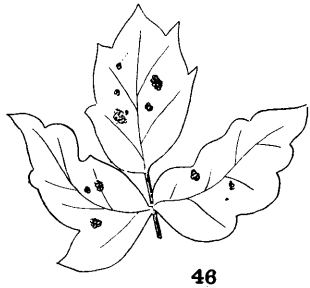
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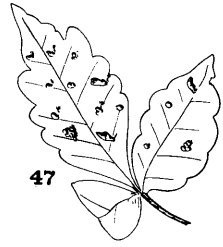
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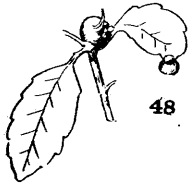
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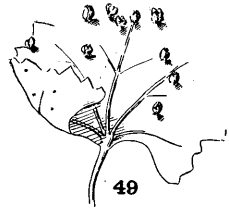
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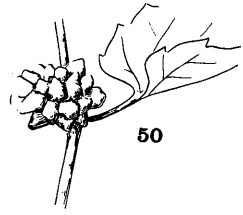
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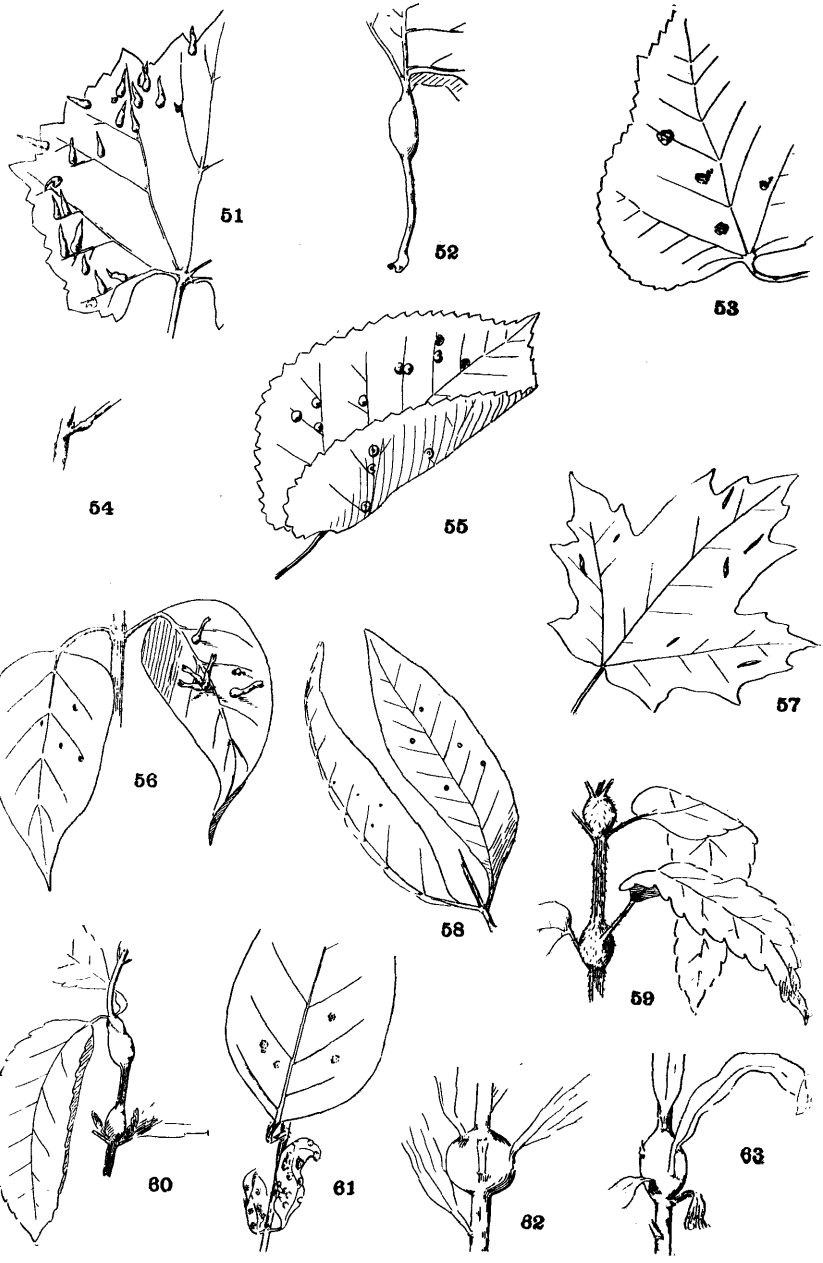
Sears on Insect Galls.



Sears on Insect Galls.