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ACERICECIS GAGNÉ, A NEW GENUS FOR *CECIDOMYIA OCELLARIS* OSTEN SACKEN (DIPTERA: CECIDOMYIIDAE), THE MAPLE LEAF OCELLATE GALL MAKER IN NORTH AMERICA

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Abstract.—A new genus, ***Acericecis*** Gagné, is erected for *Cecidomyia ocellaris* Osten Sacken that makes conspicuous red spot galls on leaves of various maples, particularly *Acer rubrum* L. (Aceraceae) in eastern North America. The new genus is described and illustrations are provided for the identification of *A. ocellaris,* new combination. *Mayetiola virginiana* Felt is a new junior synonym of *A. ocellaris.*

One of the most conspicuous and probably best known cecidomyiid galls in eastern North America is the red, circular, leaf spot gall seen in great numbers in late May and early June on red maple, *Acer rubrum* L. Until now the insect itself, *Cecidomyia ocellaris* (Osten Sacken), was known from the one-line original description (Osten Sacken, 1862) of the larva and a longer, subsequent one of a larva accompanied by illustrations (Comstock, 1882). *Cecidomyia ocellaris* was later moved by Giard (1893) from the omnibus category *Cecidomyia* to *Drisina,* a genus described for a species that causes a similar gall on a maple in Europe, but that placement was ignored by American workers and the species was kept in *Cecidomyia* in the broad sense until relegated to "unplaced Cecidomyiidae" by Foote (1965). In the past several years I have succeeded in rearing several adults, including, finally last year, two males. These show that a new genus is needed for *ocellaris.* It also happens that *Mayetiola virginiana* Felt (1908), known from a female caught by sweeping, is a synonym.

Cecidomyia ocellaris was based on the gall and larva and described by Osten Sacken (1862) in his usual clear way as "Ocelliform, red spots on the leaves of the red maple (*Acer rubrum*). They have about 0.3 in diameter; the margin is bright cherry red, and there is a round patch of the same kind in the centre. The interval between them is pale. They appear brighter on the upper side of the leaf; on the under side in the centre is a small, transparent, colorless larva. I found them in this state at the beginning of June. Later in the season I observed that the spots had lost their fresh color, and that the larva had disappeared; I suppose it drops to the ground to undergo its transformation." In fact the galls are sometimes yellow, sometimes a pale green and inconspicuous except for the tell-tale slightly raised area that is the reverse of the depression on the underside of the leaf. After the full grown larva drops to the ground, the spot turns brown and the leaf is not otherwise affected. Although the galls are quite common in spring, fresh

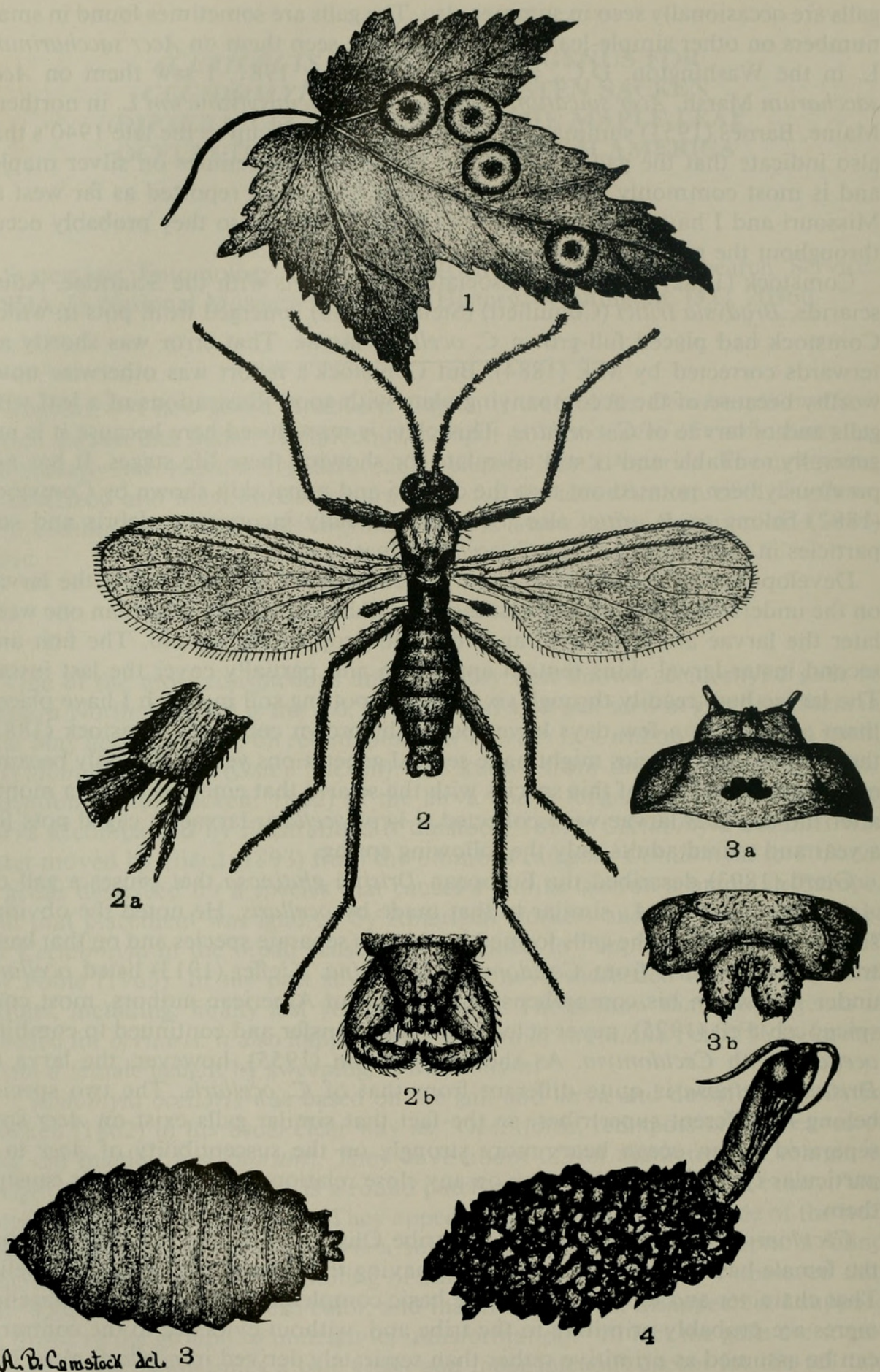
galls are occasionally seen in summer also. The galls are sometimes found in small numbers on other simple-leaved maples. I have seen them on *Acer saccharinum* L. in the Washington, D.C., area and, in August, 1981, I saw them on *Acer saccharum* Marsh, *Acer spicatum* Lam., and *Acer pennsylvanicum* L. in northern Maine. Barnes (1951) summarizes reports of these galls up to the late 1940's that also indicate that the gall is usually on red maple, sometimes on silver maple, and is most commonly seen in spring. Galls have been reported as far west as Missouri and I have seen them in Iowa and Minnesota, so they probably occur throughout the range of red maple.

Comstock (1882) incorrectly associated *C. ocellaris* with the Sciaridae. Adult sciarids, *Bradysia tritici* (Coquillett) (Steffan, 1966), emerged from pots in which Comstock had placed full-grown *C. ocellaris* larvae. That error was shortly afterwards corrected by Mik (1884). But Comstock's report was otherwise noteworthy because of the accompanying plate with good illustrations of a leaf with galls and of larvae of *C. ocellaris*. This plate is reproduced here because it is not generally available and is still adequate for showing these life stages. It has not previously been pointed out that the cocoon and pupal skin shown by Comstock (1882) belong to *B. tritici* also. Sciarids generally incorporate debris and soil particles in their cocoons, but *C. ocellaris* does not.

Development of the larvae is swift. When galls are first noticeable the larvae on the underside of the leaf are first instars and barely visible. Less than one week later the larvae are full grown and ready to drop to the ground. The first and second instar larval skins remain applied to and partially cover the last instar. The larvae bore readily through six inches of potting soil in which I have placed them and within a few days have spun light brown cocoons. Comstock (1882) thought that this species might have several generations yearly, but only because of his misassociation of this species with the sciarid that emerged about a month after the *ocellaris* larvae were collected. I kept *ocellaris* larvae in caged pots for a year and reared adults only the following spring.

Giard (1893) described the European *Drisina glutinosa* that causes a gall on *Acer pseudoplatanus* L. similar to that made by *ocellaris*. He noted the obvious similarities between the galls formed by the two separate species and on that basis transferred *ocellaris* from *Cecidomyia* to *Drisina*. Kieffer (1913) listed *ocellaris* under *Drisina* in his comprehensive catalog, but American authors, most conspicuously Felt (1925), never acted upon that transfer and continued to combine *ocellaris* with *Cecidomyia*. As shown by Möhn (1955), however, the larva of *Drisina glutinosa* is quite different from that of *C. ocellaris*. The two species belong to different supertribes, so the fact that similar galls exist on *Acer* spp. separated by an ocean bears more strongly on the susceptibility of *Acer* to a particular type of gall rather than on any close relationship of the insects causing them.

Cecidomyia ocellaris belongs to the tribe Oligotrophini but is notable in that the female has separate cerci instead of having them fused into a single lamella. That character and the presence of the basic complement of 12 antennal flagellomeres are probably primitive to the tribe and, without evidence to the contrary, can be assumed as primitive rather than separately derived in *ocellaris* also. The loss of the larval spatula and various papillae are presumably adaptive. In the key to nearctic genera of Cecidomyiidae in Gagné (1981), the new genus *Acericecis*, described here for the inclusion of *ocellaris*, will key to couplet 182 where *Ja-*



Figs. 1–4. 1, Leaf galls of *Acericecis ocellaris* on *Acer rubrum*. 2, *Bradysia tritici*. 3, Larva of *A. ocellaris* (dorsal). 3a, Head and prothorax of same. 3b, Posterior segments of same. 4, Cocoon and pupal skin of *B. tritici*. (From Comstock, 1882.)

netiella and *Mayetiola* are separated. A new couplet 181b will separate the new genus from the other two:

181b. Antenna with 12 flagellomeres; male with divided gonocoxal apodeme; female cerci separate ..... *Acericecis* Gagné
1 species, *ocellaris* (Osten Sacken)

– Antenna usually with more than 12 flagellomeres; male with undivided gonocoxal apodeme; female cerci fused into single terminal lamella ... 182

Acericecis Gagné, New Genus

Adult.—Eyes large, broadly joined at vertex, facets closely approximate except laterally. Male flagellomeres 12, necks of most as long as nodes; female flagellomeres 12, nodes cylindrical but narrowed slightly from base to apex where they abruptly narrow to very short neck. Labellae hemispherical, each with 0–3 setae. Palpus 4-segmented, segment 2 widest, 4 longest.

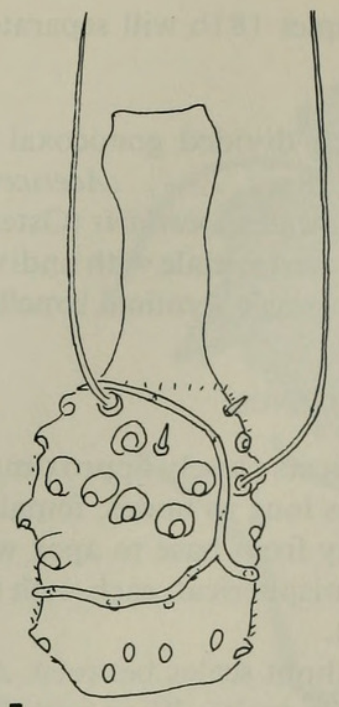
Mesonotum with 4 longitudinal setal rows without scales between. Anepisternum without vestiture, anepimeron with setae, no scales. Wing with R5 curved on distal ½, joining C near wing apex; no break evident in C at juncture with R5. Claws simple, narrow, curved beyond midlength. Empodia about as long as claws. Pulvilli about ½ as long as claws.

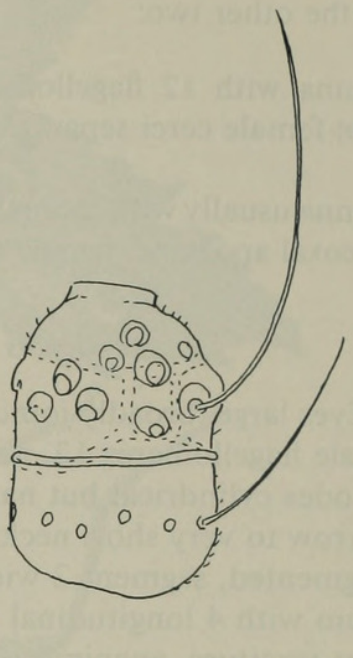
Male abdomen: Tergites 1–8 rectangular, with sparse, single, continuous row of long caudal setae, tergites 2–8 with several to many lateral setae occasionally mixed with scales, the 2 groups joining mesally on tergites 6–8, each with 2 basal, widely separated trichoid sensilla, and otherwise bare except for occasional scales. Pleura with scattered scales. Sternites 2–8 rectangular, wider than long, 2–5 with mostly single row of caudal setae, 6–8 with double row, the midlength, horizontal group of setae increasing gradually in number and extent from basal to apical sternites, the sclerites without trichoid sensilla and otherwise bare. Terminalia: cerci and hypoproct of approximately equal length, hypoproct concave distally, each lateral lobe with several distal setae; gonopod short, broad, setose on full length ventrally, on apical ⅔ dorsally, longest and most closely setose on ventromesal corner; gonostylus broadest near midlength, tapering abruptly to apical tooth; claspettes much shorter than aedeagus; aedeagus broadening beyond claspettes; gonocoxal apodeme broad basally, divided cephalad into 2 separate arms.

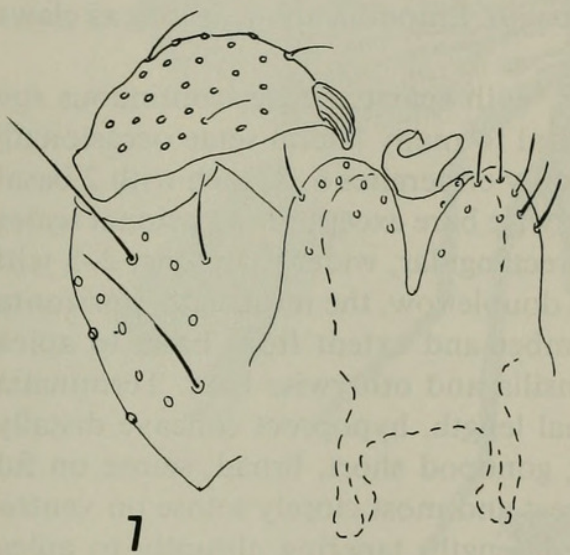
Female abdomen: Tergites 1–7 as in male; tergite 8 with few, short, scattered, mostly caudal setae, and 2 trichoid sensilla. Pleura and sternites 2–7 as in male; sternite 8 not as strongly demarcated as preceding segments, covered with scattered setae. Ovipositor short, distal ½ with 2 basal, dorsolateral, usually pigmented, pebbled areas, with sparse, short setae distally on dorsal and lateral surfaces, dense setae of mixed length caudoventrally; cerci separate, short-ovoid in lateral view, covered with uniformly short setae laterally; hypoproct short, wider than long, with several short, distal setae.

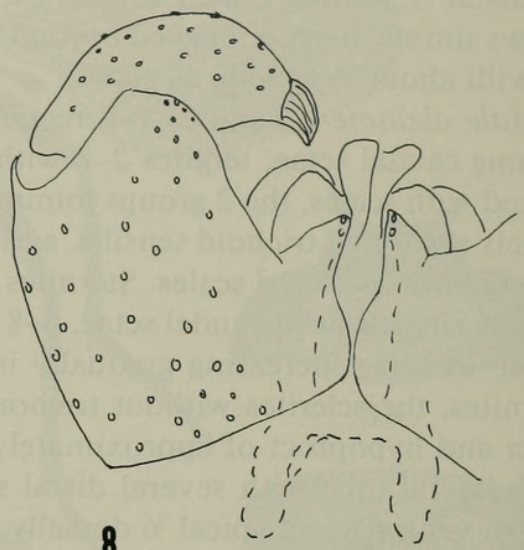
Pupa.—Antennal sheath simple except for weak ventroapical ridge. Face with papilla with long seta on each side of center and 2 papillae near angle of palpus, one with long seta, the other bare. Pronotal seta very long. Prothoracic spiracle long, slightly curved, pointed, pigmented. Abdomen uniformly covered except intersegmentally with short, pointed setulae.

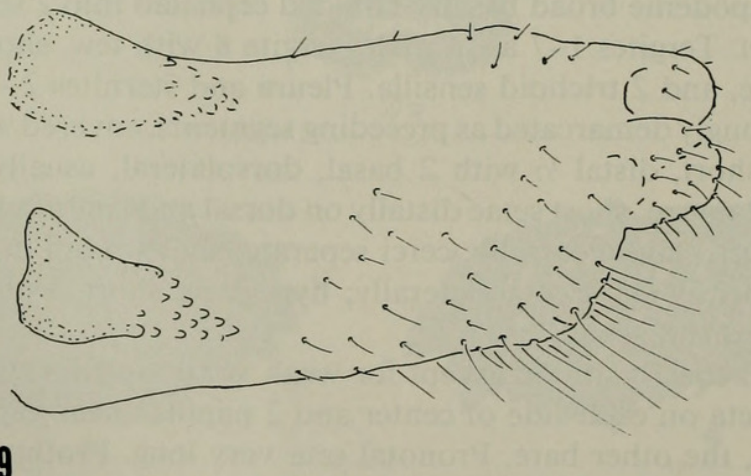
Larva (third and last instar).—Dorsoventrally flattened, short, broad. Without











Figs. 5–9. *Acericecis ocellaris*. 5, Third male antennal flagellomere. 6, Third female antennal flagellomere. 7, Male terminalia (left half, dorsal). 8, Same (ventral). 9, Distal half ovipositor (dorsolateral).

spatula. Dorsal and pleural papillae with short setae. Papillae on venter not evident. Terminal segment bilobed, each lobe with 4 uniform papillae with setae slightly longer than those of dorsal papillae. Scattered spinules present dorsally and ventrocaudally.

Type-species.—*Acericecis ocellaris* (Osten Sacken).

Acericecis ocellaris (Osten Sacken), New Combination

Figs. 1, 3, 5–9

Cecidomyia ocellaris Osten Sacken 1862: 199.
Mayetiola virginiana Felt 1908: 369. **New Synonym.**

Adult.—Male flagellomere 3 as in Fig. 5; female flagellomere 3 as in Fig. 6. Male terminalia as in Figs. 7–8. Distal ½ of ovipositor as in Fig. 9.

Larva.—As for Figs. 3, 3a, 3b.

Types.—*C. ocellaris*: **lectotype** here designated, leaf gall, Washington, D.C. vicinity, in Museum of Comparative Zoology, Cambridge, Mass.; paralectotypes, 18 leaf galls and larvae, same data as lectotype except larvae lost. *M. virginiana,* holotype, ♀, taken on *Prunus virginiana,* V-23-1906, Albany, N.Y., C 80, in Felt Collection at National Museum of Natural History, Washington, D.C.

Other material examined.—2 ♂, 14 ♀, reared one year after larvae were collected in 1969, 1971, 1977, 1979, 1981, Silver Spring, Md., R. J. Gagné; pupal skin associated with a reared male, 1982; pupae from pots, Silver Spring, Md., 1981; larvae from Silver Spring, Md., 1966, 1976, 1980, 1981, 1982, Spring Brook, Pa., 1945, and Va., 1918, 1919, 1920.

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