

THE NEARCTIC SPECIES OF *ACEROTELLA* MASNER (HYMENOPTERA,
PROCTOTRUPOIDEA, PLATYGASTRIDAE)

LUBOMIR MASNER

Biosystematics Research Institute, Agriculture Canada, Ottawa K1A 0C6

Abstract

Can. Ent. 112: 1291-1303 (1980)

The genus *Acerotella* of the Nearctic region is studied. Six species are recognized, all new to science: *A. acerina* ♀♂ (Canada, U.S.A.), *A. aceris* ♀♂ (Canada), *A. depressa* ♀ (U.S.A.), *A. gouleti* ♀♂ (U.S.A.), *A. nearctica* ♀♂ (Canada, U.S.A.), and *A. vockerothi* ♀ (Canada). The generic diagnosis of *Acerotella* and key to Nearctic species are given. The higher classification, species-groups, and world distribution of *Acerotella* species are discussed.

The genus *Acerotella* was proposed to include four Palearctic species previously placed in *Acerota* Foerster which is now regarded as a subjective junior synonym of *Inostemma* Haliday (Masner 1964). The new species dealt with here represent the first described species of *Acerotella* from the Nearctic, and include the specimens reported by Muesebeck (*in* Krombein *et al.* 1979).

BIOLOGY, DISTRIBUTION, AND RELATIONSHIPS

No published host records are available for any species of *Acerotella*. However, Mr. H. J. Vlug (IPO, Wageningen) (*in litt.*) reared one Palearctic species from galls of a cecidomyid midge. It is highly probable that all species of *Acerotella* are primary parasites of various gall forming Cecidomyidae as inferred from known relationships in related genera of the subfamily Inostemmatinae. Two Nearctic species, viz. *A. acerina* n. sp. and *A. aceris* n. sp., are associated with sugar maple (*Acer saccharum* Marsh.). Numerous individuals of the latter two species were collected in spring from young leaves on lower branches and the young seedlings. The wasps were confined strictly to sugar maple and not encountered on surrounding plants or trees. *A. nearctica* n. sp. seems to be associated with lower vegetation, mainly the grasses (Poaceae) during late summer and fall. Although most species were recorded from low to mid altitudes, *A. depressa* n. sp. is described here from altitude over 3000 m.

The members of *Acerotella* are rather infrequent in collections. However, with the knowledge of association with certain plants and by using new methods of mass collecting we have accumulated over 300 specimens representing the six Nearctic species of *Acerotella*.

Four species of *Acerotella* are known in the Palearctic region; at present six new species are being described from the Nearctic region. None of the 10 species mentioned above seem to be Holarctic in distribution. I have also seen undescribed species of *Acerotella* from the Ethiopian region (Nigeria, Rhodesia), and the Neotropical region (Guatemala, Costa Rica, Trinidad W.I., Brazil) (CNC). However, the real distribution of *Acerotella* is probably much broader, perhaps worldwide.

Acerotella is a very distinct genus among the numerous genera of the subfamily Inostemmatinae (Platygastriidae). It may be recognized by the downcurved apex of the submarginal vein (Fig. 5), the rounded posterior margin of the scutellum (Figs. 1, 3), and the generally depressed body. The pectinate spur of the fore tibia (Fig. 18) as well as the relatively large, deeply declivous clypeus (Fig. 2) are reminiscent of *Iphitrachelus* Walker; however, in other respects *Acerotella* appears as a rather distinct genus. The non-horned females of *Inostemma* were in the past confused with *Acerotella* (Ashmead 1887, 1893; Fouts 1925; Muesebeck and Walkley, *in* Muesebeck *et al.* 1951) as pointed out by Masner (1964). The following key is aimed to clarify this situation.

- (1) Submarginal vein near its apex slightly downcurved (Fig. 5); scutellum posteriorly rounded, i.e. posterolateral corners not prominent (Figs. 1, 3); spur of fore tibia pectinate, with apex shortly bifurcate (Fig. 18); female antenna with either clava not clearly differentiated (Figs. 11-14) or abruptly 3-segmented (Fig. 10) *Acerotella* Masner
- Submarginal vein straight; scutellum posteriorly angular, straight or nearly so, i.e. posterolateral corners well developed and prominent; spur of fore tibia non-pectinate, trifid at apex; female antenna with clava distinctly 4-segmented, rarely 5-segmented *Inostemma* Haliday

There appear to be three species-groups in *Acerotella*, all of them represented in the Nearctic region, viz. *aceris*, *boter*, and *evanescens*. The *aceris*-group is the most distinct of the three, characterized by deep orange-yellow antennae in both sexes, light coloured legs, much elongate A3 in female antenna and relatively large clypeus. Two Nearctic species are assigned here, viz. *A. aceris* n. sp. and *A. acerina* n. sp. I also examined an undescribed species from Japan (coll. K. Yamagishi) that belongs here. Ecological data indicate that the members of this group are vernal, associated with maples (*Acer* spp.).

The *boter*-group and *evanescens*-group differ from the *aceris*-group in having antennae in both sexes dark brown or black, A3 in female antenna shorter, and clypeus relatively smaller. *Boter* and *evanescens* groups sharply differ from each other only in the female sex in that the antennal clava is subcompact and abruptly 3-segmented in *boter*-group, whereas the clava is not clearly differentiated in the *evanescens*-group. The *boter*-group is represented in the Palearctic region by *A. boter* (Haliday) and *A. humilis* (Kieffer), in the Nearctic region by *A. nearctica* n. sp. I also studied undescribed members of this group from Guatemala, Trinidad (W.I.), Brazil, and Nigeria (CNC). The *evanescens*-group has two species in the Palearctic region, viz. *A. evanescens* (Kieffer) and *A. hungarica* (Szelenyi), and three species in the Nearctic region, viz. *A. depressa* n. sp., *A. gouleti* n. sp., and *A. vockerothi* n. sp. The members of these two groups seem to be associated with herbaceous plants (e.g. grasses) rather than shrubs or trees.

MORPHOLOGY, ABBREVIATIONS, AND SYMBOLS

All terms used in this paper are those used by Masner (1976). Measurements given in "relative proportions" refer to maximal length divided by maximal width (e.g. antennal segments, metasomatic tergites, etc.). The term "transverse" means that the object (e.g. the head) is wider than long.

DESCRIPTIVE PART

Acerotella Masner

- 1914, *Acerota*: Kieffer, in André, Species des Hyménoptères d'Europe et d'Algérie . . . , Vol. 11: 370.
- 1926, *Acerota*: Kieffer, Scelionidae, Das Tierreich 48: 547.
- 1938, *Acerota*: Szelenyi, Folia ent. hung. 3: 103.
- 1964, *Acerotella* Masner, Acta Soc. ent. Cechosl. 61: 148.
- 1978, *Acerotella*: Kozlov, in Medvedev, Opred. nasek. evrop. chasti USSR, 3: 655. Publishing House Nauka, Leningrad.
- 1979, *Acerotella*: Muesebeck, in Krombein *et al.*, Catalog of Hymenoptera in America north of Mexico, 1: 1173. Smithsonian Institution Press, Washington.
- Type-species: *Acerota evanescens* Kieffer. Designated by Masner (1964), by original designation.

Moderately elongate forms with body slightly to distinctly depressed dorso-ventrally. Head transverse, subellipsoidal; cheeks not striate; mandibles bidentate;

palpal formula 2-1; clypeus rather large, declivous and smooth; ocelli in low triangle, OOL distinctly shorter than both LOL and POL; eyes appearing glabrous (low magnification), with minute hairs (high magnification); antennal formula 10-10, in female clava either not abrupt, or abruptly 3-segmented, and subcompact and A5-A7 very minute, in male with A3 and A4 subequal in length; notauli either percurrent and often dilated posteriorly, or abbreviated posteriorly, or absent; scutellum flattened, almost semicircular, with posterior margin rounded, posterolateral corners not developed, with 2 large pits in anterolateral corners; mesopleuron with deep depression; sternaulus either well developed or incomplete; metanotum unarmed; propodeum without membrane, hairy, with 2 short sub-parallel or parallel keels at meson; fore wing with submarginal vein gently downcurved at apex; marginal cilia very short; tarsal formula 5-5-5, tibial spur formula 1-2-2, spur on fore tibia pectinate, shortly bifurcate apically; metasoma in female elongate, at least as long as head and mesosoma combined, with 6 visible tergites, T1 always without horn; T6 usually elongate and almost truncate at apex, rarely broadly triangular, and almost pointed apically; T2 largest of all tergites, usually as long as T3-T6 combined or longer, with short striae and/or median sulcus at anterior margin; metasoma in male with 7 visible tergites.

KEY TO NEARCTIC SPECIES OF *Acerotella*

Females

- (1) A1, most of antennae, and at least fore legs bright orange-yellow; A1 distinctly longer than frons between toruli and anterior ocellus; vernal species associated with maples (*Acer* spp.) (*aceris*-group) 2
 - Antennae and legs dark coloured, dark brown or black; A1 as long as or shorter than frons between toruli and anterior ocellus; vernal and autumnal species 3
- (2) Antenna more slender, with A7-A9 as long as wide or slightly elongate, A10 1.5 times as long as wide, A8 and A9 separated by distinct constriction (Fig. 6); sensilla on A9 and A10 only (Fig. 15); PQ, ON 1. *A. aceris* n. sp.
 - Antenna distinctly stouter, with A7-A9 transverse, A10 about as long as wide, A8 and A9 approximated, without constriction (Fig. 8); sensilla on A8-A10 (Fig. 16); PQ, ON, NB, MD 2. *A. acerina* n. sp.
- (3) Antennal clava abruptly 3-segmented, A8-A10 subcompact, closely approximated, without constrictions (Fig. 10) (*boter*-group); notauli shallowly dilated posteriorly, obscured by longitudinal sculpture (Fig. 3); autumnal species, associated with grasses (Poaceae); PQ, ON, ME, MA, NY, MN 3. *A. nearctica* n. sp.
 - Antennal clava gradually 4-5 segmented, A8 and A9 not approximated, with distinct constriction (Figs. 11-14); notauli not dilated posteriorly, usually obsolete and with no longitudinal sculpture in between (*evanescens*-group) 4
- (4) T2 as long as wide, shorter than T3-T6 combined, not distinctly striate basally; body remarkably depressed, 1.7 times wider than high, with scutellum in lateral view levelled with mesoscutum; occipital pit minute; WY 4. *A. depressa* n. sp.
 - T2 longer than wide, as long as or slightly longer than T3-T6 combined, with distinct striae basally or median sulcus anteromedially; body more convex, 1.2-1.3 times wider than high, with scutellum in lateral view slightly topping mesoscutum; occipital pit not developed 5
- (5) OOL slightly longer than diameter of posterior ocellus; scutellum evenly coriaceous; T2 with fan of striae anteromedially; metasoma distinctly longer than mesosoma and head combined; A3 stouter, 1.7 times as long as wide (Fig. 14); ON 5. *A. vockerothi* n. sp.
 - OOL slightly less than one diameter of posterior ocellus; scutellum coriaceous in anterior half, smooth in posterior half; T2 with short stria basally and long median sulcus anteromedially; metasoma as long as head and mesosoma combined; A3 slender, 2.5 times as long as wide (Fig. 13); vernal species IL, FL 6. *A. gouleti* n. sp.

Males

(Males of *A. depressa* and *A. vockerothi* are not known)

- (1) Antenna deep orange-yellow; vernal species associated with maples (*Acer* spp.) 2
- Antenna black; vernal and autumnal species associated with herbs 3
- (2) A6-A9 shorter, only 1.2 times as long as wide (Fig. 9); PQ, ON, NB, MD 2. *A. acerina* n. sp.
- A6-A9 shorter, only 1.2 times as long as wide (Fig. 9); PQ, ON, NB, MD 2. *A. acerina* n. sp.
- (3) T2 with deep median sulcus extending to basal half of the tergite; scutellum coriaceous in anterior half, smooth in posterior half; A3 slightly longer than A4; vernal species; IL, FL 6. *A. gouletti* n. sp.
- T2 with only small median pit; scutellum entirely coriaceous; A3 slightly shorter than A4; autumnal species; PQ, ON, ME, MA, NY, MN 3. *A. nearctica* n. sp.

1. *Acerotella aceris* n. sp.

Figs. 1, 2, 5, 6, 7

Female. Length 1.5 mm. Body black, with antennae and legs predominantly light coloured; A1-A4 bright orange-yellow, A5-A10 gradually darkened, from dirty yellow to light brown in A9 and A10; fore trochanters, tibiae, and tarsomeres 1-4 concolorous with A1-A4, femora yellowish brown, coxae dark brown; middle and hind legs darker brown, mid-femora lighter than mid-tibiae except for upper tibial apices that are lighter, hind legs entirely dark brown; wings clear.

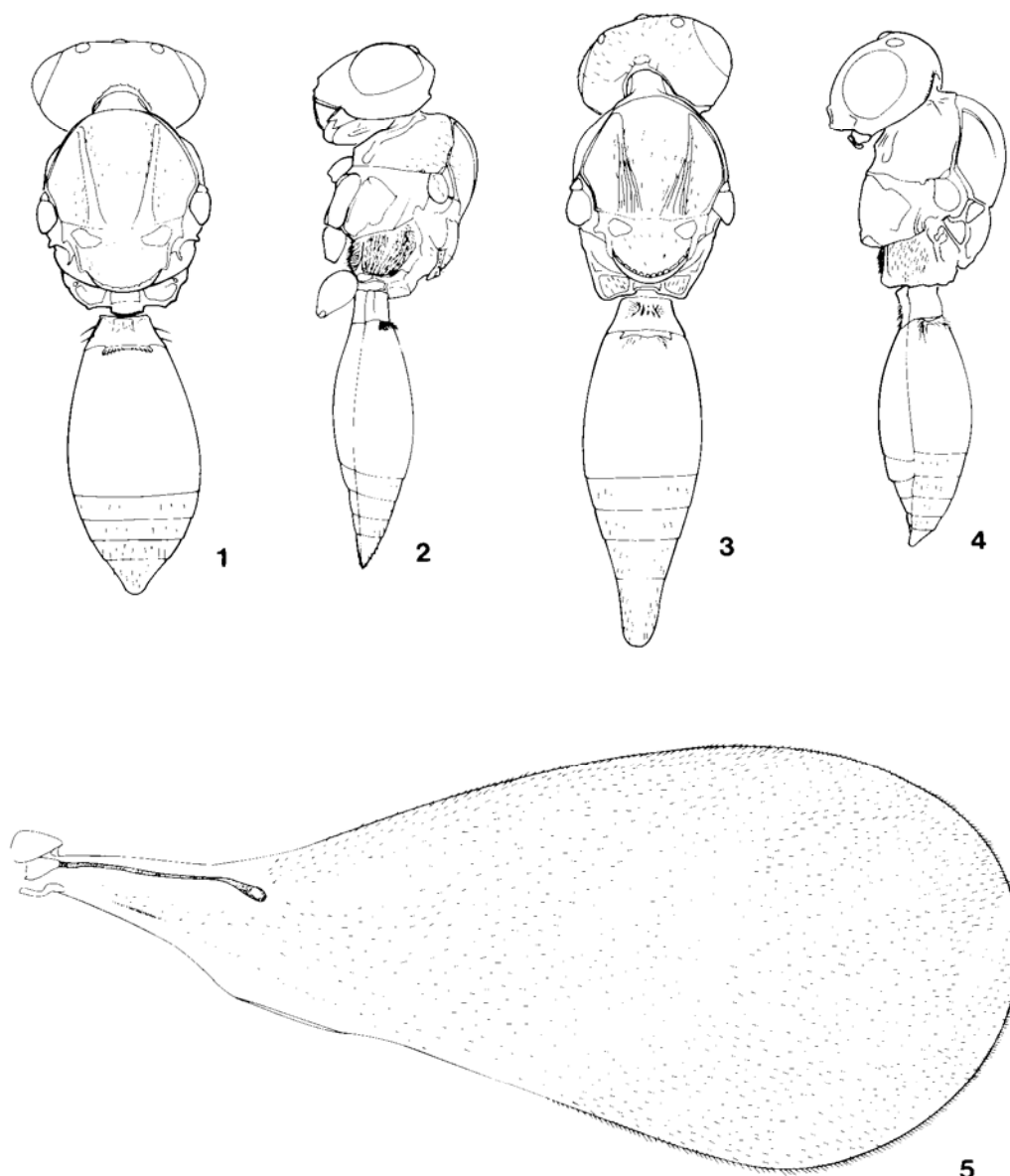
Head transverse (22:42), slightly narrower than mesosoma across tegulae (42:45), net-like reticulate, sculpture on frons becoming finer in front of anterior ocellus, sculpture of vertex and temples becoming rougher, almost rugoso-reticulate, sculpture of occiput coarser than reticulation on frons; occipital carina sharp, complete and prominent, irregularly crenulate inwardly; no occipital pit in front of middle of occipital carina; temples strongly receding, rounded; clypeus rather high, transversely striate; interorbital space larger than eye height (27:17); posterior ocelli distant from inner orbits (OOL) approximately by one ocellar diameter; eyes with minute scattered hairs; A1 longer than interorbital space (30:27) and longer than frons between toruli and anterior ocellus (30:22); antenna as in Fig. 6, with distinct constriction between A8 and A9 and with A9 and A10 slightly approximated thus forming a light 2-segmented clava; sensilla on A9 and A10 only.

Mesosoma moderately flattened, wider than high (45:32), sides of prothorax smooth except in upper (shoulder) area which is reticulate, the anteromedian part slightly longitudinally rugulose; mesoscutum finely coriaceous, almost smooth in posterior half between notauli (in front of scutellum); notauli percurrent, though fine and shallow, not distinctly dilated posteriorly but partly obsolete in front of scutellum, with anterior pits deep; anterior parallel lines finely indicated; scutellum coriaceous, with anterior pits large and deep; mesopleuron mostly smooth, with mesopleural depression deep, with narrow band of coriaceous sculpture dorsad of sternaulus, the latter fine but complete; propodeum hairy, with median keels slightly diverging posteriorly; femora reticulate, the hind ones in particular.

Metasoma slightly longer than head and mesosoma combined (75:67), more than twice as long as wide, with metasomatic tergites in relative proportions (length:width) 8:21, 40:32, 8:32, 6:27, 6:22, 7:15; T1 trapezoidal, with longitudinal costae not well developed posteromedially, with 2 big bristles at each side; T2 smooth, with 2 small striate pits at base and a short median sulcus; T3-T6 reticulate in anterior halves, smooth posteriorly.

Male. Differs from female mainly in secondary sexual characters such as the antennae (Fig. 7) and the metasoma.

TYPE MATERIAL. Holotype: ♀ (CNC No. 16035), Canada, Gatineau Park (PQ), May 18 1979, by sweeping foliage of young sugar maples, L. Masner. Allotype: ♂, with same data as holotype (CNC). Paratypes: 11 ♀♀, 33 ♂♂, with same data as holotype (CNC, USNM); 56 ♀♀, 118 ♂♂, Rondeau Prov. Park (ON), May 31-June 2

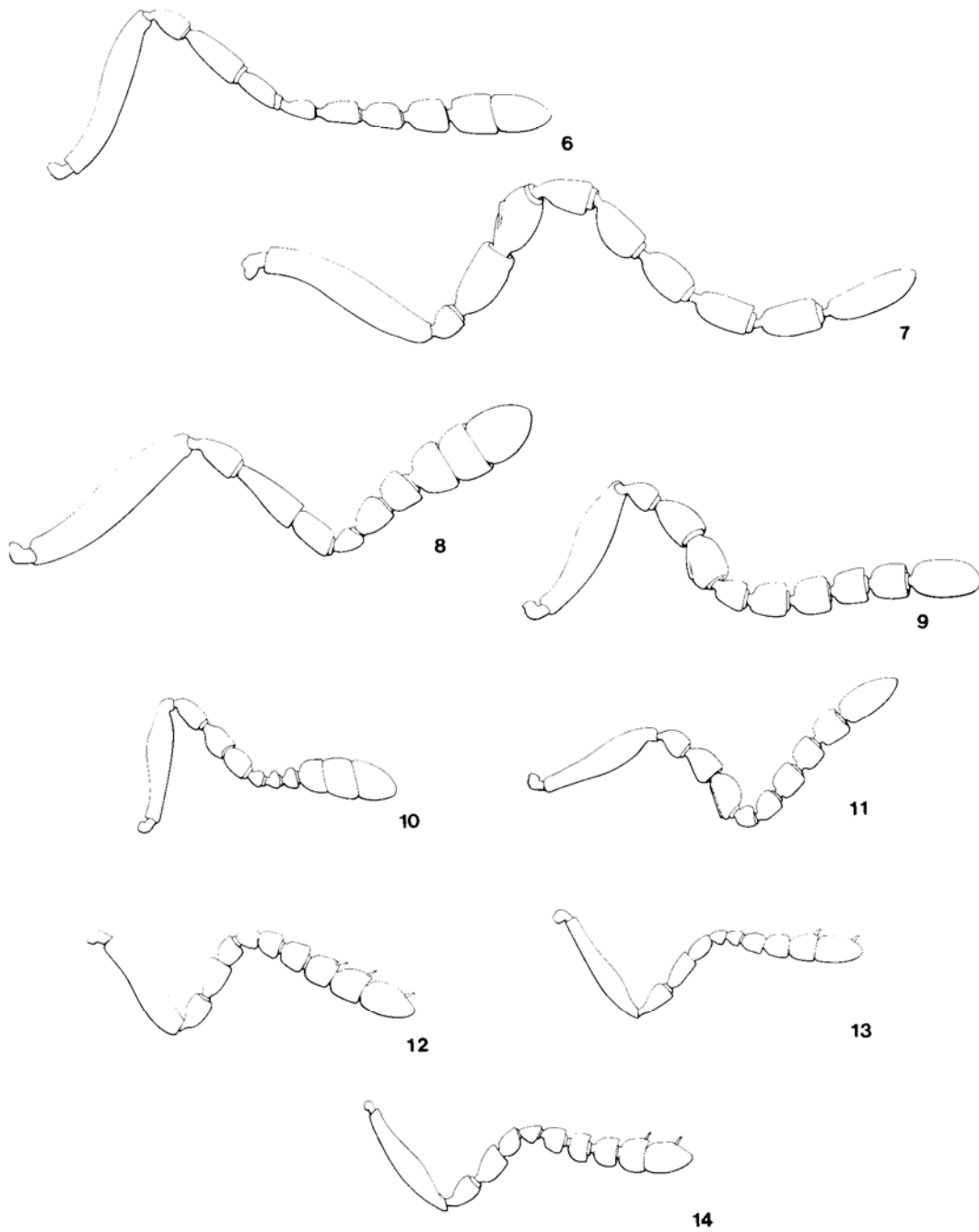


FIGS. 1-5. 1, *Acerotella aceris* n. sp. ♀, dorsal view. 2, *A. aceris* n. sp. ♀, lateral view. 3, *A. nearctica* n. sp. ♀, dorsal view. 4, *A. nearctica* n. sp. ♂, lateral view. 5, *A. aceris* n. sp. ♀, fore wing.

1979, sweeping of young sugar maples, L. Masner (CNC); 1 ♀, Springwater Conservation Area nr. Aylmer (ON), June 4 1979, L. Masner, on sugar maple (CNC).

DISTRIBUTION. Although known only from western Quebec and southern Ontario at present this species is expected to follow the distribution of sugar maple in Canada and the U.S.A.

BIOLOGY. The host is unknown but is presumed to be a common gall forming cecidomyid associated with sugar maple (e.g. *Dasyneura communis* Felt). Adult



FIGS. 6-14. Antennae. 6, *Acerotella aceris* n. sp. ♀. 7, *A. aceris* n. sp. ♂. 8, *A. acerina* n. sp. ♀. 9, *A. acerina* n. sp. ♂. 10, *A. nearctica* n. sp. ♀. 11, *A. nearctica* n. sp. ♂. 12, *A. depressa* n. sp. ♀. 13, *A. gouleti* n. sp. ♀. 14, *A. vockerothi* n. sp. ♀.

wasps were encountered on maple leaves during a relatively short period in each locality (about a week).

VARIABILITY. The total body length varies between 1.1 and 1.5 mm. The smaller individuals (♀♂) tend to have antennae generally shorter, with flagellomeres less elongate than in the holotype and the allotype. However, even in extreme cases readings do not overlap with those obtained in *A. acerina*. Notauli may be more or less distinctly dilated posteriorly in some individuals. Striation and the median sulcus at the base of T2 may also vary in that sulcus may become weak or even missing in some individuals. Colour of antennae and legs may be more xanthic in some individuals and less in others; however, A1 and most of flagellum is always orange-yellow even in generally darker specimens.

REMARKS. This species forms together with *A. acerina* a very distinct species-group within *Acerotella*. The two species may be conveniently distinguished from each other in the female sex by differences in antennae (Figs. 6, 8), and similarly in the male sex (Figs. 7, 9). The sculpture of the vertex (i.e. the interocellar triangle) is generally finer in *A. aceris* than in *A. acerina*.

The name proposed refers to maple (*Acer*) with which this new species is associated.

2. *Acerotella acerina* n. sp.

Figs. 8, 9, 16

Female. Length 1.3 mm. Body black, with antennae and legs predominantly yellowish brown; A1 and fore tibiae and tarsi brighter orange-yellow, A2-A10 light brown, fore femora, mid- and hind-legs (except for lighter tarsi) yellowish brown; wings clear.

Very close to *A. aceris* from which it differs as follows: antennae distinctly stouter and shorter (Fig. 8), with A7-A9 transverse, A10 only very slightly longer than wide (7:6.5), A8 and A9 approximated, without constriction, hence clava sub-trisegmented, with sensilla on A8-A10 (Fig. 16); vertex in the interocellar triangle with rather coarse rugulose-reticulate sculpture; greater part of posterior half of mesoscutum between notauli distinctly sculptured, finely coriaceous; median sulcus on T2 deep, reaching well beyond basal third of the tergite.

Male. Differs from the female in secondary sexual characters; from males of *A. aceris* in having antenna distinctly shorter, with flagellomeres A6-A9 only 1.2 times as long as wide (Fig. 9).

TYPE MATERIAL. Holotype: 1♀ (CNC No. 16034), Canada, Springwater Conservation Area nr. Aylmer (ON), Malaise trap in pure stand of sugar maples, May 28-June 4 1979, L. Masner. Allotype: 1♂, with same data as in holotype but swept June 3 1979 (CNC). Paratypes: 3♀♀, with same data as in holotype but caught between May 23 and June 4 1979 (CNC); 5♀♀, 3♂♂, 1 mi N. Normandale (ON), May 26 1979, H. Goulet (CNC); 2♀♀, 2♂♂, nr. St. Williams (ON), May 24 1979, H. Goulet (CNC); 4♀♀, 1♂, Ottawa (ON), June 19 1979, L. Masner (CNC); 1♀, Ottawa (ON), June 7 1940, O. Peck (CNC); 1♀, nr. Kemptville (ON), May 23 1979, G. Gibson (CNC); 1♀, 3♂♂, Gatineau Park (PQ), May 18 1979, L. Masner, swept from young sugar maples; 1♀, Acadia Expt. Stn., Fredericton (NB), July 13 1970, C. M. Yoshimoto (CNC); 2♀♀, 1♂, Patuxent Wildlife Center, nr. Laurel (MD), Malaise trap May 15-25 and pan trap June 1 1979, M. Schauff & E. E. Grissell (CNC, USNM).

DISTRIBUTION. Sparser than *A. aceris* but recorded from broader range including Ontario, Quebec, New Brunswick, and Maryland. Probably distributed within the whole range of sugar maple in North America.

BIOLOGY. Host unknown; adults repeatedly taken from young leaves of sugar maples along with individuals of *A. aceris*.

VARIABILITY. Body length in specimens examined varies between 1.1 mm and 1.4 mm. Smaller individuals tend to have sculpture of vertex finer, almost identical with that on occiput. Median sulcus on T2 is shorter in some individuals than in the holotype. Fore legs and A2-A5 may be bright orange-yellow in some individuals. Posterior half of mesoscutum (between notauli) may be partly sculptureless in smaller individuals.

REMARKS. *A. acerina* and *A. aceris* can be distinguished primarily by antennal characters: for females see Figs. 8 and 6; for males see Figs. 9 and 7.

The name proposed refers to maple (*Acer*) with which this new species is associated.

3. *Acerotella nearctica* n. sp.

Figs. 3, 4, 10, 11, 17, 18

Female. Length 1.35 mm. Black, with legs brown, tibiae and tarsi slightly lighter; wings clear.

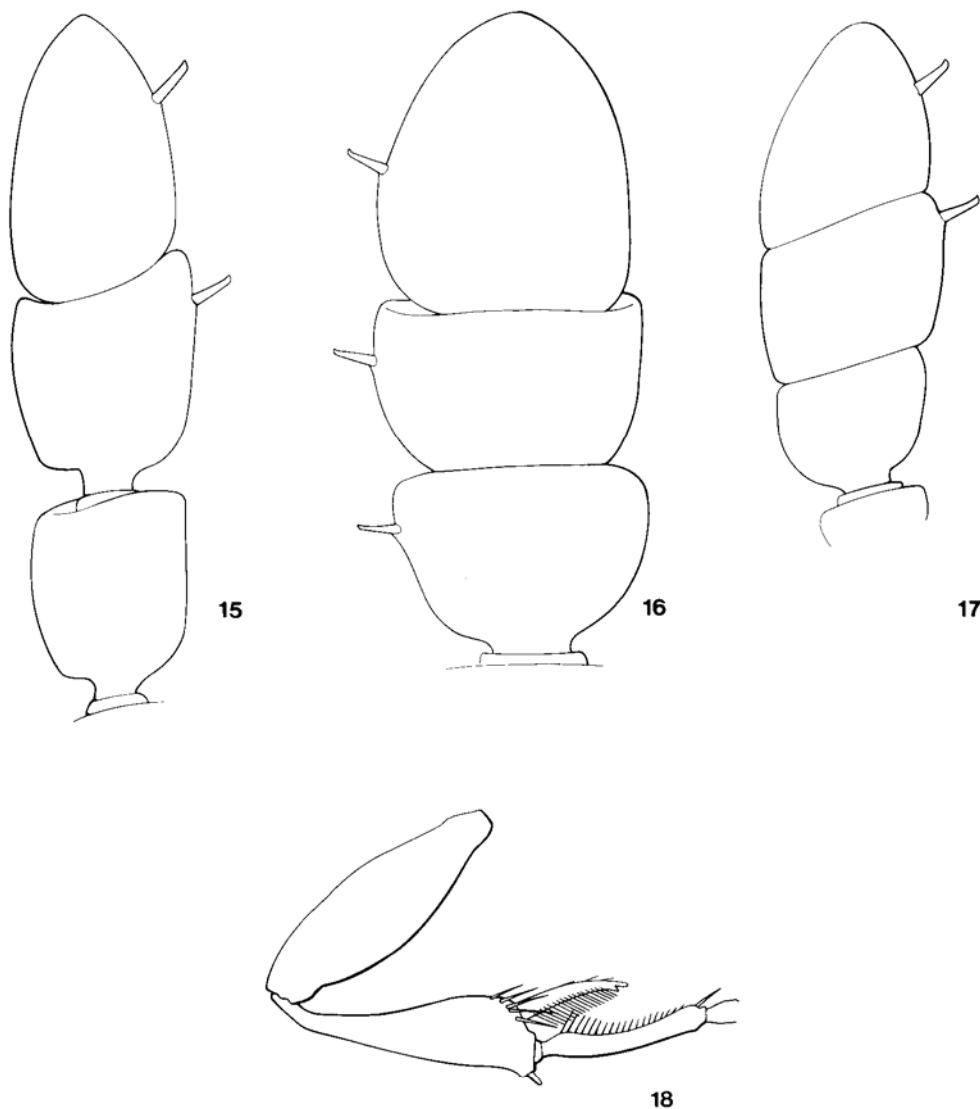
Head transverse (20:38), slightly narrower than mesosoma across tegulae (38:43); lower third of frons reticulate, upper two thirds finely coriaceous; vertex and particularly occiput more coarsely reticulate; occipital carina sharp and complete, with minute crenulae inwardly; small pit on occiput in front of middle of occipital carina; clypeus smaller than in the *aceris*-group; eyes with minute scattered hairs; eye height smaller than interorbital space (15:23); posterior ocelli distant from inner orbits by less than half of ocellar diameter; antenna as in Fig. 10, with abrupt 3-segmented clava; A1 as long as frons between toruli and anterior ocellus.

Mesosoma distinctly flattened, wider than high (44:26); mesoscutum finely coriaceous except for distinctly longitudinal sculpture in posterior 1/4 in front of scutellum (between notauli); notauli percurrent but partly obsolete in posterior 1/4 where shallowly dilated and longitudinally striate; anterior parallel lines indicated; sternaulus not developed but the corresponding part of mesopleuron coriaceous, with mesopleural depression smooth; scutellum evenly coriaceous; two median keels of propodeum perfectly parallel; fore wings not surpassing tip of metasoma when resting; hind femora partly smooth, partly coriaceous.

Metasoma distinctly longer than head and mesosoma combined (80:50), with metasomatic tergites in relative proportions (length:width) 7:18, 33:30, 7:28, 6.5:24, 9:10, 16:10; T1 with 4 big setae at each side, with 2 hairy pits dorsally, and 2 closely approximated keels at meson; anterior margin of T2 with short striae and 3 shallow, almost indistinct sulci; T3-T6 with coriaceous sculpture becoming gradually coarser from T3 to T6; T6 bluntly rounded apically.

Male. Differs from female in structure of antennae (Fig. 11) and the metasoma with tergites in relative proportions (length:width) 7:17, 35:26, 5:25, 55:22, 5:18, 4.5:11, 6:8.

TYPE MATERIAL. Holotype: ♀ (CNC No. 16038), Gatineau Park (PQ), Oct. 5 1969 L. Masner, by sweeping grasses. Allotype: ♂ Gatineau Park (PQ), Sept. 15 1977, L. Masner & G. Gibson, by sweeping. Paratypes: 6 ♀ ♀ with data as in the allotype (CNC, USNM); 1 ♀ with same data as in holotype but caught on Sept. 13 1979 (CNC); 2 ♀ ♀ with same data as in holotype but caught on Oct. 5 1969 (CNC); 1 ♀, 1 ♂, King Mountain in Gatineau Park (PQ), Sept. 10 1971 and Sept. 4 1975, L. Masner (CNC); 2 ♀ ♀, Mer Bleue, Ottawa (ON), Sept. 11 1975 and Sept. 18 1974, L. Masner (CNC); 6 ♀ ♀, 2 ♂ ♂, Ottawa (ON), Sept. 19 1970, A. Sauve, swept from brome grass; 1 ♀, Hull (PQ), Aug. 7 1897, "Polymecus picipes Ashm." (det. Ashmead?), coll. W. H. Harrington (CNC); 1 ♀, 2 ♂ ♂, Stittsville (ON), D. Brown's farm, Malaise trap Aug. 31 1978 (CNC); 1 ♂, Ottawa (ON), July 29 1975, L. Masner (CNC); 1 ♂, Ottawa (ON), Aug. 30 1943, O. Peck (CNC); 1 ♂, Crow Lake, Marmora area (ON), Aug. 20 1975, L. Masner (CNC); 1 ♂, Springwater Conservation Area nr. Aylmer (ON), Sept. 8 1978, L. Masner & party (CNC); 1 ♀, Augusta (ME), Sept. 11 1944, A. E. Brower (USNM); 1 ♀, Wellfleet, Cape Cod (MA), Sept. 9



FIGS. 15-18. 15, *Acerotella aceris* n. sp. ♀, A8-A10. 16, *A. acerina* n. sp. ♀, A8-A10. 17, *A. nearctica* n. sp. ♀, A8-A10. 18, *A. nearctica* n. sp., fore leg.

1970, L. Masner (CNC); 1♀, Islip, Long Island, NY, Sept. 25 1934, F. S. Blanton (USNM); 1♀, Iron Co. (MN), Aug. 11 1967 R. W. Carlsson (USNM); 1♀, Gull Lake Biol. Sta., Kalamazoo Co. (MN), Oct. 1 1971, R. L. Fischer (MSU).

DISTRIBUTION. Forty-two specimens were examined from localities in Ontario, Quebec, Maine, Massachusetts, New York, and Michigan. The species is probably more widely distributed in the northeastern part of North America.

BIOLOGY. The host is unknown; however, a series of individuals were swept from brome grass (*Bromus* sp.) in Ottawa and more individuals were swept from miscellaneous grasses in Ontario and Quebec during late summer and fall.

VARIABILITY. This melanic species seems to be chromatically stable. Slight variation has been observed in the intensity of the longitudinal sculpture in posterior half of mesoscutum; sculpture tends to be more delicate in smaller individuals. It seems that the apical segment of the metasoma (T6, S6) in the female may be partly telescoped as in some individuals it appears either shorter or longer than in the holotype. Smaller males tend to have A6-A9 slightly transverse instead of slightly elongate as compared with larger males.

REMARKS. This is at present the only species of the *boter*-group in North America. It differs from *A. boter* as follows:

- (1) Median lobe of mesoscutum coriaceous in anterior 2/3, with some longitudinal sculpture in posterior 1/3 (between notauli); notauli shallowly dilated posteriorly, with inner edge obsolete and obscured by longitudinal sculpture; in female A7 much smaller than A8, hence clava appears more abrupt *A. nearctica* n. sp.
- Median lobe of mesoscutum entirely coriaceous, with no longitudinal sculpture in posterior 1/3; notauli deeply dilated posteriorly, with inner edge sharp and well defined; in female A7 moderately smaller than A8, hence clava appears less abrupt *A. boter* (Haliday)

The type of *A. boter* (♀ in coll. Haliday, Dublin) was examined. A perfect match of the type was also found among specimens received from F. Bin (U. Perugia, Italy): ♀, Consiglio (Belluno), Italy, Aug. 20 1970, 100-1200 m, F. Bin (CNC).

The name proposed refers to the Nearctic distribution of this new species.

4. *Acerotella depressa* n. sp.

Fig. 12

Female. Length 1.4 mm. Black, including antennae and legs, except for brown apices of tibiae and tarsi; wings slightly tinted.

Head distinctly transverse (18:38), as wide as mesosoma across tegulae; frons, vertex, and occiput evenly and finely coriaceous, with minute scattered punctures; a small smooth circular area on frons in front of anterior ocellus; occipital carina complete, with no visible crenulae, occipital pit shallow and minute; temples strongly receding; clypeus relatively low; frons between toruli and anterior ocellus as long as A1; interorbital space larger than eye height (25:15); posterior ocelli distant from inner orbits by about half of ocellar diameter; eyes with minute scattered hairs; antenna as in Fig. 12, only gradually incrassate towards apex, with non-abrupt 4-5 segmented clava.

Mesosoma remarkably depressed, 1.7 times as wide as high, flattened dorsally, with scutellum at same level with mesoscutum; mesoscutum partly sculptured, partly smooth, with fine coriaceous sculpture and scattered setigerous punctures on lateral lobes in anterior part of middle lobe and along inner course of notauli, with larger smooth area on mid-lobe (between anterior part of notauli) and virtually all posterior half of mid-lobe in front of scutellum; notauli well indicated in anterior 2/3, obsolete posteriorly; anterior parallel lines not developed; scutellum with streak of very delicate coriaceous sculpture in middle part, smooth at sides (below pits); sternaulus complete though delicate; mesopleural depression smooth; metapleuron hairy; median keels on propodeum very short; fore wing not surpassing tip of metasoma; hind femora slightly incrassate, smooth proximally, coriaceous distally.

Metasoma strongly depressed, almost foliaceous, longer than head and mesosoma combined (80:65), with metasomatic tergites in relative proportions (length:width) 7:17, 30:29, 8:28, 8:25, 9:20, 17:13; T1 with short costae in anterior half, otherwise smooth; T2 almost as long as wide, shorter than T3-T6 combined, not striate basally but with 2 narrow pits anterolaterally; T3 smooth, T4-T6 predominantly smooth, with some delicate coriaceous sculpture.

Male. Unknown.

TYPE MATERIAL. Holotype: ♀ (CNC No. 16036), Togwotee Pows (Fremont-Icton Co.) WY, 3200 m, Aug. 16-24 1979, Malaise trough in alpine meadows at forest edge, S. & J. Peck.

DISTRIBUTION. Wyoming.

BIOLOGY. Host is unknown. The type locality is the highest point in the vertical distribution of all six Nearctic species of *Acerotella*.

REMARKS. The strongly depressed body makes this species very distinctive among all Nearctic species. Similarly, the metasomatic measurements are unique, the short T2 in particular. *A. depressa* differs from the Palearctic *A. evanescens* (European specimens examined) by partly impressed notauli, shorter T2, finer sculpture of scutellum, etc. The name proposed refers to the remarkably depressed form of the body.

5. *Acerotella vockerothi* n. sp.

Fig. 14

Female. Length 1.3 mm. Black, with antennae dark brown to black, legs dark brown, with apices of tibiae and tarsi lighter; wings slightly tinted.

Head moderately transverse (18:32), as wide as mesosoma across tegulae; frons, vertex, and occiput evenly coriaceous, however, with sculpture somewhat coarser than in *A. depressa*, with no smooth area in front of anterior ocellus; occipital carina complete, occipital pit not distinct; clypeus relatively low; frons between toruli and anterior ocellus as long as A1; interorbital space larger than eye height (21:16); posterior ocelli distant from inner orbits slightly more than by one ocellar diameter; eyes appearing glabrous; antenna (Fig. 14) moderately incrassate towards apex, with no abrupt clava, with A9 and A10 approximated.

Mesosoma only about 1.2 times wider than high, with scutellum in lateral view topping mesoscutum; mesoscutum evenly coriaceous except for smaller smooth area posteromedially (in front of scutellum); notauli visible in anterior half of mesoscutum, obsolete posteriorly, not distinctly dilated and not longitudinally striate; scutellum evenly coriaceous; sternaulus partly indicated in front of mid-coxa; mesopleural depression partly with fine longitudinal sculpture; metapleuron hairy; median keels of propodeum short; fore wing leaving the tip of metasoma uncovered; hind femora not distinctly incrassate, smooth.

Metasoma longer than mesosoma and head combined (80:55), with metasomatic tergites in relative proportions (length:width) 7:18, 36:28, 7:27, 6:23, 7:20, 15:13; T2 anteromedially with narrow fan of striae reaching about to half of the tergite; T3-T5 with fine coriaceous sculpture; T6 with narrow band of coriaceous sculpture along anterior margin, otherwise smooth.

Male. Unknown.

TYPE MATERIAL. Holotype: ♀ (CNC No. 16039), Canada, Forest Station Petawawa (ON), May 28 1959, J. R. Vockeroth. Head detached and glued along on point.

DISTRIBUTION. Ontario.

BIOLOGY. Unknown.

REMARKS. *A. vockerothi* belongs to the *evanescens*-group. It differs from the other two Nearctic members of this group, viz. *A. depressa* and *A. gouleti* by characters mentioned in the key. Furthermore, it differs from *A. depressa* by sculpture of mesoscutum. From *A. evanescens* the new species differs mainly by OOL measurement and striation of T2. The new species is dedicated to Dr. J. R. Vockeroth (Biosystematics Research Institute, Ottawa), an indefatigable collector and brilliant naturalist to whom I owe much for his longlasting support and interest in my research.

6. *Acerotella gouleti* n. sp.

Fig. 13

Female. Length 1 mm. Black, with trochanters, parts of tibiae and tarsi brownish yellow; wings almost clear.

Differs from *A. vockerothi* in following characters: Coriaceous sculpture of frons extremely fine, leaving an almost smooth area in front of anterior ocellus; vertex with coarser coriaceous sculpture, occiput with coriaceous-reticulate sculpture; occipital carina weak but complete; occipital pit absent; OOL slightly less than ocellar diameter; A3 rather slender, 2.5 times as long as wide, antennal clava non-abrupt, 4-segmented, with A9 and A10 approximated but with slight constriction in between; notauli delicate and shallow, better indicated in anterior 2/3; posterior half of median lobe of mesoscutum (between notauli) smooth; scutellum finely coriaceous in anterior 2/3, smooth in posterior 1/3; metasoma as long as mesosoma and head combined; T2 with short striae and long median sulcus extending to basal half of the tergite.

Male. Differs from the female in structure of antennae with segments in relative proportions (length:width) 18:4, 5:3, 6:3.5, 5:4, 5:3, 6:3.5, 6:3.5, 6:3.5, 6.5:3.5, 10.5:3.5. A3-A10 with long whitish hairs, hairs almost as long as maximum width of segments. Metasomatic tergites in relative proportions (length:width) 5:18, 32:25, 4:22, 4:20, 4:17, 4:12, 3:6.

TYPE MATERIAL. Holotype: ♀ (CNC 16037), USA, Shawnee State Forest, Pine Hill (Union Co.), IL, May 2 1979, H. Goulet. Allotype: ♂, USA, Rocksprings, Apopka, Kelly Park, FL, March 8 1980, W. R. Mason (CNC). Paratype: ♀, with same data as in the allotype (CNC).

DISTRIBUTION. Illinois, Florida.

BIOLOGY. Unknown. Apparently a vernal species.

VARIABILITY. The female from Florida has antennal segments slightly more elongate, the A3 in particular.

REMARKS. *A. gouleti* belongs to the *evanescens*-group. It differs from the other two Nearctic members of this group as follows: from *A. depressa* by considerably convex body, deep long median sulcus on T2, T2 distinctly elongate and head less transverse; from *A. vockerothi* by characters mentioned in the key but also by general shape of antennae, shorter metasoma, etc. The male of *A. gouleti* differs from the male of *A. nearctica* apart from characters mentioned in the key, by considerably long whitish hairs on flagellomeres A3-A10. It is my pleasure to dedicate this new species to Dr. H. Goulet (Biosystematics Research Institute, Ottawa), who collected the first specimen in southern Illinois.

ACKNOWLEDGMENTS

The SEM scanning photographs were taken by Messrs. H. E. Bisdee and B. E. Bowen, the line drawings were done by Mrs. S. Rigby (all Biosystematics Research Institute, Ottawa). The staff of the Electron Microscope Center (Chemistry and Biology Research Institute, Ottawa) made the scanning technology available. Mr. J. Riordan (Nat. Museum, Dublin) kindly arranged the loan of Haliday's type of *Inostemma boter*. Dr. A. Smetana and Mr. A. Downes (Biosystematics Research Institute, Ottawa) kindly reviewed the manuscript.

REFERENCES

- Ashmead, W. H. 1887. Studies of the North American Proctotrupidae, with descriptions of new species from Florida. *Can. Ent.* **19**: 125-132.
——— 1893. A monograph of the North American Proctotrypidae. *Bull. U.S. natn. Mus.* **45**: 472 pp.
Foerster, A. 1856. Hymenopterologische Studien, 2:107. Aachen.
Fouts, R. M. 1925. New serphoid parasites from United States. *Proc. ent. Soc. Wash.* **27**: 93-103.

- Kieffer, J. J., in E. André. 1914. Species des Hyménoptères d'Europe et d'Algérie . . . Vol. 11: 370. Paris.
- Masner, L. 1964. A comparison of some Nearctic and Palearctic genera of Proctotrupeoidea (Hymenoptera) with revisional notes. *Acta Soc. ent. Cechosl.* **61**: 123-155.
- 1976. Revisionary notes and keys to world genera of Scelionidae (Hymenoptera: Proctotrupeoidea). *Mem. ent. Soc. Can.* 97. 87 pp.
- Masner, L. and C. F. W. Muesebeck. 1968. The types of Proctotrupeoidea (Hymenoptera) in the United States National Museum. *Bull. U.S. natn. Mus.* 270. 143 pp.
- Muesebeck, C. F. W., in K. V. Krombein *et al.* 1979. Catalog of Hymenoptera in America North of Mexico. Vol. 1, 1198 pp. Smithsonian Institution Press, Washington, D.C.
- Muesebeck, C. F. W. and L. Masner, in K. V. Krombein and B. D. Burks. 1967. Hymenoptera of America North of Mexico. Synoptic Catalog. *Agriculture Monogr.* 2 (Suppl. 2). U.S. Dep. Agric., Washington, D.C. 584 pp.
- Muesebeck, C. F. W. and L. M. Walkley, in Muesebeck *et al.* 1951. Hymenoptera of America North of Mexico. Synoptic Catalog. *Agriculture Monogr.* (Suppl. 2). U.S. Dep. Agric., Washington, D.C. 1420 pp.
- 1956. Type species of the genera and subgenera of parasitic wasps comprising the superfamily Proctotrupeoidea (Order Hymenoptera). *Proc. U.S. natn. Mus.* **105**: 319-419.

(Received 6 June 1980)