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A New Species of *Coleophora* Belonging to the *duplicis-bidens* Group

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Coleophora acuminatoides, new species

In a recent paper (1956, Amer. Mus. Novitates, no. 1777, p. 2) the present author mentioned that cases of a coleophorid species which evidently belonged to the *duplicis-bidens* group had been discovered in 1955 in the seed heads of *Aster acuminatus* at Point Pleasant Park, Halifax; unfortunately no adults emerged in the following year. In the late fall of 1956 a search for cases on this plant was again conducted. They appeared to be very scarce in the area searched, but eventually 25 or 30 were secured, and in August of 1957 a single male emerged. At this time an extensive search was made in various areas of the park where isolated stands of the aster grew, and by gently sweeping the plants a fair series of adults of both sexes was secured between August 20 and 29. Most of the specimens were in good condition, although the maculation of the primaries was not so well defined as in the bred specimen. A study of five slides of the male genitalia of the captured specimens showed that they agreed in structure with one another and also with the bred specimen. The female genitalia, based on a study of seven slides, also showed characteristics different from those of any of the described species in the group. The species is evidently undescribed, but there is little in the maculation of the primaries by which it can be separated definitely from other species in the group, and a

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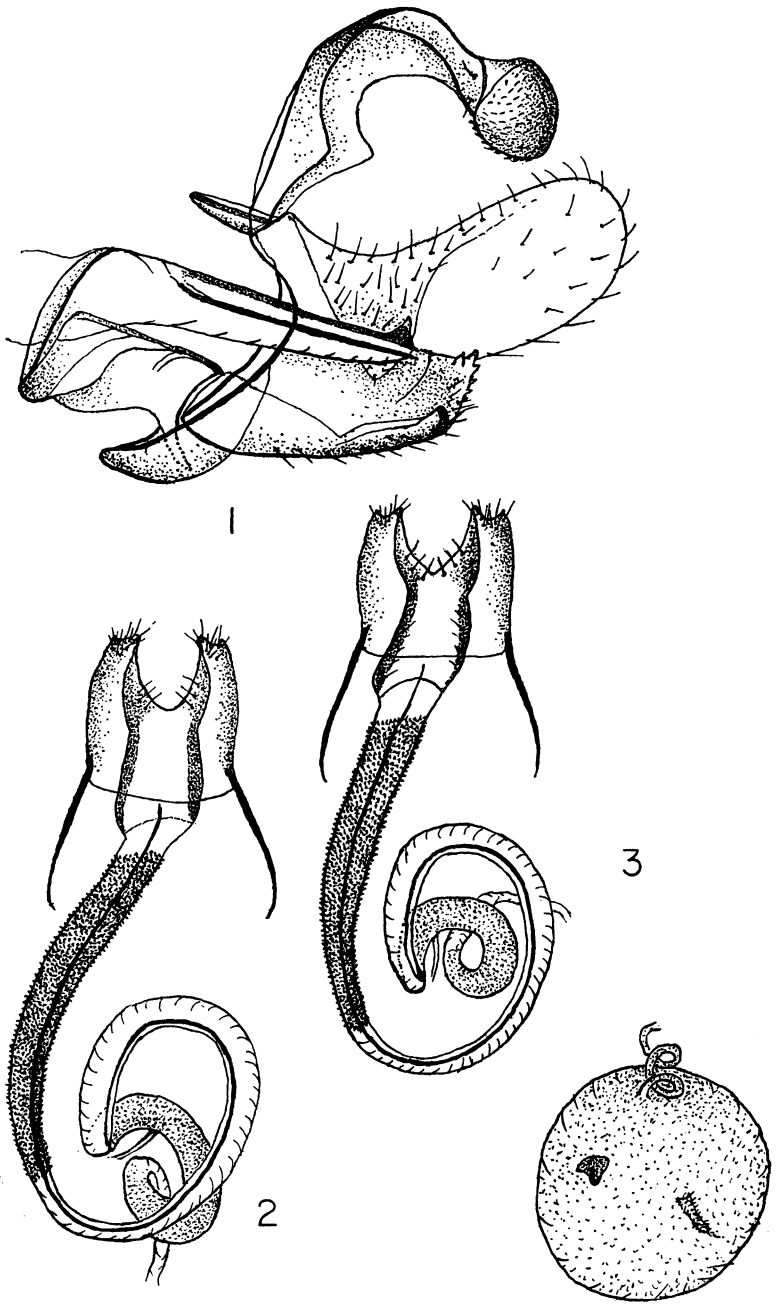
study of the genitalia is essential for correct identification of captured specimens. The male genitalia, in general appearance, are very similar to those of the other members of the group; the aedeagus shows the usual lateral chitinized rods, the distinguishing feature of the armature being the presence of a large, upright, sharply triangular tooth on the right rod, placed very slightly subapically. This character distinguishes the species from *duplicis, intermediella, puberuloides, nemorella,* and *ericoides* in which the apical tooth either occurs on the left rod or is entirely absent. However, several species, viz., *triplicis, dextrella, subapicis,* and *bidens,* show a very similar tooth on the right rod of the aedeagus. *Triplicis* is easily separated by the pale coloration of the primaries and the fact that it is invariably associated with *Solidago sempervirens.* The aster-feeding *dextrella* presents more difficulty, although the tooth is generally flat rather than erect and somewhat smaller. In *subapicis* and *bidens* the tooth, when present, is situated more subapically, and there are often additional teeth present.

As is often the case, the female genitalia offer better characters for separation from allied species, and for this reason a female specimen has been chosen as holotype. One of the chief specific characters is found in the shape of the ostium opening which is very broadly U-shaped and rather shallow as compared with the same sections in those species in which the male aedeagus possesses the right-side apical tooth. Further characters that separate the species from *dextrella* are found in the broader width of the initial chitinized section of the ductus bursae and the shorter spiculate section as a comparison of figures 1 to 3 with the figures in the above-mentioned article (p. 20, figs. 2, 3) will show. More complete descriptions of the genitalia of both sexes follow in the detailed specific diagnoses. The following description of the adult is based largely on the bred specimen, in which the finer characters of the forewing maculation are better preserved than in the captured specimens.

Palpi somewhat upturned, whitish inwardly, pale smoky outwardly, the second joint with a short ventroapical hair tuft (easily rubbed off in caught material); third joint about half of the length of the second, vestiture smooth, apex pointed. Antennae pale whitish, the basal joint clothed with short rough hair but with little apical tufting, the remainder smooth, faintly annulate with brown in the male, much more definitely annulate in the female. Head and thorax pale fawn. Primaries pale fawn, the costal area rather broadly whitish; the usual longitudinal striped effect, owing to the darker interspatial areas between the radial veins, only slightly evident (virtually absent in cap-



FIGS. 1–3. Genitalia of *Coleophora acuminatoides*. 1. Paratype, male. 2. Paratype, female. 3. Another paratype, variant, of same species, including bursa copulatrix.

tured specimens which show more or less of an even smoky fawn coloration); in the costo-apical area there are three short dark streaks (often lacking) and indication of very slight sprinkling of minute dark dots. Hind wings and fringes of both wings smoky. Expanse, 10 to 11 mm.

MALE GENITALIA: Virtually identical with those of *dextrella* but slightly larger in size. The ventral portion of the sacculus is bent in apically to form a large, blunt, tooth-like projection and then curves sharply into the caudal portion; this is nearly upright and furnished along its edge with a series of minute teeth, terminating at the junction with the dorsal edge in a much larger tooth; closely approximate and cephalad of same is a similar large tooth. The caudal edge projects very slightly over the clasper, which is broad and extends far beyond the sacculus, slightly farther than is the case in *dextrella*. The valvula is broadly triangular and furnished with well-scattered setae. The aedeagus shows the usual two lateral chitinized rods on its dorsal surface. The left rod is unarmed, but the right rod terminates in a large, upright, triangular tooth, very similar to that of *dextrella* but slightly larger and usually more upright. The vesica is armed with the customary thin, curved band of closely appressed cornuti. Gnathos oval, projecting caudad.

FEMALE GENITALIA: Similar in general style to those of other species of the group. The genital plate is somewhat variable in size; normally the width and height are practically equal, but in individuals the height is slightly greater than the width; the lateral edges are gently convex, terminating in short, pointed projections. The ostium opening, one of the most characteristic features of the species, is very broadly U-shaped and rather shallow, with the usual rounded projections on the caudal edges which slightly surpass the pointed caudolateral projections already mentioned. The initial, so-called "hourglass" portion of the ductus bursae is broad, much wider than in *dextrella*. The proximal section is short, with convex edges, and the invaginations separating it from the distal portion are less prominent than is usual in other members of the group. The distal portion is much the longer, projecting slightly over the cephalic edge of the genital plate; its edges are nearly straight and parallel, the right edge being only slightly convex; both edges, as usual, are strongly chitinized. This whole section may be either upright or bent somewhat to the left (*vide* illustrations). After a very short and narrowed membranous section, the usual spiculate section follows; this is of considerable length, about twice as long as the "hourglass." Following this, a membranous section makes a large convolution to enter the somewhat

broadened, faintly spiculate, and semiconvolute portion from which the ductus seminalis arises. As usual a thin, chitinous band runs through the entire length of the two previous sections. The remainder of the ductus bursae consists of a narrow, membranous, faintly granulate tube which, after a number of small convolutions, enters the bursa copulatrix. The bursa is globular, its membrane being faintly granulate. The signum is a short curved spine arising from a variable, large, chitinous plate. On the opposite side of the bursa a thin, chitinous, feebly dentate strip of rather variable length is present.

LARVAL CASE: Similar in general structure to the cases of other members of the group; approximate in size to that of *bidens* but differing in the paler coloration which in freshly formed cases is a light brown, with little of the striped appearance generally found in that of *bidens*.

HOLOTYPE: Female, Point Pleasant Park, Halifax, Nova Scotia, August 20, 1957 (J. McDunnough); in Canadian National Collection.

ALLOTYPE: Male, same locality, August 16, 1957; bred from *Aster acuminatus* (J. McDunnough); in author's collection.

PARATYPES: Six males, same locality, but August 19 (one), August 20 (two), August 24 (three). Ten females, same locality, but August 19 (one), August 20 (four), August 24 (four), August 29 (one). One pair is deposited in the Canadian National Collection and another pair in the American Museum of Natural History; the remainder are in the author's collection for the present.

REMARKS: In one section of the park where sweeping on *Aster acuminatus* was done, it was found on examination that specimens of *puberuloides* were included along with the present species, there being a certain amount of *Solidago puberula* growing in the vicinity. The females could be fairly readily distinguished by the fact that the antennae of *puberuloides* are not nearly so sharply annulate with brown, but in the case of the males it was necessary to make genitalic slides in every instance to secure correct identification.