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New Microlepidoptera, with Notes

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In the course of determination work on material in the Nova Scotia Museum of Science several undescribed species have been discovered. These are treated in the present paper, and a note on another species which has been partially misidentified is appended.

PHYCITINAE

Ortholepis jugosella Ragonot

Ortholepis jugosella Ragonot, 1887, Diagnoses of North American Phycitidae and Galleriidae, p. 6; 1893, Monographie des Phycitinae et des Galleriinae, vol. 1, p. 214, pl. 13, fig. 3. Hulst, 1890, Trans. Amer. Ent. Soc., vol. 17, p. 140. Heinrich, 1956, Bull. U. S. Natl. Mus., no. 204, p. 119, fig. 23 (venation), figs. 329, 808 (genitalia).

For some time there has existed considerable doubt in the author's mind as to whether the species occurring in eastern Canada and particularly in Nova Scotia has been correctly identified as *jugosella*. With a view to clarifying the matter correspondence was undertaken with P. Viette, curator of entomology in the National Museum at Paris where Ragonot's types are deposited. With his customary courtesy Mr. Viette has answered, giving full details of the two specimens labeled *Ortholepis jugosella* in Ragonot's handwriting. Contrary to his usual custom, Mr. Viette states, Ragonot had not affixed to either specimen his label "type origin" and in consequence, when reorganizing the Ragonot collection in 1953 and 1954, he "indicated as type (with a red label) the specimen figured and the specimen having an

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abdomen." This selected holotype is a female and, besides the specific label, bears other labels "on *Carya*, hickory, May 7" and "Walsm.," the latter an abbreviation for Lord Walsingham from whom Ragonot, as stated in his 1887 paper, obtained considerable material. The second specimen from the same source is a male, without abdomen, and with an additional label, "Wild Azalea"; the pupal shell and cocoon are attached to the pin. These statements are verified by a sentence in Ragonot's monograph of 1893, the locality of the specimens being given merely as "Amèrique sept. localité exacte inconnue."

In Heinrich's monograph (1956) no statement is given as to the origin of the specimens from which his genitalic figures were made, but the probability exists that they were based on material from East River, Connecticut. Concerning the larval food plants, after quoting Ragonot's records of hickory and wild azalea, he adds that "hickory and walnut are the more probable hosts." He was evidently dubious that two such widely divergent plants as hickory and wild azalea could be considered as food plants of a single species and presupposed some error in the record. He mentions only two localities where the species is known to occur, viz., East River, Connecticut, and White Point Beach, Nova Scotia. This latter locality was based on specimens in the Canadian National Collection which had actually been collected by myself on one of my earlier Maritime trips from Ottawa. They could not possibly be associated with hickory as this tree does not occur in Nova Scotia. All White Point Beach specimens, of which a good series has been collected in recent years, were taken around *Myrica gale* which has been established as the larval food plant through breeding experiments. A specimen submitted to Mr. Viette for comparison with Ragonot's type was found by him to be definitely different in the maculation of the forewing.

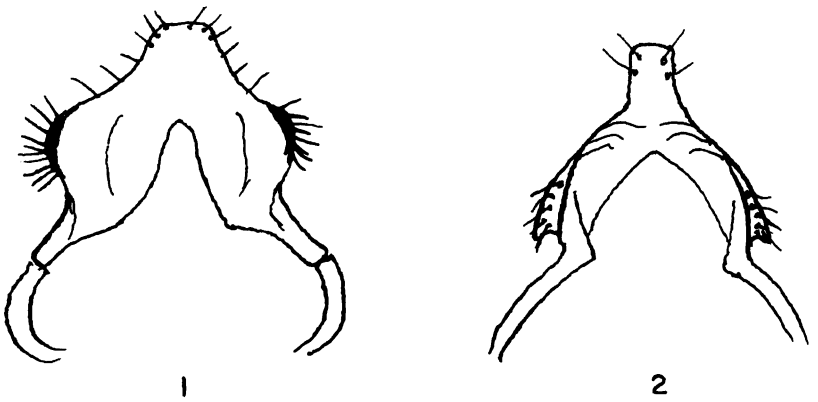
Regarding Ragonot's second specimen, bred from a larva feeding on wild azalea, the record is evidently correct, as there is a male specimen in our museum collection reared from a larva on *Rhodora*, a very close relative of azalea; a second male has been collected at light. These two specimens differ markedly from the *Myrica*-feeder and are considered to represent a second species. As no names are available for either of these two species, descriptions are hereby appended.

Ortholepis myricella, new species

Figures 1, 8

Ortholepis jugosella HEINRICH (*nec* Ragonot), 1956, Bull. U. S. Natl. Mus., no. 204, p. 119 (*partim*)

MALE: In the venation the fork of veins 4 and 5 on the hind wing is situated much closer to the outer margin than is shown in Heinrich's figure of *jugosella* (1956, *ibid.*, fig. 23); in certain instances the two veins appear to coalesce. The genitalia are very similar to those in Heinrich's figure (fig. 329), but the uncus is considerably broader and chunkier, the apex particularly being less produced (present paper, fig. 1). Palpi, head, and thorax very deep smoky, with a faint coppery



FIGS. 1, 2. Male uncus. 1. *Ortholepis myricella*, new species. 2. *O. rhodorella*, new species.

tinge; abdomen blackish, the male with a small tuft of ochreous hairs on the last segment. Primaries largely deep smoky, with a distinct coppery tinge, especially in the apical area; usual maculation much obscured. Two pale whitish areas are present; the one, a narrow, upright bar crossing the wing on the basal side of the rather improminent band of raised black scales, the other a somewhat obscure patch occupying the outer half of the median area but not extending to costa. Terminal margin slightly paler than rest of wing, with a faint black edging. Fringes pale smoky-ochreous cut by a dull black line through the median area. Secondaries smoky-ochreous, the marginal area narrowly darker. Expanse, 15 mm.

TYPE MATERIAL: Holotype, male, White Point Beach, Queens County, Nova Scotia, July 1, 1953 (J. McDunnough). Paratypes: Two males, same data, but July 8 and 9; two males, same data, but July 6 and 9, 1955; one male, same data, but July 18, 1956; one male, Peggy's Cove, Halifax County, Nova Scotia, July 5, 1952 (J. McDunnough, bred from *Myrica gale*); one male, same locality, July 8, 1951 (D. C.

Ferguson); one male, Crescent Beach, Lunenburg County, Nova Scotia, July 19, 1953 (D. C. Ferguson); one male, St. Paul's Island, Cabot Strait, Nova Scotia, July 23, 1955 (D. C. Ferguson); one male, Halifax watershed area, Nova Scotia, July 28, 1956 (D. C. Ferguson); two males, West Dover, Halifax County, Nova Scotia, July 16, 1957 (D. C. Ferguson).

The holotype is to be deposited in the Canadian National Collection, Ottawa. Paratypes are in the American Museum of Natural History, the Musée Nationale in Paris, France, and in the author's collection.

REMARKS: Besides the type specimens a series of six males was collected in 1954 by D. C. Ferguson at Witless Bay Line, Avalon Peninsula, Newfoundland, on July 24 and 26. As yet no females have been secured from any of the localities mentioned.

Ortholepis rhodorella, new species

Figures 2, 9

MALE: In the venation the fork of veins 4 and 5 on the hind wing agrees with Heinrich's figure of *jugosella* and differs in this respect from *myricella.* The genitalia are of the same general type as those of *myricella,* but the uncus (fig. 2) is more slender, the apical section narrower, more produced and truncate; the main difference from both *myricella* and *jugosella* consists in the well-developed, so-called lateral lobes of the uncus; in this respect they are related much more closely to *pasadamia* than to either of the other species. In maculation of the primaries the species, judging by the information kindly furnished by Mr. Viette, is closer to *jugosella* than to *myricella.*

Palpi deep smoky. Head and thorax largely light gray. Primaries with the ground color light gray, the maculation well defined in black. Basal area gray, at the extreme base with darker sprinkling; bordered outwardly by a vertical band of black scales, extending from inner margin to cell. Antemedian line represented by a black patch on costa, extending slightly obliquely and narrowed to lower edge of cell, then broken and represented merely by a black spot above inner margin. Median area with its inner half and the whole of the costal area to postmedian line gray; the outer half strongly shaded with blackish. Two superimposed black dots at end of cell. Postmedian line geminate, black, lightly sinuate, filled with gray ground color. Terminal area gray, with fine, black, marginal line. Fringes light smoky. Secondaries dull ochreous, shaded with smoky along outer margin; fringes pale, whitish, cut by a fine, dark line close to base. Expanse, 17 mm.

TYPE MATERIAL: Holotype, male, Armdale, Nova Scotia, July 3, 1950 (D. C. Ferguson, bred on *Rhodora*). Paratype, male, Lake Kejimakujik, Queens County, Nova Scotia, July 2, 1957 (D. C. Ferguson). The holotype is to be deposited in the Canadian National Collection at Ottawa. The paratype is in the author's collection.

Pyla gaspéensis, new species

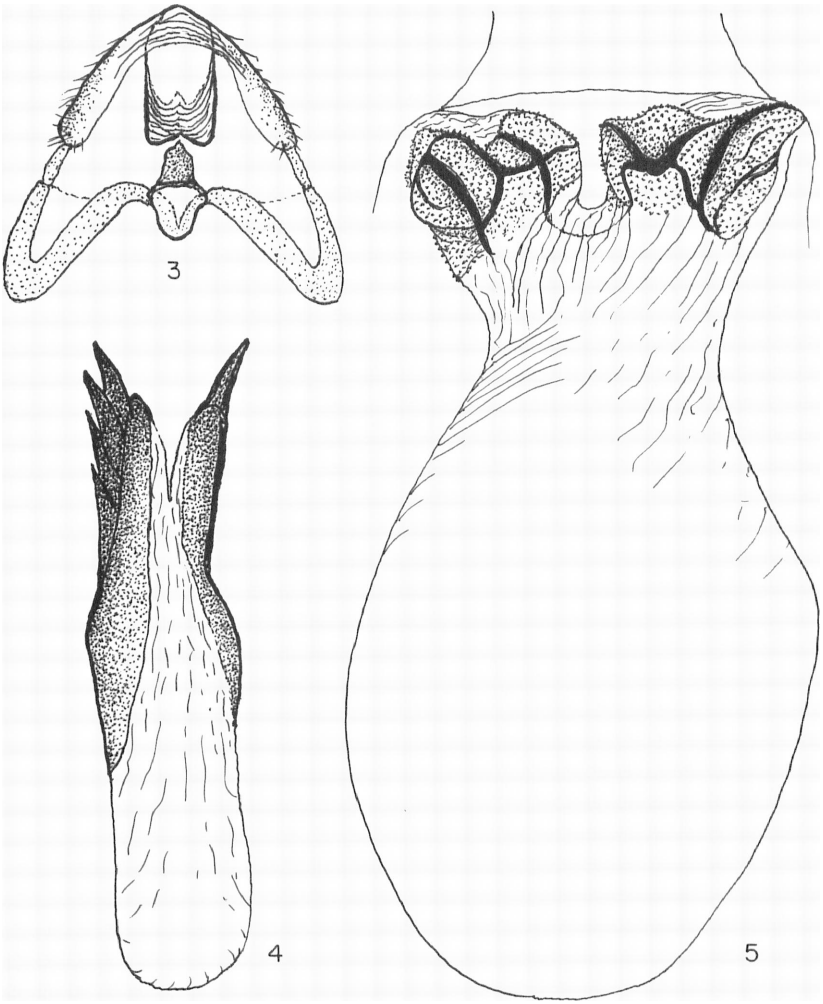
Figures 3–5, 10

This species belongs in Heinrich's first group of the genus *Pyla* which consists of fairly large moths of very similar maculation, the species being best separated on genitalic characters.

Palpi, head, and thorax deep smoky gray, the thorax with small patches of dull white scaling on the posterior margins of both the mesothoracic and metathoracic segments. Primaries dark smoky gray, owing to a heavy sprinkling of black scales over a pale whitish ground color. Antemedian line white, moderately broad, slightly outwardly oblique and irregular in outline, the outer margin showing an outward projection below the cubitus and an inward one on the anal vein. A rectangular black patch on the costa borders the outer margin of the antemedian line, and a rather fainter black patch on the inner side rests on the inner margin. In the median space two black, more or less confluent, discal spots occur. Postmedian line white, slightly sinuate, bordered on both sides by black lines, heavier on the outer side than on the inner one. A rather broad black terminal line, slightly broken by the ends of the veins (more noticeably so in the female than in the male). Fringes smoky, cut by a faint, darker, subbasal line. Secondaries pale smoky-ochreous, with a faint dark terminal line and fringes as on primaries. Expanse, 24 mm.

MALE GENITALIA: Very similar in structure of the clasper and anellus to Heinrich's figure of *aequivoca* (1956, fig. 366) in his monograph. The uncus is shorter and much chunkier (present paper, fig. 3). The most striking difference is in the aedeagus (fig. 4) which is bifid apically. The two lobes are heavily sclerotized, the right lobe terminating in a strong spine, the left lobe with two large spines, situated apically and subapically, followed proximad by two smaller spines.

FEMALE GENITALIA: Quite different from Heinrich's figure (fig. 855) of the organ in *aequivoca* and more closely related to that of *aenigmatica* (fig. 853) both in the shape of the ovipositor lobes and in the presence of sclerotized areas bordering the narrow ostium. These areas, in the present species (fig. 5), are much more strongly and irregularly convolute than is suggested by Heinrich's figure and are finely spicu-



FIGS. 3–5. Genitalia of *Pyla gaspéensis*, new species. 3. Male uncus and gnathos. 4. Male aedeagus. 5. Female organ.

late. Unlike the organ of *aenigmatica* the sclerotization does not descend down the short, broad ductus bursae which is membranous and appears slightly wrinkled. The origin of the ductus seminalis could not be determined definitely, as the area was rather obscured by a large spermatophore in the finely membranous bursa.

TYPE MATERIAL: Holotype, male, Mile 49, Cascapedia Road, Gaspé,

Quebec, July 15, 1950 (D. C. Ferguson). Allotype, female, Cascapedia Road, near Mt. Albert, Gaspé, Quebec, July 13, 1950 (D. C. Ferguson).

The holotype will be deposited in the Canadian National Collection; the allotype remains in the author's collection for the present.

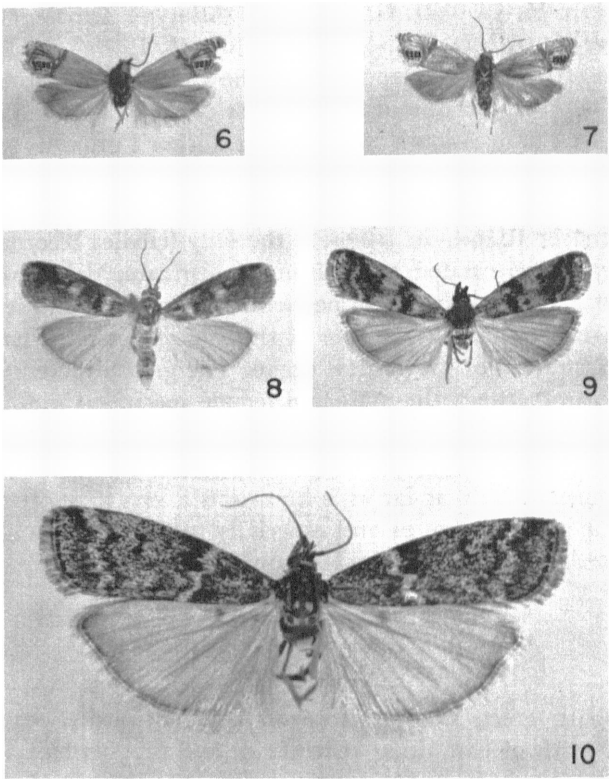
REMARKS: There is some doubt in the author's mind as to whether the female considered by Heinrich to be *aenigmatica* is correctly associated with the male. The holotype male was collected at Wellington, Vancouver Island, on June 21; the only females recorded among the paratypes were stated to be from Goldstream, Vancouver Island, August 30, and East River, Connecticut, September 3, and it stands to reason that a specimen from one of these localities must have served for the illustration of the genital organ. The great difference in times of appearance between the male and female specimens would indicate a much longer flight period than normal. It could be satisfactorily explained only on the assumption that there were two generations in a single summer, which, as far as is known, is a very rare occurrence in most of the phycitid groups and especially in a group that appears to be more or less confined to the Hudsonian Zone.

EUCOSMINAE

Thiodia scotiana, new species

Figures 6, 7

Palpi short, erect, smoky outwardly, pale inwardly; second joint with strong tuft of hair along ventral side and roughly hairy on dorsal side; third joint short, stubby, resting on the ventral tuft of the second joint. Antennae in both sexes dark, each segment well defined and clothed with flat scales. Forelegs smoky; mid and hind legs ochreous. Head, thorax, and primaries yellowish brown of a varying degree of intensity, paler specimens appearing light ochreous in these sections. On the primaries at about two-thirds an orange-brown line extends obliquely from costa to inner margin just before the angle of the wing; arising outwardly from same is a curving line of similar color which forms the dorsal edge of the ocellus; both lines are thinly edged on both sides with silver. The ocellus contains two rows of four black spots, partially separated by faint silvery dashes; traces of a third row of two black spots occur in the holotype but are obsolescent in some of the paratypes; on the costal side of these rows of spots the veins are usually outlined with horizontal brownish streaks. From the apical section of the costa several irregular brown and silvery streaks descend towards the ocellus. Fringes pale smoky. Secondaries light smoky, with paler colored fringes. Expanse, 13 mm.

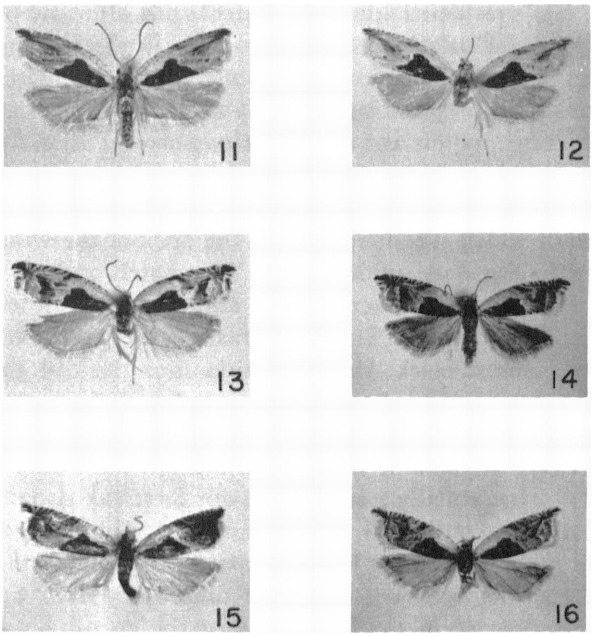


FIGS. 6, 7. *Thiodia scotiana*, new species. 6. Holotype. 7. Allotype.
FIG. 8. *Ortholepis myricella*, new species, holotype.
FIG. 9. *Ortholepis rhodorella*, new species, holotype.
FIG. 10. *Pyla gaspéensis*, new species, holotype. All figures ×2.

MALE GENITALIA: Very similar to those of *annetteana* Kearfott as figured by Heinrich (1923, Bull. U. S. Natl. Mus., no. 123, pl. 14, fig. 90), the inward bend of the ventral margin of the clasper being possibly slightly less pronounced.

TYPE MATERIAL: Holotype, male, St. Paul Island, Cabot Strait, Nova Scotia, July 23, 1955 (D. C. Ferguson). Allotype, female, Peggy's Cove, Halifax County, Nova Scotia, August 31, 1957 (D. C. Ferguson). Paratypes: Three males, same data as holotype; two males, same data, but July 20 and 21; one male, Peggy's Cove, Halifax County, Nova Scotia, August 31.

The holotype and allotype are to be deposited in the Canadian Na-



FIGS. 11, 12. *Anchylopera subaequana fergusoni*, new subspecies. 11. Holotype. 12. Allotype.

FIGS. 13, 14. *Anchylopera subaequana subaequana* Zeller. 13. Male. 14. Female.

FIGS. 15, 16. *Anchylopera galeamatana* McDunnough. 15. Male. 16. Female. All figures ×2.

tional Collection. Paratypes are in the American Museum of Natural History and the author's collection.

REMARKS: The species is undoubtedly closely related to *annetteana* Kearfott. It is evidently a denizen of the Hudsonian Zone, and it is very unlikely that its range extends southward to Cincinnati, Ohio, the type locality for *annetteana*. From this species it is most readily distinguished by the presence of the oblique orange-brown line crossing the forewing in its outer third; such a line is not mentioned in Kearfott's original description.

Anchylopera subaequana fergusoni, new subspecies

Figures 11, 12

This is a quite striking form which could readily be considered as a good species, but, because of the general similarity of the genitalia in

both sexes, it is considered advisable to deal with it for the present as a subspecies. To the naked eye the most striking distinction from the typical form is found in the outer half of the forewing which appears almost entirely whitish, lacking virtually all traces of the dark median bar and its continuation as an upright patch extending to the inner margin. Under a lens this median bar is faintly visible as a short bar of a pale olivaceous color; beyond, the cell is a more or less oval patch of the same color which is connected with the apex of the wing by a fine line ending in the dark apical patch. This patch and also the dark costal streaks are much reduced in size and at times obsolescent. The basal patch is very striking in its contrast to the pale areas, being a deep brown, almost black; the projection into the cell towards the end of the costal margin is large and rounded, and the outer margin is distinctly outwardly oblique, more so than in the type form. Subcostally towards the base of the wing two small dark dots frequently occur, and there is usually a small dark dot or streak situated just below the oval olivaceous patch above mentioned. The fringes, except at the extreme apex, are entirely white. Expanse, 13–14 mm.

The male genitalia show some slight differences from those of the typical form, notable in the larger size of the cucullus and a more prominent transtilla. The terminal hook on the aedeagus appears also slightly larger. In the female genitalia the ductus bursae is somewhat broader and not quite so heavily sclerotized. It is doubtful if such characters have more than subspecific value.

TYPE MATERIAL: Holotype, male, Wrangle Brook Road, Lakehurst, New Jersey, May 28, 1956 (D. C. Ferguson). Allotype, female, same locality and collector, June 4, 1956. Paratypes: Four males, same data as holotype; one male, same data as allotype.

The holotype and allotype are to be deposited in the American Museum of Natural History. Paratypes are in the Canadian National Collection and that of the author.

REMARKS: According to information furnished by the collector, the specimens were collected at light in an area where bayberry was growing very plentifully. As this plant was suggested by the author in an earlier article (1956, Amer. Mus. Novitates, no. 1789, p. 10) as the food plant of the typical form, the present occurrence would seem to bear out this suggestion. In the same paper it was stated (p. 11) that *Myrica gale* would probably be found to be the food plant of the species *A. galeamatana* McDunnough. This has been confirmed by the discovery in September, 1956, of several typical *Anchylopera* larvae living in

tents formed by the joining together of the edges of *Myrica* leaves. Unfortunately the few larvae collected did not survive the winter.

For the sake of comparison, figures of the adults of *subaequana subaequana* and *galeamatana* are given as well as those of the holotype and allotype of the present subspecies.