GENERAL NOTES

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TWO PALEARCTIC SPECIES OF *DICHRORAMPHA* DISCOVERED IN MAINE (TORTRICIDAE)

Additional key words: *D. petiverella, D. gueneeana,* Olethreutinae, introduced species, Asteraceae.

In 1987 I began to inventory the moths of Steuben, Washington Co., Maine, a northeastern coastal community.

Among material in the genus *Dichrorampha* Guenée (Tortricidae: Olethreutinae) assembled in this context I identified two Old World species—*petiverella* (L.) and *gueneeana* Obraztsov—hitherto not reported from North America.

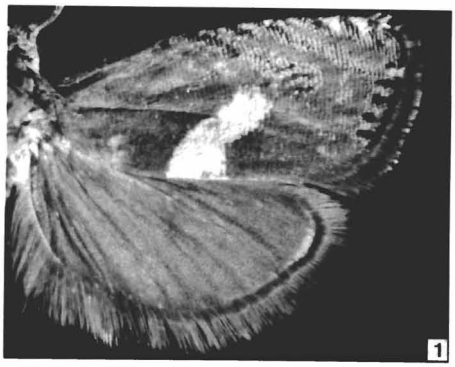
Both species were collected from the same small and isolated estuarine saltmarsh. A single male of *Dichrorampha gueneeana* was taken on 13 July 1988 at 1500 h EST, without further details regarding its capture. *Dichrorampha petiverella* was collected in short series (16 specimens in all) on 24 and 27 July 1989, on a narrow rock outcrop at the water's edge. Subsequent investigation of this site revealed a variety of *Achillea millefolium* L. (Asteraceae), a primary foodplant for both species in Europe (Bradley, J. D., W. G. Tremewan & A. Smith, 1979, British tortricoid moths. Tortricidae: Olethreutinae, The Ray Society, London, 336 pp., 21 pls.), growing sparsely among the grasses and sedges. On the 24th, a warm, still day, the moths flew sporadically from at least 1400 h on; on the equally fair, but brisk, afternoon of 27 July, only occasional specimens were flushed before 1700 h, when, as if on cue, an extended spontaneous flight began.

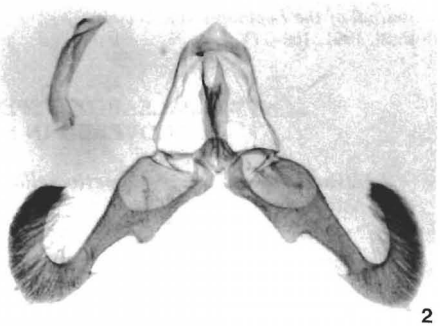
A pair of *D. petiverella* has been deposited in the collection of the American Museum of Natural History (New York); the balance of the material (14 *D. petiverella* and 1 *D. gueneeana*) remains in the author's collection.

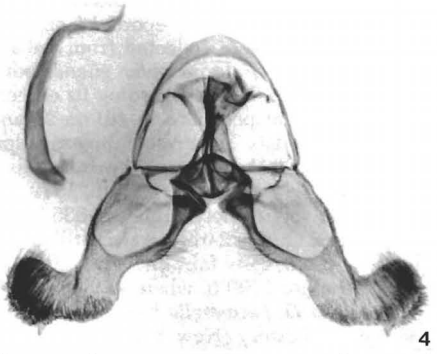
The appearance of two Old World species in so isolated a location seems to call for some attempt at explanation. The collecting site, a narrow, half-hectare stretch of marshland bordering the mouth of Whitten Stream and the extreme head of Joy Cove, an inlet of Gouldsboro Bay, on their north side, is both too confined and too remote from natural ports of entry to provide a plausible beachhead for these species. On the other hand, neither moth to date has been encountered further inland in the area, despite intensive collecting and although their foodplant is widespread and abundant.

In light of these facts, perhaps the readiest explanation is that the moths were originally introduced to Mount Desert Island, 23 km to the southwest, where a strong tradition of ornamental gardening has seen the importation of much exotic horticultural material over the course of the present century (R. G. Dearborn pers. comm.). Thus larvae of *Dichrorampha,* which overwinter in plant roots (Bradley et al. *op. cit.*), might easily have entered the area with some of the showier cultivars of *Achillea*. On this assumption, it must be supposed that both *D. petiverella* and *D. gueneeana* are locally established on Mount Desert Island and the populations reported here are the result of dispersal by wind. To date there has been no opportunity to attempt to verify the existence of such primary colonies.

The actual period of introduction can only be a matter of speculation. Had the species been established in the initial phase of estate gardening in the Bar Harbor region, roughly from 1890 to 1930 (P. Chassé, Jr. pers. comm.), it might be expected that they would have been discovered in the course of the Procter survey (Procter, W., 1938, Biological Survey of the Mount Desert region. Pt. VI. The insect fauna, Wistar Inst. of Anat. & Biol., Philadelphia, 496 pp.; 1946, Biological Survey of the Mount Desert region. Pt. VII. The insect fauna, being a revision of Pts. I and VI with the addition of 1100 species, Wistar Inst. of Anat. & Biol., Philadelphia, 566 pp.), more particularly because in the immediate aftermath of this period, from 1931 to 1938, Dr. A. E. Brower maintained







FIGS. 1, 2. *Dichrorampha petiverella*. Steuben, Washington Co., Maine. 27 July 1989. M. Roberts *leg.* **1,** wings (FWL = 6 mm); **2,** male genitalia, ventral view (Slide No. G345M, MAR, 27 Oct 89).

FIGS. 3, 4. *Dichrorampha gueneeana*. Steuben, Washington Co., Maine. 13 July 1988. M. Roberts *leg.* **3,** wings (FWL = 5.75 mm); **4,** male genitalia, ventral view (Slide No. G381M, MAR, 13 Nov 89).

the Maine Forest Service's Insect Field Laboratory in Bar Harbor and contributed the results of his extensive collecting to Procter's work.

The possibility of an introduction between the mid-1930's and the late 1970's is more problematic. During these years estate gardening fell into desuetude as a result of the Depression, the Second World War, and the severe droughts and fires of the 1940's, though it was never of course wholly extinguished (P. Chassé, Jr. pers. comm.). Had *D. petiverella* and *D. gueneeana* established themselves in this period, however, they should by now have successfully colonized more of the surrounding inland coastline than appears to be the case. On balance, therefore, it seems most likely that the moths have been introduced only in the past decade, when, coincidentally, ornamental gardening on Mount Desert Island has seen its most active revival since the 1920's (P. Chassé, Jr. pers. comm.).

Nonetheless, the possibility cannot be entirely discounted that both species arrived along the Eastern seaboard much earlier, either incidentally with ship ballast before the turn of the century or directly with *A. millefolium* or the closely-related alternative host, *Tanacetum vulgare* L. (Asteraceae) (Bradley et al. *op. cit.*), both of which were familiar medicinals in Colonial times and staples of Early American gardens (Leighton, A., 1976, American gardens in the Eighteenth Century, Houghton Mifflin Co., Boston, 514 pp.). In this event, it must be assumed that the moths have been overlooked in collections

through confusion with the superficially similar indigenous species *D. simulana* (Clem.) and *D. bittana* (Bsk.), from which, however, they are genitalically clearly distinct.

Fortunately this is a possibility that can be readily checked by those with material in their care, and the accompanying illustrations of wings and male genitalia of *D. petiverella* (Figs. 1–2) and *D. gueneeana* (Figs. 3–4) should facilitate their discrimination from native populations of *Dichrorampha*. For comparison, wings and line drawings of genitalic features of *D. simulana* and *D. bittana* are provided by W. E. Miller (1987, Guide to the olethreutine moths of midland North America (Tortricidae), U.S.D.A. For. Serv., Agric. Handbook 660, 104 pp.) and complete figures of male and female genitalia by C. Heinrich (1926, Revision of the North American moths of the subfamilies Laspeyresiinae and Olethreutinae, U.S. Natl. Mus. Bull. 132, 216 pp., 76 pls.). Additional illustrations of *D. petiverella* and *D. gueneeana*, including female genitalia, can be found in G. Bentinck and A. Diakonoff (1968, De Nederlandse bladrollers (Tortricidae), Mon. Ned. Entomol. Ver. No. 3, Amsterdam, 200 pp., 99 pls.). Bradley et al. (*op. cit.*) provide color figures of both moths. Systematics of the Palearctic species of *Dichrorampha* have been treated by N. Obraztsov (1953, Mitt. Münchner Entomol. Ges. 43:10–101; 1958, Tijdschr. v. Entomol. 101:229–261).

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Note added in proof. Both *Dichrorampha* species recently have been discovered at a new locality: Steuben, at Chair Pond Point, on the eastern shore of the Petit Manan National Wildlife Refuge. Thirty-one specimens of *D. gueneeana* and 14 specimens of *D. petiverella* were collected at the new locality on 26 and 28 July 1991, and many more were observed on the latter date after 1600 h EST, when the moths flew freely on a narrow gravel beach overgrown with *Lathyrus japonicus* Willd. (Fabaceae), and *Achillea millefolium*. This site lies on a wooded and largely rock-bound peninsula 11 km SE of the original study area; its remote situation is consistent with the hypothesis of an introduction over water from a presumptive primary colony in the Bar Harbor region, ca. 25 km to the west. A pair of *Dichrorampha gueneeana* from this latest series has been deposited in the American Museum of Natural History (New York). I am grateful to T. A. Goettel of the U.S. Fish and Wildlife Service for permission to sample moths in the refuge.