

# American Museum Novitates

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PUBLISHED BY THE AMERICAN MUSEUM OF NATURAL HISTORY  
CENTRAL PARK WEST AT 79TH STREET, NEW YORK 24, N.Y.

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NUMBER 2213

MARCH 17, 1965

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## On *Paedisca radicana* and the Type Species of the Genus *Griselda* (Lepidoptera, Tortricidae, Olethreutinae)

BY NICHOLAS S. OBRAZTSOV<sup>1</sup>

The genus *Griselda* was established by C. Heinrich (1923) for three species of the Nearctic fauna. He designated *Paedisca radicana* Walsingham as the type species of this genus, although this species was known to him only from the original description and the figure published by Walsingham (1879). Heinrich wrote: "This species does not seem to have been known to our Lepidopterists, for the specimens I have seen were either unnamed or wrongly determined. In the Kearfott collection I found one from Victoria, British Columbia, under the name *scalana* Walsingham and three among the duplicates, labeled as reared from spruce. We have also in the National Collection several collected specimens received from E. H. Blackmore (Victoria, British Columbia) and one specimen from Seaview, Washington, reared from larva feeding on leaves of spruce (Quaintance no. 15564; H. K. Plank, collector; moth issued 'VII-3-1918'). All these answer in detail to Walsingham's description and figure." Heinrich also placed in the same genus *Griselda pennsylvaniana* (Kearfott) (= *Proteoteras albicapitana pennsylvaniana* Kearfott), and *G. gerulae* Heinrich (established at the same time as the genus *Griselda*). Both of these species were recently transferred to the genus *Chimoptesis* Powell (Powell, 1964).

In 1960, the present author examined several type specimens of the Nearctic Tortricidae in the British Museum (Natural History). To his

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<sup>1</sup> Research Fellow, Department of Entomology, the American Museum of Natural History.

surprise he ascertained that the type series of *Paedisca radicana* Walsingham proved not to be the species treated by Heinrich as *Griselda radicana*. These two species are not even congeneric. Nominal *Paedisca radicana* belongs to the genus *Epiblema* Hübner and is identical with *Epiblema serangias* (Meyrick). This species differs from *Griselda radicana* both in wing markings and in structure. Heinrich overlooked some of the details of both the original description and the figure of *Paedisca radicana*, which caused the misidentification of his *Griselda* species.

*Griselda* Heinrich must, therefore, be treated as a genus, with the type species misidentified, and the species generally known as *Griselda radicana* appears not to have a valid name. Cases such as this must be referred to the International Commission on Zoological Nomenclature and be ruled upon in compliance with Article 70 of the new International Code (Stoll and others, 1961). The Commission may either consider the generic name *Griselda* as a subjective synonym of *Epiblema* Hübner (1825), which it actually is because of the original designation of *Paedisca radicana* Walsingham as its type species, or make use of the plenary powers and conserve the generic name *Griselda* Heinrich (1923) and the binominal combination *Griselda radicana* Heinrich (1923) for further use.

In the interest of the stability of nomenclature, the present author submitted to the Commission a proposal (Obraztsov, 1964), in which he expressly asked for conservation of the above generic name and the binominal combination, both of which have been in general use for 40 years. His reason for the proposal was that, although Heinrich did not intend to describe his *Griselda radicana* as a new species and gave no detailed diagnosis of it, Heinrich was, *de facto*, the actual creator of this conception, and he consciously established the genus *Griselda* as distinct from the genus *Epiblema* Hübner. Heinrich unmistakably characterized the genus *Griselda* in a diagnosis and clearly defined *Griselda radicana* (the actual type species of this genus) in keys and two published figures of the male genitalia. Thus he clearly showed that his *Griselda radicana* was completely distinct from *Paedisca radicana* Walsingham, mentioned and figured by Heinrich (1923) as *Epiblema serangias* (Meyrick). These, therefore, are the reasons for treating Heinrich's species as *Griselda radicana* Heinrich, 1923, and for distinguishing it, thus, from *Paedisca radicana* Walsingham, 1879. The latter, according to my examination of its type series, must be named *Epiblema radicana* (Walsingham), new combination.

*Epiblema radicana* (Walsingham) is the prior name for *Eucosma vomonana* Kearfott, 1907, groundlessly renamed *Eucosma serangias* by Meyrick (1912) and changed by Heinrich (1923) to *Epiblema serangias* (Meyrick). There is, however, a danger that the restoration of the name *radicana* for the

species in question may not find general recognition because, according to Article 23, Section (b), of the International Code (Stoll and others, 1961), "a name that has remained unused as a senior synonym in the primary zoological literature for more than fifty years is to be considered a forgotten name (*nomen oblitum*).” For this reason, the present author included in his recent proposal to the International Commission (Obraztsov, 1964) some considerations against treating *Paedisca radicana* Walsingham as a forgotten name. The original description of this species and its colored figure permit its recognition. Its type series is in satisfactory condition and is deposited in the British Museum (Natural History). Also, as a gesture of respect to its author, one of the most active pioneers in the study of the Nearctic Microlepidoptera, the preservation of the name *Paedisca radicana* Walsingham through its placement on the Official List of Specific Names in Zoology would be very desirable.

The purpose of the present paper is to recount the facts as I have established them concerning *Paedisca radicana* and *Griselda radicana*. The final nomenclature of these systematic units depends on the decision of the International Commission, still pending.

The author acknowledges with thanks the kind cooperation of Mr. J. D. Bradley of the British Museum (Natural History), Dr. J. F. Gates Clarke of the United States National Museum of the Smithsonian Institution, Dr. F. H. Rindge and Dr. A. B. Klots of the American Museum of Natural History, and Miss M. R. MacKay of the Entomology Research Institute in Ottawa, all of whom placed at the author's disposal material from the collections in their charge.

The work for the present paper was done under the auspices of the National Science Foundation (Grant G-20872).

### *Epiblema radicana* (Walsingham), new combination

#### Figures 1-10

*Paedisca radicana* WALSINGHAM, 1879, p. 53, pl. 72, fig. 5. FERNALD, 1882, p. 39, no. 264. GROTE, 1882, p. 60, no. 266. OBRAZTSOV, 1964, pp. 144, 145.

*Eucosma radicana*: FERNALD, "1902" [1903], p. 457, no. 5113. BARNES AND McDUNNOUGH, 1917, p. 170, no. 6948.

*Eucosma vomonana* KEARFOTT, 1907, p. 90. BARNES AND McDUNNOUGH, 1917, p. 171, no. 6997. KLOTS, 1942, p. 411. OBRAZTSOV, 1964, pp. 144, 145. New synonym.

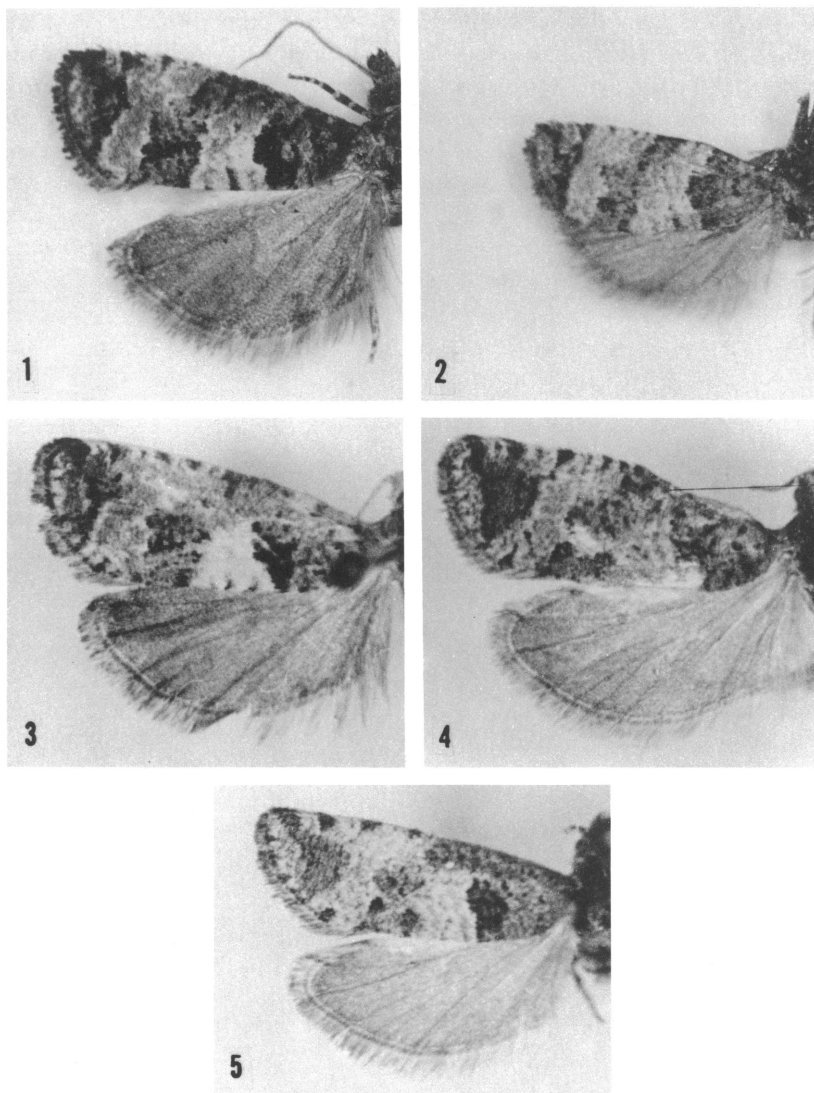
*Eucosma serangias* MEYRICK, 1912, p. 35. KLOTS, 1942, p. 410. CLARKE, 1955, p. 285. OBRAZTSOV, 1964, p. 144. New synonym.

*Epiblema serangias*: HEINRICH, 1923, p. 139, pl. 40, fig. 256. McDUNNOUGH, 1939, p. 48, no. 7013.

*Griselda radicana* (in part): HEINRICH, 1923, p. 186. POWELL, 1964, p. 86.

The species described by Walsingham (1879) as *Paedisca radicana* has remained virtually unknown to later authors. All quotations of this species in the literature referred merely to its original description, and no new records were established. The present author re-examined the type series of *Paedisca radicana* Walsingham in the British Museum (Natural History), and found this species to be synonymous with that known from Heinrich's (1923) revision as *Epiblema serangias* (Meyrick). The latter name was proposed by Meyrick (1912) for replacement of that of the species established by Kearfott (1907) as *Eucosma vomonana*.<sup>1</sup> The original description of *Paedisca radicana* and the figure published by Walsingham, although not quite accurate in some details, are satisfactory when compared with the type series of this species. A detailed comparison of the type specimens of *radicana* with the available specimens of *vomonana* leaves no doubt as to the identity of these two species. If the middle fascia and the white emargination of the remaining dark markings of the forewing seem to be somewhat more developed in the specimens of *radicana*, these characters are also quite distinguishable in the lectotype and other specimens of *vomonana*, although in the latter they are not always clearly recognizable either because of the poor condition of most of the moths or because of variation in the species. The oblique subterminal fascia of the forewing is rather narrow in the type series of *radicana* and the lectotype of *vomonana*, and more or less dilated in the remaining specimens. The color of the forewing markings varies from chestnut brown to grayish brown. The white interspaces of these markings are more or less white, showing rather distinct, yellowish or grayish shadows or an interrupted, transverse striation, or both. In a male specimen from Bear Creek, Colorado, the entire forewing is evenly whitish gray powdered. This

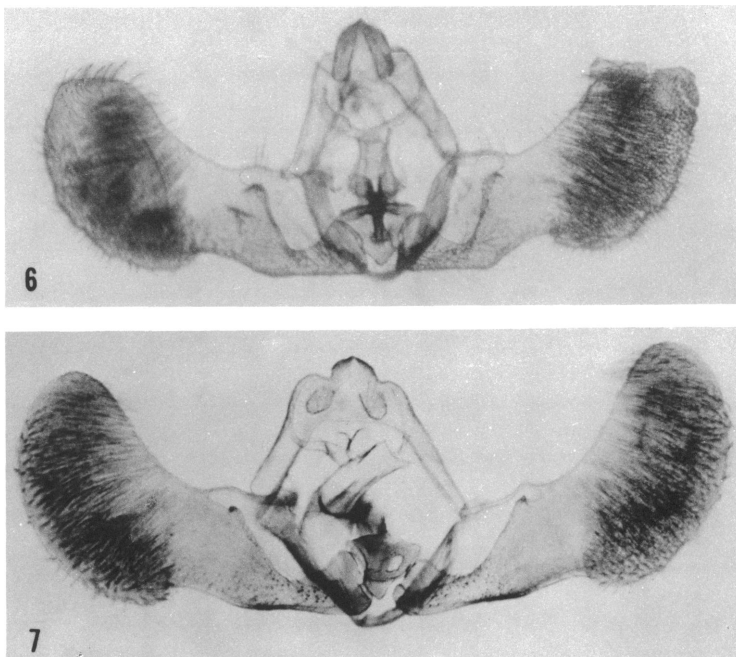
<sup>1</sup> The substitute name *serangias* was one of many proposed by Meyrick (1912) in a routine change of all "nonsense" names introduced by Kearfott (1907). Heinrich (1923) was right in not accepting these substitute names, but he made an exception for *serangias*. He believed that the name *Eucosma vomonana* Kearfott was preoccupied by *Eucosma womonana* Kearfott, "the synonymous letters *v* and *w* being the only difference between the two." The new International Code (Stoll and others, 1961, Article 57, Section d) explains that "the difference of a single letter is sufficient to prevent homonymy" in the species group names, with the exception of some letters mentioned in Article 58. The letters *v* and *w* are not among these equivalent letters. Article 11, Section b, recognizes the availability of the names representing arbitrary combinations of letters and constructed in a manner permitting their treatment as Latin words. The "nonsense" names of Kearfott belong to this category of specific names. Therefore there is no reason for treating the specific names *Eucosma vomonana* and *Eucosma womonana* as primary homonyms, and the name *serangias* Meyrick must therefore be rejected as an unnecessary junior synonym of *vomonana* Kearfott. These considerations might be of importance for the nomenclature of the species in question, should *Paedisca radicana* Walsingham be treated as a *nomen oblitum*.



FIGS. 1-5. *Epiblema radicana* (Walsingham). 1. Lectotype of *radicana*, male. 2. Lectallotype of *radicana*, female. 3. Lectotype of *vomonana* Kearfott, male. 4. Male, Chimney Gulch, Colorado. 5. Male, Bear Creek, Colorado. 1-4. Left wings. 5. Right wings (image reversed).

specimen has the forewings distinctly narrower than do the remaining examined specimens, and the termen of the forewing is much more

oblique. The genitalia of this specimen do not differ from those of the remaining specimens. The venation of the hind wing varies slightly from specimen to specimen, and veins  $M_3$  and  $Cu_1$  are either closely approximated at base or connate, or even stalked. The pectination of the antennae of all the males that were examined is longer than that in any other known species of *Epiblema* of North America.



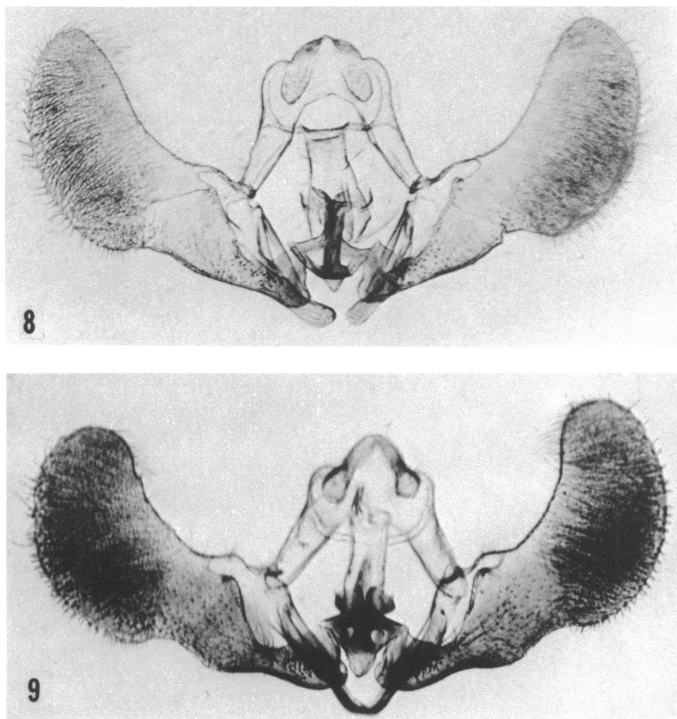
FIGS. 6, 7. Male genitalia of *Epiblema radicana* (Walsingham). 6. Lectotype of *radicana*. 7. Lectoparatype of *vomonana* Kearfott (slide No. 700-Obr.).

**MALE GENITALIA:** Typical of an *Epiblema* species; shaped as figured. As a rule, the sacculus is a little convexly bent midway between its base and the cucullus, but on the slides this convexity disappears or changes into an obtuse angle. Owing to the pressure of the cover glass, the cucullus may be slightly curved and its ventral angle less distinct. In the lectotype of *radicana* the abdomen was found to be flattened and the genitalia badly squashed and damaged on the tips of the cuculli.

**FEMALE GENITALIA:** Sterigma slightly dilated laterocaudally, with caudal edge scalloped and cephalic edge rounded; some lateral setae on surrounding membrane. Antrum long, straight, tubular; corpus

bursae slightly elongate, almost round; signa shaped as two small, scalloped plates. Ventral plate dilated caudally, crossing entire seventh abdominal sternite.

TYPES: Of *radicana*: Lectotype, male (genitalia on slide, No. 5735), "to Rogue River," Jackson County, Oregon, May 4-6, 1872 (Walsingham No. 91909)<sup>1</sup>; lectallotype, female (genitalia on slide, No. 5736), same



FIGS. 8, 9. Male genitalia of *Epiblema radicana* (Walsingham). 8. Lectotype of *vomonana* Kearfott. 9. Specimen from Chimney Gulch, Colorado (slide no. 1, prepared by C. Heinrich on October 23, 1924).

data (Walsingham No. 91910); one male lectoparatype (abdomen badly damaged), same data (Walsingham No. 91911); all three deposited in the British Museum (Natural History).

<sup>1</sup> These data are from the original labels in the British Museum (Natural History). Walsingham (1879) misspelled the locality name as "Rouge River" and erroneously gave 1871 as the recording year.

Of *vomonana*: Lectotype, male (genitalia on slide, No. 702-Obr., prepared by C. Heinrich on December 14, 1919), Cisco, Placer County, California, June 1, 1905 (A. H. Vachell); lectallotype, female (genitalia on slide, No. 701-Obr.), and two male lectoparatypes (genitalia of one on slide, No. 700-Obr.), Colfax, Placer County, California, July (A. H. Vachell); all four deposited in the American Museum of Natural History. One male lectoparatype, same data; one male lectoparatype, Cisco,

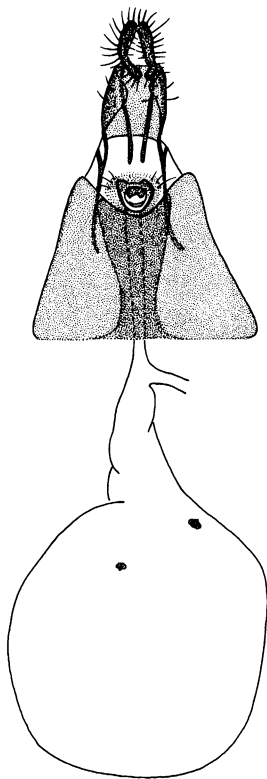


FIG. 10. Female genitalia of *Epiblema radicana* (Walsingham); lectallotype of *vomonana* Kearfott.

Placer County, California, June 1, 1905 (A. H. Vachell); both in the United States National Museum.

Of *serangias*: As in a substitute name for *vomonana*, the types are the same.

OTHER SPECIMENS EXAMINED: *Colorado*: one male (genitalia on slide, No. 1, prepared by C. Heinrich on October 23, 1924), Chimney Gulch, Golden, Jefferson County, July (Oslar); one male (genitalia on slide, prepared by "M. E." on May 28, 1927), Bear Creek, Morrison, Jefferson County; both deposited in the United States National Museum.



REMARKS: A comparison of *Epiblema radicana* (Walsingham) with *Griselda radicana* Heinrich would perhaps be unnecessary if Heinrich (1923) had not confused these two species. The brownish fuscous emargination of the dark basal third of the forewing of *Epiblema radicana* becomes more or less obliterate costad. In *Griselda radicana* there is no complete, dark basal area, but a separate, transverse fascia is present. It outlines the basal third of the forewing, is rather broad, and may become obsolete dorsally. In *Epiblema radicana* a brown, oblique fascia starts at the middle of the forewing costa and reaches the dorsum close to the tornus. This fascia is distinctly dilated in its lower two-thirds and below its middle is crossed by a fuscous line. There is no connection between this fascia and the preapical markings of the forewing. In *Griselda radicana* a similar fascia is generally joined to the preapical markings of the forewing and often is interrupted by the grayish ground color of the forewing. In *Epiblema radicana* the preapical costal spots of the forewing are connected with the termen above the tornus by an oblique line or a dilated patch. In *Griselda radicana* the preapical costal spots are connected with the middle fascia of the forewing. All these distinctions are well seen in the figure of "*Paedisca*" *radicana* published by Walsingham. Heinrich (1923), being impressed by a general similarity of this figure to *Griselda radicana*, did not pay attention to the above distinctions described by Walsingham also in the text.

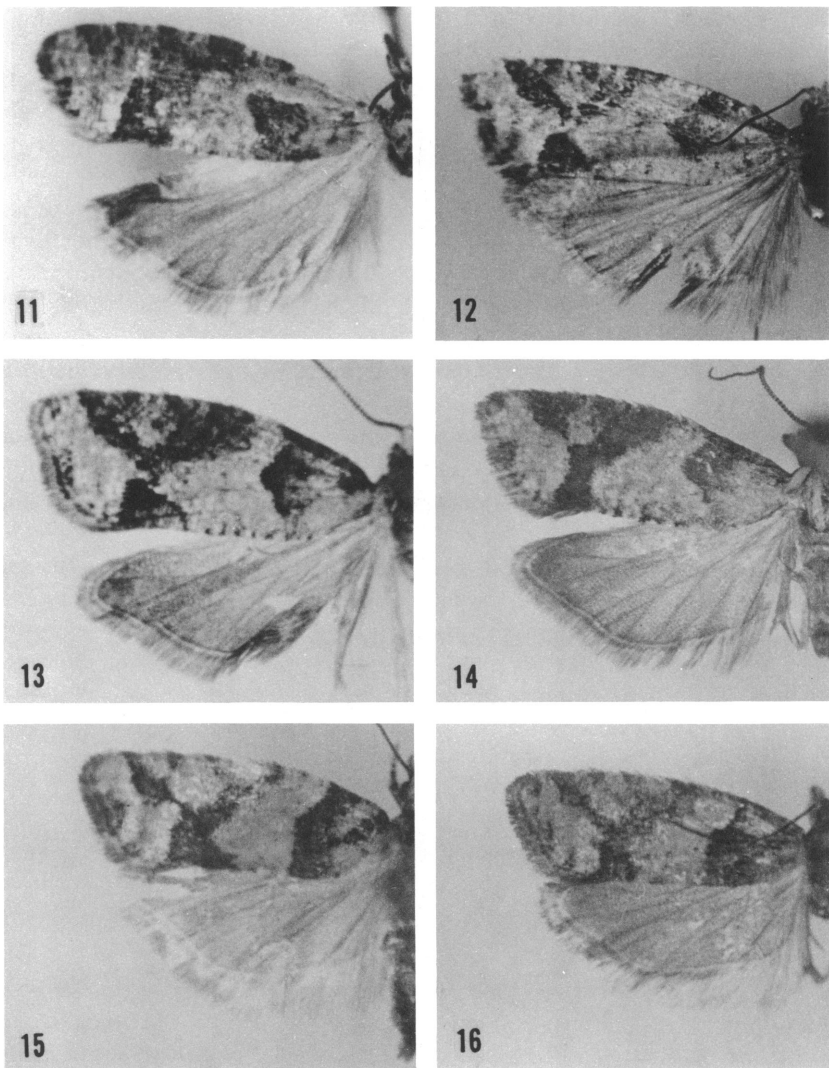
*Griselda radicana* Heinrich

Figures 11-20

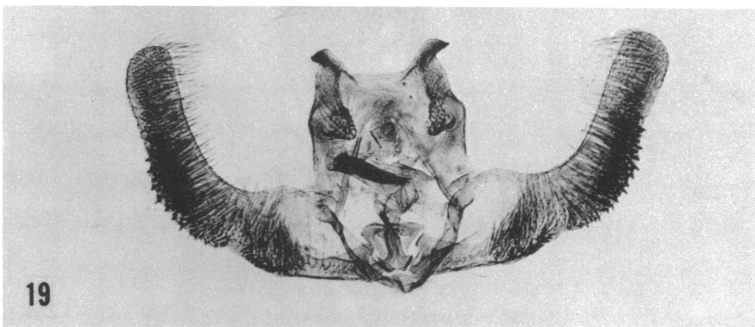
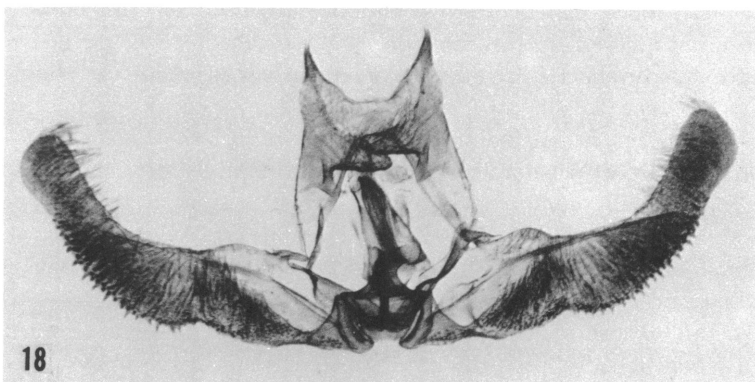
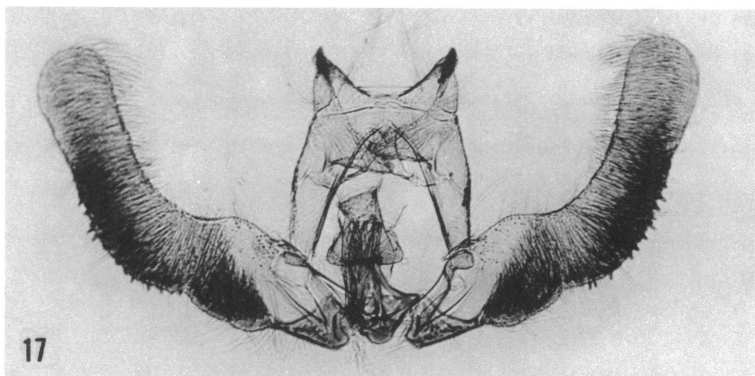
*Eucosma radicana* (not Walsingham): BLACKMORE, "1921" [1922], p. 27.

*Griselda radicana* HEINRICH, 1923, p. 186, pl. 7, fig. 36, pl. 49, fig. 329. McDUNNOUGH, 1939, p. 50, no. 7097. BLAIS, 1961, pp. 648-653. MCLEOD AND BLAIS, 1961, p. 2. SIPPEL, MACDONALD, AND ROSE, 1962, p. 65. MACKAY, 1962, p. 638, fig. 8. POWELL, 1964, p. 86. OBRAZTSOV, 1964, p. 144.

Antennae grayish brown to blackish brown, with whitish ochreous annulation; under surface whitish to grayish brown, ferruginous, or ochreous. Labial palpi grayish brown to blackish brown, occasionally darker on ventral edge; second segment generally gray dorso-apically and dorsally; inner surface, occasionally also upper surface of basal segment, basis of second segment, and extreme tip of terminal segment whitish or ochreous. Head pale ochreous or grayish ochreous to olive-gray or almost black, in some specimens darker around eyes. Thorax concolorous with head, generally black-bordered anteriorly, at least at sides. Abdomen gray, pale brownish cinereous, or whitish, occasionally with brownish annulation. Forewings whitish gray, olive-gray, grayish



FIGS. 11-16. *Griselda radicana* Heinrich. 11. Lectotype, male. 12. Lectallotype, female. 13. Male from Camas, Washington. 14. Male from Lake St. Clair, Washington. 15. Female from Gogama, Ontario. 16. Female from Ranger Lake, Ontario. 11, 14-16. Left wings. 12. Right wings (image reversed).



FIGS. 17-19. Male genitalia of *Griselda radicana* Heinrich. 17. Lectotype. 18. Specimen from Camas, Washington (slide No. 6-Obr., 1962). 19. Specimen from Haileybury, Ontario (slide No. 724-Obr.).

ochreous, or slightly ferruginous, occasionally somewhat silvery shining; markings blackish gray to brown, edged with black, or entirely black, arranged as follows: transverse band outlining basal third of forewing, starting on costa, rounded or angulated externad at cubital vein, reaching dorsum vertically or obliquely, or obliterate in dorsal portion; more or less large spot between this band and basis of forewing, situated costally or subcostally, and occasionally touching internal margin of mentioned band, or no spot at all; oblique, rarely indistinct fascia starting at about middle, or slightly externad of middle, of costa, directed toward more or less triangular pretornal spot on dorsum, and generally touching tip of this spot or entirely fused with it; external streak originating from two preapical dots on costa and directed obliquely basad, being generally fused with lower end of above-mentioned fascia at level of discal cell; some minute costal dots in interspaces of described markings, and some minute dots or short, vertical streaks on dorsum, occasionally continued across forewing as shadowy, more or less interrupted lines; fine, black terminal line; cilia concolorous with ground of forewing, blackish on tips or entirely black in subapical portion, or with indistinct, gray dividing line; occasionally some blackish lines crossing cilia in front of veins. Length of forewing, 4.5-7.0 mm. Hind wings gray, with fine, white terminal line; cilia whitish, with dark gray basal line and pale gray dividing line.

**MALE GENITALIA:** Uncus bifurcate, with tips directed upward or slightly bent to sides; socii elongate, subtriangular, in specimens with tips of uncus bent appearing somewhat shorter (a change caused by pressure of cover glass on tegumen). Valva with long, almost equally broad cucullus directed upward and rounded at tip.

**FEMALE GENITALIA:** Antrum cupuliform, laterocaudally spinulate; ductus bursae almost as long as cervix bursae, or slightly longer. Corpus bursae finely spinulate; two obtusely tipped signa, one slightly thicker than other.

**TYPES:** Lectotype, male (genitalia on slide, prepared by C. Heinrich on January 15, 1920), British Columbia, on spruce (G. Hewitt); lectallotype, female (genitalia on slide, No. 101-Obr., 1964), Victoria, Vancouver Island, British Columbia, September 18, 1920 (E. H. Blackmore); two males (genitalia of one on slide, No. 96-Obr., 1964), and two females (genitalia of one on slide, No. 97-Obr., 1964), lectoparatypes, same locality, no date, August 21, 1921, and September 12, 1922 (W. R. Carter); one male lectoparatype (genitalia on slide, prepared by C. Heinrich on March 20, 1920), Seaview, Washington, July 3, 1918 (Quaintance no. 15564), on spruce (H. K. Plank); all seven specimens

deposited in the United States National Museum. One male and two females, lectoparatypes, British Columbia, "on pine or spruce" and "on spruce" (G. Hewitt); one female lectoparatype, Victoria, Vancouver Island, British Columbia (this specimen was identified by W. D. Kearfott as *scalana* Walsingham); all four specimens deposited in the American Museum of Natural History.

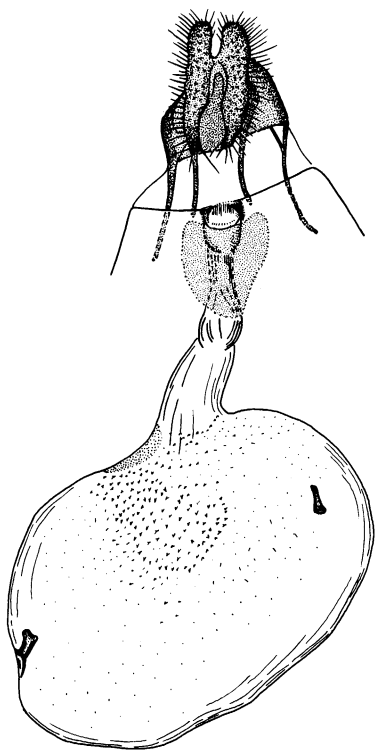


FIG. 20. Female genitalia of *Griselda radicana* Heinrich, lectallotype.

OTHER SPECIMENS EXAMINED: *British Columbia*: Three females, Duncans, Vancouver Island (Hanham); deposited in the United States National Museum. *Ontario*: One male (genitalia on slide, No. 724-Obr.), Haileybury, July 25, 1959 (S59-1514-01)<sup>1</sup>; one female (genitalia on slide, No. 725-Obr.), Ranger Lake, August 31, 1945 (S45-785H); one female (genitalia on slide, No. 726-Obr.), Biscotasing, August 13, 1948 (S48-

<sup>1</sup> This number and the similar ones that follow occur on the original labels affixed to specimens sent to the American Museum of Natural History by Miss M. R. MacKay from the Entomology Research Institute in Ottawa.

2273A); one male, Moose Hill, July 28, 1959 (S59-1135-01); one female, Gogama, August 10, 1960 (S60-2695-04); one female, Nestor Falls, August 3, 1959 (S59-2003-01); one male, Webbwood, July 30, 1959 (S59-1802-01); one male, Nemegos, July 29, 1959 (S59-2369-02); one male, Pickerel River, August 8, 1960 (S60-1977-01); one male, Geraldton, August 12, 1961 (S61-2765-04); one male, Chapleau, August 12, 1961 (S61-3385-01); one female, Schreiber, August 12, 1961 (S61-3578-01). *New Brunswick*: Two males, Surrey, Albert County, September 3 and 9, 1948 (48-L274); one male, Middle River, Gloucester County, August 27, 1948 (48-L576); one male, Bass River, Gloucester County, September 3, 1958 (58-0446-02); one female, S. E. Upsalquitch, Restigouche County, September 7, 1948 (48-L965); one female, Blackland, Restigouche County, August 15, 1949 (49-L245A); one male, Magaguadavic River, Charlotte County, September 14, 1950 (50-Li038); one male, Norrad Bridge, Northumberland County, August 27, 1948 (48-L354). *Newfoundland*: Two females, Triton Brook, Grand Falls, August 30, 1948 (48-L774); one female, Michaels Brook, Grand Falls, August 23, 1948 (48-L647); one male, Avalon Peninsula, August 27, 1946 (46-L373). All the above specimens from Ontario, New Brunswick, and Newfoundland are deposited in the American Museum of Natural History. *Washington*: Three females, Bellingham, Whatcom County, September 7, 1923, August 23, 1926, and August 13, 1930 (J. F. Clarke); one male (genitalia on slide, No. 1138), Toad Lake, Whatcom County, September 3, 1929 (J. F. Clarke); one male, South Tacoma, Prairies, Pierce County, August 20, 1930 (T. C. Clarke); one male, Lake St. Clair, Thurston County, August 21, 1930 (T. C. Clarke); one male (genitalia on slide, No. 6-Obr., 1962), Camas, Clark County, August 25, 1930 (J. F. Clarke). *Oregon*: One female, Springfield, July 10, 1957, *ex pupa* from *Pseudotsuga menziesii* (V. M. Carolin). *Colorado*: One female (genitalia on slide, No. 98-Obr., 1964), Uncompahgre National Forest, Montrose County, August 1-15 (C. A. Hoar). All the above specimens from Washington, Oregon, and Colorado are deposited in the United States National Museum.

FOOD PLANTS: *Picea glauca*, *Abies balsamea*, *Pseudotsuga menziesii*, and ? *Pinus*.

DISTRIBUTION: British Columbia, Ontario, Quebec, Newfoundland, New Brunswick, Washington, Oregon, Colorado, and California.

REMARKS: As discussed in the introduction to this paper, Heinrich (1923) introduced the concept of *Griselda radicana* and, describing the generic characters and figuring the male genitalia, unmistakably defined this species as distinct from *Epiblema radicana* (Walsingham). The lectotype, lectallotype, and lectoparatypes are selected by the present author

from the materials examined by Heinrich, listed in his paper, and labeled by him in the collections as *Griselda radicana*.

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