01 · 91–94

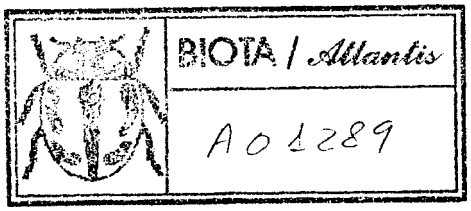
[1986].

MICROLEPIDOPTERA PALAEARCTICA

SEVENTH VOLUME

GLYPHIPTERIGIDAE
auctorum sensu lato

(Glyphipterygidae sensu MEYRICK, 1913)



conraining.

TORTRICIDAE: Hilarographini

CHOREUTIDAE

BRACHODIDAE (partim) · IMMIDAE

and

GLYPHIPTERIGIDAE

By

A. DIAKONOFF

Rijksmuseum van Natuurlijke Historie, Leiden

TEXT VOLUME

G. BRAUN · DRUCKEREI UND VERLAGE · KARLSRUHE

Rernarks: The species is nearest to *A. fabriciana*, differing by the more conspicuous pale ochreous costal spors and by the very long lateral prong of rhe aedeagus, the use of which seems completely incornprehensible! Besides, the species is inreresting systematically, having typical paipi of a *Prochoreirris*, with a brush-like median segrnent, but with the apical segment very iong, thin and straight, possibly showing some intermediate position between *Anthophila* and *Prochoreutis*.

Material studied: Besides the hoiorype, aiso scudied: the allotype, gen. slide 10018, the paratype frorn rhe Sochi district, gen. slide 10019 d, and the above Carpathian male.

Literature: HEPPNER, 1981: 50. — DIAKONOFF, 1984: 62.

19 (2) ***Anthophila fabriciana*** (LINNAEUS) (Pl. 2, 3, fig. 19_{1-3})

Phalaena Tortrix fabriciana LINNAEUS, 1767, Syst. Nat., ed. 12: 880, nr. 324.

Type locality: Sweden: Hammarby.

Holotype: Lost; not in the LINNEAN coliection (tesre Dr. G. S. ROBINSON, in lit.).

Synonyrny:

Phalaena Tinea oxyacanthella LINNAEUS, 1767, Syst. Nat., ed. 12, 2: 886, nr. 357. Type locality not indicated. Holotype. Wherenbouts unknown. Presumably lost.

Tortrix urticana DENIS & SCHIFFERMÜLLER, [1775], Lep. Wiener Gegend: 132. Type locality. Austria, District of Vienna. Holotype. Lost (teste HORN & KAHLE, 1936: 243).

Ph. [*alaena*] *Pallium excirirm* RETZIUS, 1783, Car. de Geer Gen et Spec. Insectorum: 52, no. 148 (emendation).

Phal. [*aena*] *Tortrix gilibertiana* C. VILLERS, 1789, C. Linn. Ent. Suaec., 2: 425, no. 761. Type locality. Europe. Holorype. Whereabours unknoa-n, presurnably lost.

Crambus oxyacanthae FABRICIUS, 1798, Species Insecr., Suppl.: 474, *no.* 59 (ernendation).

Tortrix dentana HÜBNER [1799], Samml. eur. Schmett., Tortr., pl. 41, fig. 273. Type locality. Europe. Holotype. Whereabouts unknown. Presurnably lost.

Anthophila fabricii HAWORTH, [1811], Ins. Brit.: 471, nr. 1 (emendation).

Anthophila oxyacanthae FABRICIUS, 1794, Ent. Syst., *3* (2).

Asopia alternalis TREITSCHKE, 1829, Schrnett. Eur., 7: 160. Type locality. Europe. Lectotype, ♂, hereby selected / TREITS. (black cadre, print and ink) / 2996 / Gen. no. 10049 A. DIAK. / Lectotype ♂, *Asopia alternalis* TREITSCHKE, seiected by A. DIAKONOFF (black cadre, princ and ink) /. TMAB.

Simaethis parietariae STAINTON, 1855, Ent. Ann. 42. Type localiry. Great Britain. Holotype. Whereabouts unknown. Presurnably iosr (teste D. J. CARTER, in lit.).

Diagnosis: ♂, 10—14mm. Head and thoras light slaty-grey a-irh a purplish gloss, finely dusted n-ith a-hitish. Antenna dark fuscous, ringed n-ith white, scape with a white dot on upper side; aciculate-biciiiace, ciliations about 2, scape slaty-grey. Palpus creamy-white, median segment a-ith a faint subapical grey ring, terminal segment light slaty-grey, slightly flartened dorsovenrrally, iongish, obtuse. Abdomen grey-fuscous n-ith a purple gloss, posterior edge of segrnents pale grey, venter a-hite, anal tuft dark fuscous. Segments 1—7 with lateral siender pencils of long scaies, segment 8 strongly dilated, sorne-n-har funnel-like posterad, with long lateral pencils and a fringe of hair-scales along posterior edge above and laterally, ventrally absent. Valva deeply cleft, at the base of cleft on the outside a strongly spreading pencil of long hair-scales. Abdomen of 9 with short lateral pencils along segrnenrs 3— 6only.

Fore a-ing broadly suboval, costa curved throughour, apes obtusely pointed, terrnen gently sinuate above, rounded berieath, moderately oblique. Rarher dnrk glossy purplish-fuscous, sparsely dusted a-ith creamy-white. Basal patch under ¼, slightly more greyish-tinged and evenly dusted with creamy, edge

rather distinct, vertical and straight, with a srnall posterior projection just above fold, connecting with a sornewhat irregular blotch of similar dusting, frorn a white suffused rnark just beyond ⅓ of costa to an opposite point of dorsurn, anterior edge well defined, straight, posterior strongly diffuse and rounded, an oblong spot of uninterrupted ground colour above fold; **a** transverse comma-shaped white strigula on costa before ⅔, outwards-concave, continued by a rhin zigzag line of whitish dusting across wing to dorsurn well before tornus; this line forrning a long acute posterior tooth below ⅓ of disc and a srnall, blunter tooth just above fold; between these teeth and edges of wing the line strongly outwards-concave; a rather broad band of darker, uninterrupted ground colour, more or less parallel to zigzag line, only opposire large tooth with a srnall crescentic white strigula, limiting together a rhornboidal spot of deeper ground colour, ofteri ill-defined; zigzag line followed by a band of sparse crearny dusting from below costa to dorsum. Cilia fuscous, lower third dark fuscous, uninterrupted, upper ⅔ with a white streak along upper half of terrnen and a less distinct srnaller blotch above tornus.

Hind wing light purple-fuscous, gradually becorning paler tow-ards costa, a rather faint irregular white streak frorn above tornus slightly undulate, running to above rniddle of terrnen, gently diverging frorn edge of wing, alrnost interrupted in fold. Cilia light fuscous, frorn below apex to before tornus snow-white, a continuous darker fuscous subbasal band and a fine pale basal line.

♀, **11—14** rnrn. Darker, basal patch more contrasting, second irrorated patch smaller, less well defined; zigzag line more distinct, large tooth dissolved, posterior band of pale irroration wider, ill-defined.

Hind wing slightly darker, becoming less paler towards costa, white submarginal streak more distinct, thicker, longer. Otherwise similar to the rnale.

Variability: The tinge of the ground colour and the amount of the light dusring may vary, especially the latter; the first costal white rnark and the subrnedian blotch of irroration may be strongly reduced or disappear altogether.

Male genitalia (Pl. 29): Tegurnen moderate, uncus pointed, conical. Socius a patch of dense hairs. Gnathos well-developed, hooked. Vinculum triangular, rather broad. Valva oval, costa with a diversely shaped and sized process; sacculus **a** strong roll, densely bristled posteriorly. Cucullus truncate, notched in rniddle, preceded by a large and dense bristly patch in disc; harpe rarher variable, a denticulate basad-directed truncate blade, gradually narrowed posterad. Anellus, a large body, rnembranous on upper half, subsclerotic and short-bristled on basal half. Aedeagus thick, narrowed apicad, with a diversely shaped median branching off process on the left side. Cornutus a central rnernbranous triangular small sac, a-ith the base denticulate on the outside.

Female genitalia (Pl. 116): Ovipositor broad and short. Seventh sternite large erect-trapezoidal, with less sclerotic median part. Ostiurn wide, at top of sternite, with a pair of erect plates forrning ostiurn proper. Ductus bursae srrong, tortuous. Corpus bursae ovoidal, asyrnrnetrical, with a subapical conscriction longitudinally, dividing **a** part of the corpus opposite a srnall parietal signum, the latter shaped as a scobinate lamina dentnta of variable length.

Early stages and bionornics: The larva is bivoltine and lives in V—VI and VIII in light webbing between leaves of *Urtica dioica, Parietaria officinalis* and *Symphytum tuberosum.* Larva is described as being "white-green a-ith a black head and dots" (SNELLEN, 1882). GRABE (1955) says: "Larva ...in spun rogether rop leaves or in leaf-rolls ...PRINZ reared the rnoths ones frorn a-illon catkins. Pupae in or outside the larval webbing, under tree bark or moss in a white, tough, spindle-shaped webbing. It rests for 9—10 daps. The autumn generarion hibernates as a rule, the rnoth hibernates often as well."

Distribution: Widely distributed over the a-hole region, frorn southern Europe to East Siberia, Sakhalin, South Kuril Is., Japan. h'ot in the Nearctic Region, where a vicarious species occurs.

Rernarks: This is one of the most common species of the Palaearctic fauna. The adults vary little as to the colouring and rnarkings, but they vary considerably, with regard to the rnale genitalia, viz., the shape of the valva, the costal process, the discal harpe and the aedeagus; the extremes of these shapes, however, are connected by interrnediates so that it is not possible to separate distinct subspecific groups.

Material srudied: Withour wishing to cite rhe entire European material of rhis most common species, sorne localities along the far eastern periphery of rhe Palaearctic region may be of interest and are presented here.

– S Kuril Is., Pararnushir I., 28. VIII. 1976, genit. slide 9903; Iturup I., Kurilsk, 11. VII. 1976. Kunashir 1. Tretyakovo, 29. VI. 1971, Alekhino, 15. VI. 1973, Malokurilskoye, 12. VII. 1965 (All by ERMOLENKO). ZIAN.

– E Tannu-Ola, Tuwa, Shurrnak Pass, 2. VIII. 1969 (Y. KOSTYUK). UANK.

– Japan, Hokkaido, Sapporo, Moiwa, 18. VI. 1972 (T. KUMATA). Honshu, Mt. Hayachine 3. IX. 1965 (T. OKU). RMNH.

– ISSIKI Collecrion, USNM: Hokkaido, Sapporo, 14. VI. 1919. – Honshû: Kyoto, 22. VII. 1976 (A. MUTUURA). Kinki, Naraken, Dorogawa, 29. VI. 1931 (**A.** MUTUURA). – Sikoku: Turugi-san, 30. V. 1950, genit. slide 9772 (= 24416) (All by S. ISSIKI).

– Taiwan: genit. slide 9771 (= 24415); Taiheisan, **8.** V. 1942; Rarasan, 28. VII. 1943, genit. slide 2770 (= 24414) (All by S. ISSIKI). USNM. One specirnen with righr pair of wings rnissing, erroneously idenrified as "*Simaethis hnliniora* MEYRICK" (from Assam).

Literature:

Phalaena Tortrix fabriciana: LINNAEUS, 1767, Syst. Nat., ed. 12: 880, nr. 324. – DE VILLERS, 1789: 418.

Pyralis fabriciana: FABRICIUS, 1781: 276, nr. 143. – 1787: 236, nr. 109. – 1794: 276, nr. 143.

Xylopoda fabriciana: LATREILLE, 1829: 412. – DUPONCHEL, 1834: 457, 463, t. 260 f 5. – BRUAND, 1845: 55. – GUENÉE, 1845: 191.

Choreutis fabriciana: DE GRAAF, 1862: **54.** – LARSEN, 1916—1917: 136.

Simaethis fabriciana: STEPHENS, 1829: 161, nr. 6781. – 1834: 29 [*Simaethis* (*Choreutis*)]. – 1850: 248. – 1859: 210. – HERRICH-SCHÄFFER, 1855: 95, nr. 142. – WOOD, 1839: 37, f. 783. – WOOD & WESTWOOD, 1854: 120, f. 783. – STAINTON, 1859: 158. – MANN, 1862: 104. – 1866: 356. – 1867a: 73. – 1867b: **840.** – 1869: 387. – 1871: 78. – ROESSLER, 1866: 237 (357). – STANGE, 1869: 93. – HEINEMANN & WOCKE, 1870: 5. – JOURDHEUILLE, 1870: 243. – STAUDINGER, 1871: 27C. – SNELLEN, 1875: 73. – 1882: 436, 437. – TER HAAR, 1866a: 32. – 1866b: 217. – FREY, 1880: 333. – SORHACEN, 1886: 139. – MEYRICK, 1895: 707. – SEEBOLD, 1898: 308. – STAUDINGER & REBEL, 1901: 129, nr. 2315. – ROTHE, 1902: 97. – EBERT, 1903: 32. – REBEL, 1903a: 326. – 1903b: 247. – 1904: 345. – 1910: 349. – PROHASKA, 1935: 17. – 1907: 276. – RAGUZA, 1933: 19. – CROMBRUGGE DE PICQUENDAELE, 1906: 2. – SCHOPFER, 1937: 283. – HORMUZAKI, 1907: 78. – LEMEERE, 1937: 791. – NICKERL, 1908: 1. – DISQUÉ, 1938: 98, 132, 138. – KRULIKOVSKY, 1908: 261. – JOANNIS, 1939: 788, nr. 273. – GRIEBEL, 1910: 43. – MEYRICK, 1910: 226. – 1913: 36. – 1914: 22. – 1928: 707. – GRIBE, 1955: 63.

Phalaena Tortrix oxyacanthana: HOLLE, 1S65: 220, 310.

Anthophila oxyacanthae: HAWORTH, [1811]: 471, nr. 2.

Simaethis oxyacanthelln: ZELLER, 1868: 619. – STAUDINGER & WOCKE, 1871a: 263, nr. 1309. – 1871b: 18. – WALLENGREN, 1871: 1058. – BANG HAAS, 1875: 1. – MILLIÈRE, 1876: 294. – MANN, 1878: 497. – ZELLER, 1878: 116. – STAUDINGER, 1879: 264. – HARTMANN, 1879: 194, nr. 1309. – 1880: 54, nr. 1309 (*oxyacanthella* & *oxyacanthella* var. *alternalis*). – WIELER, 1880: 28. – SCHÖYEN, 1881: 48. – DONCKIER DE DONCEEL, 1882: 14. – CURÓ, 1883: 2. – SORHAGEN, 1886: 139. – MINÀ-PALOMBO & FAILLA-TEDALDI, 1889: 159. – WALSINGHAM, 1891: 545, nr. 38. – NICKERL, 1894: 15. – PÁVEL & UHRYK, 1896: 65. – REUTTI, 1898: 180. – CARADJA, 1899: 196. – 1921: 142. – 1920: 15, nr. 2318. – STANGE, 1899: 3. – EBERT, 1903: 32, nr. 322.

Anthophila fabricii HAWORTH, [1811]: 471, nr. 1.

Hemerophila fabriciana WALSINGHAM, 1937: 989.

Tortrix urticana DENIS & SCHIFFERMÜLLER, 1775, 132, nr. 7, 8. – HÜBNER, 1826, pl. 44, f. 273 (*Tortrix*). – BRUAND, 1845: 155 (*Xylopoda*).

Anthophila fabriciana: MEESS *in* SPULER, 1910: 297, pl. 87, f. 3. — HAUDER, 1912: 154. — SCHAWERDA, 1913: 174. — MÜLLER-RUTZ, 1914: 423. — Anon., 1915: 161, nr. 1945. — SCHAWERDA, 1916: 36. — MARTINI, 1916: 133. — BAUER, 1917: 33. — REBEL, 1917: 42. — 1917: 60. — BARNES & MCDUNNOUGH, 1917: 181, nr. 7603. — FORBES, 1923: 352, f. 217. — STEPHAN, 1925: 117. — WEHRLI, 1925: 136. — VERBRODT, 1928: 116. — FÜGE et al., 1930: 96. — HARTWIEG, 1930: 60. — SCHILLE, in ROMANISZYN, 1930: 152. — HERING, 1932: 176. — ECKSTEIN, 1933: 108. — FLETCHER, 1933: 25. — PIERCE & METCALFE, 1935: 40, pl. 23. — SCHAWERDA, 1936: 80. — 1937: 112. — MARIANI, 1938: 169. — TOLL, 1938: 164. — 1950: 183. — VÄRI, 1911: 200, nr. 156. — BENANDER, 1946: 32. — FORD, 1949: 126. — Anon., 1950: 15. — OSTHELDER, 1951: 119, nr. 606. — FORD, 1954: 96, pl. 8, fig. 25 (recte 6). — TOLL, 1956: 6, 28, 29, f. 78—80. — ISSIKI, 1957: 33, pl. 4, f. 130. — MICHAELIS, 1957: 34. — BRADLEY & PELHAM-CLINTON, 1957: 126. — BRADLEY, 1958: 130. — AMSEL, 1959: 8. — MOUCHA & NOVAK, 1962: 108. — LHOMME, 1963: 496. — KLIMESCH, 1968: 150. — RAZOWSKI, 1969: 244. — KODAMA, 1961: 38, f. — POPESCU-GORJ, 1964: 45. — POPESCU-GORJ & NEMES, 1965: 161. — HRUBÝ, 1964: 261. — AGENJO, 1966: 22. — DANILEVSKY, 1969: 926, fig. 7, 8. — CHALMERS-HUNT, 1971: 19. — KROGERUS et al., 1971: 17. — ISSEKUTZ, 1972: 73, nr. 1540. — KARSHOLT & KRISTENSEN, 1974: 36. — GOATER, 1974: 51. — FORD, 1978: 82—83, pl. 8, fig. 6. — EMMET c. s., 1979: 65. — HEPPNER, 1981: 50. — MORIUTI, in INOUE c. s., 1982, 1: 239; 2: 202, pl. 10: 33. — DIAKONOFF, 1984: 62.

Tortrix dentana HÜBNER, 1796, pl. 1, fig. 4, 5.

Pyralis dentalis HÜBNER, 1799, pl. 4, fig. 25.

Hemerophila dentana HÜBNER, 1825: 60, no. 4.

Xylopoda dentana BERTHOLD, 1827: 484.

Asopia alternalis TREITSCHKE, 1829: 160, nr. 12. — FRÉ, 1858: 59.

Choreutes alternalis TREITSCHKE, 1835: 32. — ZETTERSTEDT, 1840: 974. — HEYDENREICH, 1851: 63, nr. 187. — DE GRAAF, 1851: 35. — MANN, 1854: 574. — 1857: 181. — SCHLEIDER, 1856: 668. — KOCH, 1856: 310, nr. 187. — WILDE, 1860: 123. — MANN, 1861: 192, nr. 4. — BENANDER, 1949: 52 (syn.).

Simaethis pnrietnrine STAINTON, 1855: 64.

20 (3) Anthophila dischides DIAKONOFF (Pl. 3, fig. 20)

Anthophila dischides DIAKONOFF, 1978, Zool. Verh., 163: 3, fig. 1.

Type locality: China: Likiang.

Holotype: ♂ / Li-kiang (China), Provinz Nord-Yünnan, 12. 7. 1934, H. HÖNE (yellow label, typed) / Gen. No. 9425 / Holotype, d, *Anthophila dischides* A. DIAKONOFF, 1977 (black cadre) / Type (red label) /. MAKB.

Diagnosis: ♂, 13 mm. Head light glossy fuscous, face below pale grey, vertex dusted with pale ochreous. Antenna dark fuscous, pale-ringed, ciliations 1. Palpus rather long, curved and ascending; fuscous, basal segment white, median segment with a submedian and an apical white ring, dilated towards apex; terminal segment with a median white ring, tip obtusely pointed. Thorax fuscous, strewn with pale ochreous points. Abdomen dark fuscous, dorsum grey-fuscous towards base, dull.

Fore wing broadly sublanceolate, dilated, broadest at ¾, costa curved at base, rather straight beyond base, curved again along posterior third, apex rather pointed, termen convex, oblique, rounded belon. Fuscous, partially finely irrorated with light greyish (pale tips of scales), along fold and on posterior half suffused nith deeper glossy brownish-purple. A very faint and broad inwards-oblique subbasal transverse band of pale greyish irroration; a slightly inwards-oblique faint pale grey transverse band from ⅖ of costa, beginning with an inwards-oblique pale ochreous marginal suffused rnark; a second similar rnark before ⅔, forming a vertical small blotch to upper edge of cell, rather brighter ochreous, more or less continued across wing by a pair of irregular zigzag faint lines, ending with a similar trans-

the event of their availability, the subspecies *pretiosana* would of course have to be relegated to the status of a form of *bjerkandrella*.

Literature:

Simaethis pretiosana: GUENÉE, 1845: 191. — REBEL, 1892a: 266, 282, no. 43. — 1892b: 243. — 1896: 122, 146, no. 173. — 1906: 44, no. 202. — WALSINGHAM, 1891: 545. — 1960: 28. — HORMUSAKI, 1907: 77.

Xylopoda pretiosana: ZELLER, 1852: 86.

Choreirtis bjerkandrella var. *pretiosana:* STAUDINGER & WOCKE, 1871a: 265, no. 1302a. — 1871b: 18. — FERNALD, 1900: 241. — STAUDINGER & REBEL, 1931: 129, no. 2311 (2312). — CARADJA, 1923: 34, no. 15 *Porpe (Choreutes).* — ZERNY, 1927: 471. — AMSEL, 1936: 353, no. 114.

Choreutis pretiosana: MANN, 1869: 387. — 1873: 127. — REBEL, 1572: 243. — 1892a: 266, 282, nr. 43. — 1892b: 243. — 1896: 122, 146, 173. — 1906: **44,** no. 232. — 1917: 41. — SSELLES, 1875: 74. — CHRISTOPH, 1875: 48. — MILLIÈRE, 1876: 294. — WOLLASTON, 1879: 342. — HARTMANN, 1880: 54. — SEEBOLD, 1898: 308. — MEESS in SPULER, 1910: 298. — HERING, 1932: 706 (*Choreutis bjerkandrella* race *pretiosana).* — MARIANI, 1938: 169. — WEBER, 1946: 869. — KUZNETSOV, 1960: 28. — LHOMME, 1963: 498.

Tebenna pretiosana: HEPPNER, 1981: 58 (*pretiosana*). — DIAKONOFF, 1984: 64.

54 (4) *Tebenna micalis* (MANN) (Pl. 6, 7, fig. 54_{1-4})

Choreirtis micalis MANN, 1857, Wien. ent. Monatschr., 1: 181

Type locality: S Europe: Fiume.

Lectotype: Lectotype, hereby designared, ♂/Fiume, 3.49 Mn (small, square green, black cadre and ink)/Coll. WOCKE (print)/Museum Leiden, Lectotype, ♂, *Choreutis micalis* MANN, Selected by **A.** DIAKONOFF, 1978 (print & ink, black cadre)/Type (red)/. Abdomen intact. ZIAN.

Synonymy:

Choreutis pretiosana sensu MILLIÈRE, 1874: 317. pl. 140, figs. 1—2 (error idenrif.) (nec DUPONCHEL, 1842).

Choreutis isshikii MATSUMURA, 1931, 6000 Ill. Ins. Japan: 1078, nr. 2184. Type locality. Japan, Honshu: Wakayama Prefecture: Kii. Holorype. Lectotype, selected by Y. ARITA, 1975, ♂/Kii. 15. VII. 1913 ISSIKI (ink)/♂ Genitalia on slide No. Glp-53, T. KAWABE, 1973 (print & ink)/. EIHU.

Tebenna bradleyi CLARKE, 1971, Smirhson. Contr. Zool., 56: 166, fig. 131, pl. 224. Type locality. New Zealand: Haumoana, Hawkes Bay. Holotype. ♂ No. USNM 70102/New Zealand, Haumoana, Hawkes Bay, 13.XI. 1963 (T. H. DAVIES). USNM.

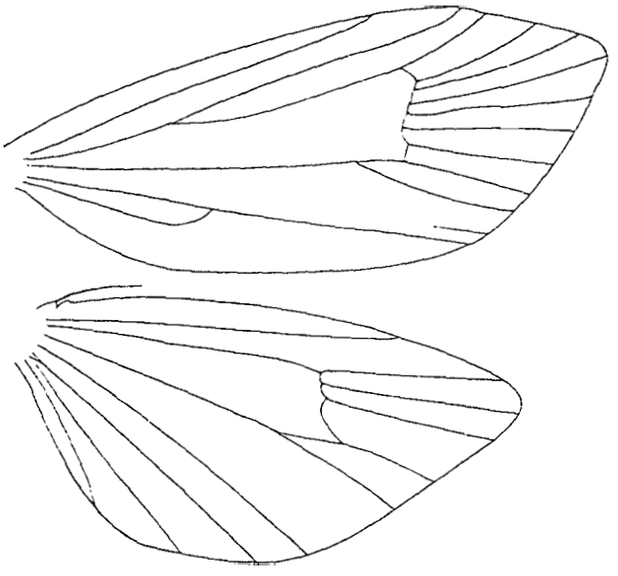


Fig. 13. *Tebenna micalis* (MANN), ♂, wing venation.

Diagnosis: ♂♀, 9.5—10 mm. Head pale greyish-tawny or greyish-olive, vertex slightly mixed with whitish, face and frons whitish-grey, face below white. An- [illegible] purplish banded with white, cilia-

tions 1, scape greyish-olive, apex with a slight frontal scale-tooth. Palpus with basal segment white, median with a white base and apex and a light tawny subapical broad band, frontal fringe long, pale grey, with 3—4 black parallel stripes, not crossing the segrnent itself, except the posterior subapical stripe. Thorax rather deep fuscous-tawny, with a golden gloss, sometimes paler (never deep ochreous-brown or alrnost ferruginous, as in *bjerkandrella*), a thin whitish parting line, inner edge of tegula broadly metallic-silvery, tip of thorax rnixed with white. Abdomen opalescent grey, posterior edges of segments with leaden bands.

Fore wing oblong, suboval, moderately broad, costa slightly curved, apes obtusely pointed, terrnen alrnost straight, long, oblique. Coloring variable, darker or paler: deep fuscous, partly suffused with ochreous-golden-tawny, with two broad transverse bands of white irroration, rnarkings brilliant metallic silvery, partly edged with jet-balck. Basal patch to % of costa and over ¼ of dorsum, edge well defined; patch traversed by a longer supraplical and a shorter subplical suffused ochreous golden, to yellowish, streak, slightly dilated, not quite reaching edge, a silvery subcostal streak and incornplete narrow silvery streaks in base of fold and halfn-ay dorsum, respectively; first fascia rather dilated downward, frorn a white dot on costa, parted on dorsum, inwards-oblique, base twice as narrow as thar of basal patch; second fascia frorn a double white dot on ¾ of costa, anterior dot largest; fascia angulate and gently extended posterad at ⅓ of its length, to end of dorsurn along or just above fold, connected by a variably extended branch with first fascia, constricted below middle by black rnarkings, dilated again below these; median area with upper ⅔ broadly quadrate, loner third forrning a quadrate anteriorly; black mnrkings arranged thus: a large prostrate-oval spot in Ion-er posterior angle of upper quadrate of median area, a fasciate patch beyond and slightly below preceding. on termen, in second fascia, a third, round smaller parch on lower quadrate posteriorly, not quire renching dorsum; a few irregularly arranged black scales beyond first fascia, sornerirnes some more, before second; all black markings variably rnixed or centred with Iarge, thick silvery-metallic scales; a streak of black suffusion along posterior end of costa and terrnen; variable silvery markings without black scales, arranged thus: spots on upper half of wing, viz., on posterior edge of first fascia, a pair of smaller spors before second fascin, and one or two groups below costa; a small group in apex and a line along costa before apex; all silvery markings subject to considerable variation. Cilia long, basal half fuscous-bronze, with an irregular white apical line, followed by a glossy deep fuscous band and a similar but paler apical band.

Hind wing light greyish-fuscous with a slight bronze gloss, with apical third suffused darker grey-fuscous, this part preceded by a white, suffused and fasciate transverse rnark, frorn vein 5 to 2, more oblique than terrnen. Cilia bronze-fuscous with a white basal line and a submedian, and an apical n-hire band.

Male genitalia (Pl. 46, 47). Tegumen Iarge, conical, tuba analis forrning two Iarge lateral flaps, bristled along edge. Vinculum almost nn equilateral triangle, slightly variable probably on-ing to flattening out in mounts, saccus absenr, end of vinculurn sometimes slightly truncate, caudal edge deeply tn-ice ernarginnte. Valva small, short, rectangular; sacculus rop rectangular, slightly rounded, apicnl half shortly and densely bristled, process of cucullus semicrescentic, costa rectnngulnr, inner process reaching to rniddle of process of cucullus. Aedeagus long and slender, curved and narrowed beyond caulis, coecum penis moderately broad, lower edge of apical third denticulate, cornuti a long sheaf of acicula.

Female genitalia (Pl. 127): Ovipositor rather slender. bivalval and tubular, postapophysis longer and more slender than antapophysis n-hich is irregularly thickened, broadest in middle, apes bent. Sterigma simple, rounded-trapezoidal, sclerotic part ernarginate above, with an apicnl transverse band of punctulations (bases of scales). Osriurn indefinite, colliculum a slender, subtubular funnel, on lower half becorning a semi-tubular band, abruptly dilated and spindle-shaped at end, with central sclerotic slender ridge. Ductus bursae simple. Corpus bursae erected-pear-shaped, large. Signurn a slender and long lamina dentata, as long as half circumference of corpus bursae.

Early srages and bionornics: Larvae live under white webbing in spun top leaves of diverse thistles and other Compositae, ofren on *Inula* species, and on *Pulicaria dysenterica* (Sardinia, AMSEL). The larva mines in the early srages (*Gnaphalium luteo-album*, Canary Is.), later skeletonizing the upper

side of leaf, under cover of webbing. Pupation is beca-een leaves in a white cocoon, usually fastened to rhe median vein of the leaf. In the Mediterranean region and in Mauritius the lanae are injurious to cultivated artichokes.

The water-colour plate of *"pretiosana"* sensu MILLIÈRE, 1874, on the contrary depicts *micalis*. When describing the serious harm caused to arrichoke cultivation in Morocco, JORDAN (teste LHOMME, 1963) ascribes the injury to *pretiosana*. DUPONCHEL and RUNGS (1946), describing exactly the same injury, call rhe oft'ender *Choreutis micalis* MANN! So grearly confused are these two forms togerher with ***bjerkandrella***, that the records in references cired for all three need confirmation. Similarly ir is not possible at present to sort out rhe food plants for rhe three forms, which mostly are diverse Cornpositae, many of n-hich might be artacked by more than one of the rhree forms, possibly even by all three.

According to ARITA (1975), the following host plants have been recorded for *Tebenna isshikii* MATSUMURA in Japan by Y. TAKAHASHI (1953, 1955): *Chrysanthemum coronarium* LINNAEUS, *Cynara scolymus* LINNAEUS, *Achillea* ***sibirica*** LEDEBOUR and *Ricinus communis* LINNAEUS. They all belong to the Compositae, except the last plant n-hich, surprisingly, beiongs to rhe Euphorbiaceae.

Distribution: This is also nor quite trustworthy, as recorded by earlier authors, due to the same confusion. *T. micalis* decidedly has the widest distribution of the three, occurring over central and east Europe, is plentiful in the Mediterranean regioii a-here it flies together with b. *pretiosana* and is recorded from Armenia (Kasikaporan, CARADJA), Turkmenia (KUZNETSOV) and now found in Persia and Afghanistan. Ir occurs in Madeira and on the Canaries. Furrher records are Sardinia, Macedonia, Albania, Rumania, Italy, Gatsa, Morocco — and Ardennes (in Central Europe). For further, surprising, records, see below.

Remarks: The species may easily be discerned from nominate *bjerkandrella* by smaller size, paler thorax and basal patch of the fore wing and by widely different male genitalia. From both ***bjerkandrella*** and subsp. *pretiosana* it differs at one glance by the presence of rhe black-and-silvery subdorsal spot. For further discussion of the differences see the remarks on *T. bjerkandrella* and *b. pretiosana*.

Material studied: In connection with the remarkably wide distribution of the present species (formerly attributed in part to *bjerkandrella* THUNBERG), I present belon- the complete list of material of *T. micalis*, identified by me.

Frnnce, Alpes Maritimes (CONSTANT). — Spain, Bilbao. MBSM; Marbella, El Mirador, 8. VII. 1973 (E. TRAUGOTT-OLSEN), 1 ♂, 1 ♀, genir. slide 9640. RMNH. — Malaga, 16.VI. 1914 (WOLFSCHLÄGER) (BURMANN Coll.). — Italia: Liguria: Capo Mele (named: *"pretiosana"*) JÄCKH Coll. (USNM). Sardegna, Terranova, e. l. *Inula*, 24. VI. 1933 (H. G. AMSEL), 1 ♂, 5 ♀, genit. slides 9339 ♂, 9310 ♀, 9534 ♂, 9625 ♀. LNK, MBSM.

N Africa, Tangier, VII. 1938, 1 ♀. — 1893 ♀ (SCHUYT), 1 ♀. ZMAN.

Dalmatia, Herzegnovi, Igalo, 8. V. 1938 (H. G. AMSEL), slide 9634 (LNK). — Dalmatia, Sucurac bri Spalato, 8. VI. 1918 (NOVAK) 1 ♂, genit. siide ♂ 512 htus. Vind.; Spalato, 1862, gen. slide ♂ 513 htus. Vind. NHMW.

Greece, Kerkyra, Dassia, 5 km SE of Korakiana, 16./30. V. 1971 (B. VAN AARTSEN & J. B. WOLSCHRIJN), 1 ♂, 1 ♀, genit. slide 9579 ♂. ZMAN, Coll. WOLSCHRIJN.

Azerbaidzhan, ASSR, Khurdamir (indistinct) 10. VII. 1963 (EFRENOV), genit. slide 9523, 1 ♂. ZIAN.

Afghanistan, Pagman, 30 km NW of Kabul, 2100 m, 20./30. VII. 1962 (E. & A. VARTIAN), 1 ♀; N of Kabul, Ghorbandtal, 1923 m, 30. VIII. 1956 (KASY & VARTIAN), 2 ♂, genit. slide 8132. Hamadan, 27. III. 1938, HP 93, genit. slide 9627. NHMW, RMNH.

S Iran, Miyan Kotal, 1930 m, östl. Kazerun, 51 40'öL, 29 30'nB, 4.—7. VI. 1969 (H. G. AMSEL), genit. slide 9622. LNK.

South Afghanistan, Sarobi, 1100 m, 30.V.1901 (G. EEERT) 1 ♂, 2 ♀; Gulbahar, 1700 m, 20. & 25.VIII. 1956 (H. G. AMSEL), 1 ♂, — Herat, 970 m, 25. IV. 1956 (H. G. AMSEL), 1 ♂, genit. slide 9537. — W Afghanistan, Balkh, 400 m, 24. V. 1956 (H. G. AMSEL), 2 ♂, 4 ♀, genit. slides 9540 & 9621 ♂; Polichomri, 700 m, 28. V. 1956 (H. G. AMSEL), 1 ♂. — SW Afghanistan, Registan-Wüste, Darweshan, 500 m, 20./21. V. 1961 (G. EBERT), genit. slide 9624. — Bashgultal, 1750 m, Nurisran, 19.V. 1954 (J. KLAPPERICH) 1 sp., without abd. — Afghanistan, Ghorbandtal (N v. Kabul), 1900 m, 30. VII. 1965 (KASY & VARTIAN). NHMW. LNK, RMNH. Bukhara, Kashkad region, Kitab, 10. VII. 1926 (GERASIMOV), 1 ♂, gen. slide 9538. ZIAN.

Nepal, Kathrnandu Valley, Godavari, 1600—1800 m, 22.V.—6. VI. 1967 (DIERL-FORSTER-SCHACHT), 11 specirnens. — Chauni, 1400 m, 1.—24. V. 1967. — Chisapani Garhi, 1600 m, 11.—15. V. 1967 (DIERL-SCHACHT). — Prov. nr. 2 East, Jiri, 2000 m, 10.—11. VII. 1964 (W. DIERL), 3 ♂, 1 ♀, genit. slides 9421 ♂, 9422 ♀. — Jumbesi, 2750 m, 25.—31. VII. 1964 (31 specimens) (W. DIERL) MBSM, RMNH.

China, Prov. Chekiang, W Tien-mu-shan, 6. VI. 1932 (H. HÖNE), genit. slide 9639 ♂. MAKB.

Japan, Tizuna-Kogen, Nagano-ken, Honshu, 17. VI. 1972 (T. OKU), 1 ♂, genit. slide 9626 (Leiden Mus.). — Sakai, Osaka, 26. IX. 1965 *e. l. Arctium lappa* L., 3 ♂, genit. slide 7045, 9722, 9731, 3 ♀, slide 9731. — Honshu, Sinano, Ootakinawa ft., Ontakosan, 25. VII. 1957 (S. MORIUTI), genir. slide nr. 3 (Y. ARITA fec.). — Honsyu, Kyushû, Hokkaido; Okinawa I. (S. ISSIKI Coll.) USNM. — Ryukyu Is., Ishigaki I., Loocho, 31. V. 1937 (A. SUGIMOTO), gen. 9630 (RMNH).

Extralimital material.

SW Arabia, Asir Range, 2000 m, Wadi Morah, 81 km S Biljurshi, 24. IV. 1979 (H. G. AMSEL), 1 ♂, genit. slide 10261.

Mariannae Islands, Reunion, Les Colimaçons, 850 m (J. ETIENNE) sur feuilles d'artichaut (3 ♂, 7 ♀), gen. 9673 ♂, 9674 ♀. MHNP, RMNH and Reunion.

Indonesia, Java, Nongkodjadjar, 1300 m (A. M. R. WEGNER), 3 ♂, 1 ♀, gen. slides 9692, 9693, 9694. — Java, Tegal (LUCASSEN) (RMNH).

Australia, Canberra, 26. XI. 1948 (I. F. B. COMMON), 1 ♂, genit. slides 9724 ♂, 9723 ♀ (Canberra Mus.).

New Zealand, NI, Mt. Manganni, coast, 10.II.1949 (M. A. LIEFTINCK) — Haumonna, Hawkes Bay, 31. XI. 1965 (T. H. DAVIES), genir. slides 9637 ♂, 9638 ♀ (paratypes of *Tebenna bradleyi* CLARKE. USNM, RMNH.

Finally it rnay be stipulated that the material from Sourh Africa, superficially similar to *T. micalis*, appears to have distinct ♂ genitalia and is nssigned to a distincr new subspecies.

Literature:

Choreutis pretiosana sensu MILLIÈRE, 1874: 317, pl. 140, figs. 1—2 (nec DUPONCHEL, 1842).

Choreutis micalis: HEYDENREICH, 1851: 63, nr. 192. — SSELLES, 1872: 57. — GERASIMOV, 1930: 29, pl. 13, fig. 3, pl. 11, fig. 8. — AMSEL, 1936: 353, nr. 115. — KLIMESCH, 1968: 149, nr. 845. — REBEL, 1943: 34, 55. — KUZNETSOV, 1963: 28. — RUNGS, 1945: 121.

Choreutis bjerkandrella var. *micalis*: CARADJA, 1901: 142. — 1920: 15 ("Übergangsform *micalis*"). — 1899: 196.

Porpe bjerkandrella: TAKAHASHI, 1928: 99, pls. 55—56.

Tebenna micalis (sic): DANILEVSKY, 1969: 923.

Choreutis bjerkandrella (nec THUNBERG): MEYRICK, 1913: 39. — WALSINGHAM, 1881: 234. — ISSIKI, 1932: 1453, fig. 2936. — 1953: 458, fig. 1237 (*micalis* syn.). — INOUE, 1954: 49, nr. 243. — TAKAHASHI, 1950: 189. — 1955: 32, pl. 4, fig. 125. — KODAMA, 1961: 38. — 1969: 121, pl. 58, fig. 229.

Choreutis issikii: INOUE, 1954: 49, nr. 243.

Tebenna issikii: ARITA, 1973: 299, fig. 1, 4—5.

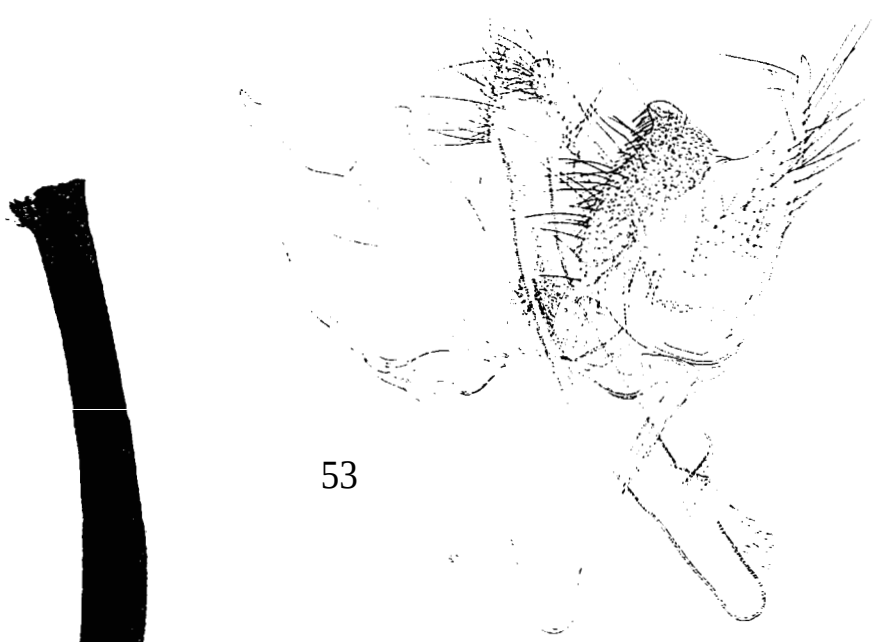
Plate 45

52 — 53

Fig. 52. *Tebenna bjerkandrella bjerkandrella* (THUNBERG), ***GS*** 9623, Germany, Ober-Bayern, Garrnisch, Ellman, ca. 1550 m, 28. VII. 1924 (E. BAUER). MAKB. pl. 6; Q pl. 127; p. **148**

Fig. 53. *T. bjerkandrella pretiosana* DUPONCHEL, ***GS*** 9535, Italy, Sardegna occ., S. Catharina, 3. VI. 1936 (H. G. AMSEL). LNK. pl. 6; p. 151

52



53

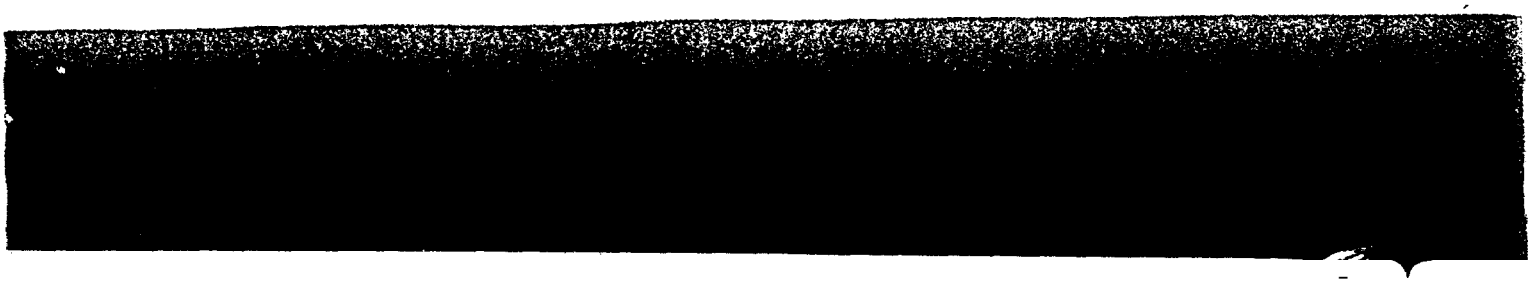
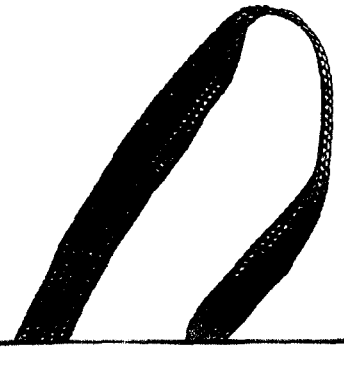


Plate 47

54-3—54-4

Fig. 54-3. *Tebenna micalis* (MANN), GS *9639*, China, West Tien-mu-shan, Prov. Chekiang, *6* VI. *1932* (H. HOSE). RMNH.

Fig. 54-4. *T. micalis* MANN (*T. bradleyi* CLARKE, holotype), GS *9637*, New Zealand, Haumoana, Hawkes Bay, 13. XI. *1965* (T. H. DAVIES). USNM. pl. *6, 7*; ♀ pl. *127*; p. 153

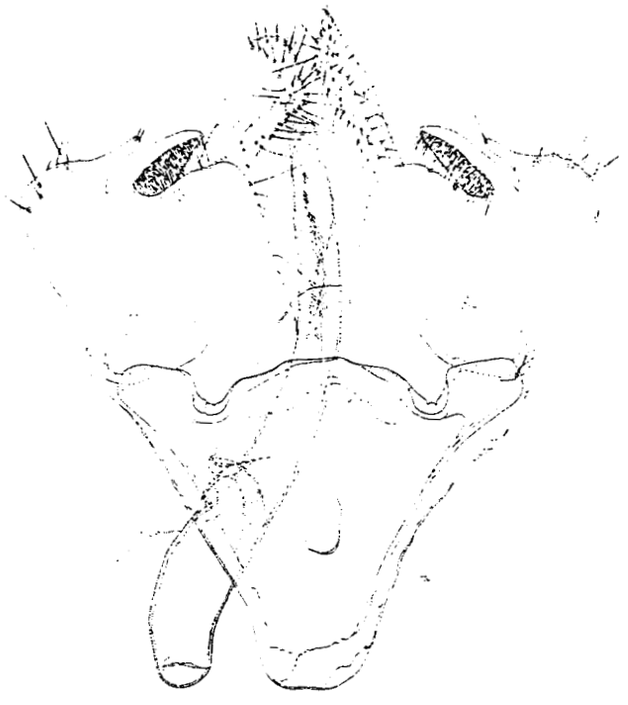


9. *Tebenna*

Plate 47

54-3 — 54-4

54-3



54-4

Forc wiiig oblong-suboval, dilatcd, costa sligliily curved, apcx obiuscly poinicd, termen roundcd, rather long, little obliquc. Kaihcr dark fuscous-purplish, nicdian arca darkcr; iwo broad transvcrsc fasciae of coarsc whitish dusting dense, iingcd yellowish, more so towards costa, firsi fascia at % inwards-obliquc. top gently turned basad, middlc of posterior cdgc vaguely exiendcd posicrad bciwccn cell and fold. base of fascia iiidisiincily furcate and slighily diiatcd; basal paich brighicr purplc bclow fold in certain lights, containing an oblong orangc-ochrcous subcostal mark from base, noi rcaching fascia, and more or lcss encircled by a bright silvery-mercury iiiciallic linc; somc similar metallic spots iowards base of wiiig bclow middle; sccond iransvcrsc fascia broadcr than first, gradually and moderately narrowcd downwards, rathcr suffuscd, at about ⅔ of wing, strongly angulate abovc middlc, to fold bcfore its cnd or slightly ovcr it, sligliily extending along fold, not rcaching dorsum, on costa a whiic slender line forming anterior edgc of fascia; a purple-black patch ovcr iowcr angle of cell, filling out concaviiy of sccoiid fascia, "diabolo"-shaped, wiih cxciscd ciids; this patcli containing an angulate, silvery-metallic mark; an elongate palcr purplc spot halfway prcccding and icrmcn almost filled with silvcry; small silvcry scales scattered along cdgc of median dark arca, a larger elevated doi in its middlc towards costa; cdgc of wing bcyond sccond iransvcrsc fascia suffused bright orangeish-fuscous. Cilia fuscous-bronze, along termen wiili an apical and a incdian suffused pale parting linc.

Hind wing fuscous-purple, becoming grey-fuscous iowards and on basal third. Cilia bronze-fuscous with a broad apical aiid a submedian whiiish parting band.

Variability: Paratypes witli sccond transvcrsc fascia broadcr, more conirasiing. being palcr whitish-ochreous aiid becoming wliiic antcriorly iowards costa; sccond fascia lcss angulate, inorc gradually curvcd; middle of dorsum with somc dccp purplc dusting. Hind wiiig with an irregular, spindle-shaped, short subterminal wliiic inark or a iongcr faint whiic linc.

Male genitalia (Pl. 49): Very similar to those of *T. bjerkandrella* THUNBERG, but with the costal liook of valva longcr and tliinncr. thc apical proccss of sacculus also narrowcr and longer, whiic the cornuti complcx has a thickened dark cdgc on both sidcs, rcaching io ilic iip in the prcscnt spccics; in *bjerkandrella* this cdgc is narrow and absent altogether towards ihc tip of thc cornuii complcx.

Female genitalia: Uiikiiown.

Early stages aiid bionomics: Unknown. Adults flying in July in subalpine meadows.

Distribution: Western Caucasus. Besides ilic Abkhasian Kaiigc, at 1800—2500 in, also from tlic Kardavach Kaiigc, 2700 m.

Remarks: A robust spccics. superficially somewhat resembling *bjerkandrella* in ilic orangcisli and silvcry markings, but much less bright and wiih quite different broad transvcrsc fasciac.

Material studied: Two paratypes with the sanic labels as ihc holoiypc, bui one ♂ of 17. VII. 1962, gciiii. slide 9470, another of 18. VII. 1962, "subalpine meadow".

Literature: HEPPNER, 1981: 52. — DIAKONOFF, 1984: 64.

52 (2) ***Tebenna bjerkandrella*** (THUNBERG) (Pl. 6, fig. 52₁₋₂)

Tinea bjerkandrella THUNBERG, 1784, Diss. Ins. Suecica: (24), pl. 1, fig. 23—24. (Nomen conservandum, cf. NYE c.s., 1977).

Type locality: Sweden: Mi. Kinnekulle.

Holotype: Location unknown. Presumably lost

Synonymy:

Phalaena Tortrix cardui STROM, 1783, Nyc Samling Kon. Danske Vid. Selsk. Skrifter, 2: 87. Typc locality, Norway. Holotype, lost. (Nomen rejectum).

Pyralis bjerkandrana FABRICIUS, 1787, Mantissa Ins., 2: 236 (emend.).

?Tinea prunnerella ROSSI, 1794, Mantissa Ins.: 46, nr. 484. Typc localiiy: Italy, Etruria. Holotype: whereabouts unknown. presumably lost.

Tortrix vibrana HÜBNER, [1813] Samml. europ. Schmett.: pl. 32, fig. 202. Type localiiy not indicated. Holorypc, location unknown. Prcsumably lost.

Porpe fibrana HÜBNER, [1825], Vcrr. bck. Schmett.: 373 (lapsus).

Choreutes vibralis TREITSCHKE, 1835, Schmett. Eur., 10: 33 (emend.).

Tebenna kawabei ARITA, 1975, Kontyû 43: 301, fig. 3, 6—7. Type localiiy. Japan, Honshû, Nidoage. Holotype, ♂ / Gen. no. 9734, A. DIAK. / Nidoage, Gumma Pref., Honshu, 28. VII. 1958 A. KAWABE (print) / . ZLMU.

Diagnosis: ♂♀, 13—14 mm. Head greyish-fuscous or tawny-fuscous wiili a slight bronre gloss, somctimcs inixcd with brown, a pair of glossy silvery-whitish spots at thc sidcs of facc, sometimes face inixcd witli whiic throughout, or wirh orbirr and facc whitc. Antenna grcyisli, bandcd with white. Palpus with basal scgmcnt silvery-white, median scgmcnt, light grcyish-olivc, long frontal fringe mixed with whiic at base, more or lcss streaked with blackish lines, terminal scgmcnt light grcyish with a faint nicdian whitish ring. Thorax olive-greyish, grey-fuscous, laterally and along lateral half of tegula suffused wirh ochreous-orange, lcss distinct in palcr spccimcns, sometimes dccp orangc-oclircous throughout, with an ochreous-brown apical spot, thrce bright silvcry longitudinal stripes, glossy in certain lights: along inner cdgc of cach tcgula and in middlc of thorax, extreme apcx mixcd with white; metathorax leaden-metallic. Abdomen greyish-fuscous to fuscous-bronze, posterior broad edges of segments leaden-silvery.

Fore wing subtriangular-ovate, rarhcr broad, costa curvcd, apcx obtusely pointcd, tcrmcn roundcd, oblique, long. Coloration varying considerably, ground colour froin dccp furcous-brown to lighr grey-ish-fuscous, basal patcli of ground colour, containing two longitudinal diverging streaks, concolorous witli thorax, viz. dccp orangc-ochrcous in darkcr spccimcns, paic yellowish and more limited in light: uppcr streak spindle-shaped, bctwccn cosia and fold, sccoiid sliortcr. bclow costa, inverted-trapezoidal, both not quite rcaching cdgc of patch whicli is straight and inwards-oblique, variably dusted with whitish, forming two transvcrsc fasciac, more or lcss irregularly inrcrconncctcd in middlc of disc, along fold and dorsuni; first band from bcyond ⅓ of costa, to ⅔ of dorsum, straight or slightly inwards-concave, gradually dilatcd dowiiwards, sometimes faintly parted bclow; sccond fascia from ⅔ of costa to before ciid of dorsum, extended on both sidcs on dorsum. along aiid abovc fold connected witli first fascia; siroiigly angulate posicrad abovc middlc of disc, angulation variably extended posicrad, usually forming three slcndcr strigulae along veins; three black marks abovc posterior half of fold, irregularly and variably centred witli thickened silvcry metallic, sometimes bluish scales; first mark moderate, round, rccoiid inucli largcr, inverted-trapezoidal, uppcr cdgc horizontal, third spot transversely oblong, in dark spccimcns continued by a black submarginal band cxicnding froin fold to bclow ¼ of costa, strongly dentate antcriorly and similarly ccntrcd with silvery-metallic; central third of wing bciwecn fasciae aiid abovc black markings witli an irregular circlc of smaller metallic silvery marks, without black, and a slcndcr subcostal streak iowards base; in pale spccinicns the upper half of submarginal black posterior band absent, metallic markings variably rcduccd; poricrior fourth of wiiig with a light-cr. tawny marginal baiid. Cilia glossy dccp fuscous-grey wiili a blackish basal linc inixcd with wliiic, in palcr spccimcns wiili a whiiish basal band.

Hiiid wiiig subtrapezoidal, rather ovcr 1, obtusely pointcd, dccp bronze-fuscous to palc fuscous-grcyisli, witli a variably dcvclopcd whitish transvcrsc baiid, siroiigly concave anteriorly and dilatcd upwards, in darkcr specimens prcccdcd by a parallel inucli narrower semicircular stria. Cilia bronze-fuscous or palcr; wiili a slender basal line, a subbasal fuscous baiid followed by a whitish baiid, tips whitish.

Male genitalia (Pl. 45): Tegumen darkly sclerotic, a broad band. Vinculum elongate-triangular, with a strong cdgc, almost without saccus. Valva siroiigly concave longitudinally, costal half sclerotic, cndiiig in a loiig curved liook, as loiig as ½ of valva; cucullus much shorter, top forming a ihick transverse and prominent knob, densely long-bristled, lowcr cdgc of valva gradually dilated. Anellus short,

DIAKONOFF, A. 1936. Glyphipteriginae auctorum nova lata. Microlepidoptera Palaearctica, 7

conical. witli two pairs c lender radiating folds. Aedeagus modcraicly long, curvcd, apcx gently dilated, obliquely truncate, caulis at ¼; cornuii a conical sheaf of acicula.

Female genitalia (Pl. 127): Ovipositor shori and broad, lobus analis transverse, semioval, apophyses of equal length, raihcr shori, antapophysis dilaicd and wiili a shori branch bcforc middlc. Sterigma semimembranous, a trapezoidal sclerite wiili rounded uppcr angles ind a median broad vcriical dccply punctulate band, dilaicd at extremities so as io form an X-shapcd figure. Ostium simple. formed by a suboval, slightly concave sclerite. Colliculum a little curvcd sclerotic iubc. Ductus bursac short. Corpus bursac wiih a strongly granulate wall. Signum a railicr broad, longitudinally concave sclcroric, punciulaic band, broadest in middle, about ¾ lcngih of corpus bursac.

Early stages aiid bionomics: The larva is yellowish-green with a yellow head and black-spoticd proiiioracic shield; pinacula are black. It lives in iop shoots of *Inula salicina* (BENANDEK, 1965) and in many other Compositae, e. g. *Carduus, Carlina, Cirsium, Gnaphalium, Helichrysum* (HERINC, 1932), cic. Thc extensive list of food plants by LHOMME (1963) is untrustworthy, referring to boih ilic prcscni spccics, wiili subsp. *pretiosana*, and vcry probably also to *T. micalis*. Rearing of larvae on a large scale would help provide exact data on foodplants for cach spccics.

Distribution: Widcly spread ovcr ilic Palaearctic rcgion, all ovcr Ccniral Europc up to Swcdcn and Norway, but not found in ilic Netherlands yci; all along ihc Mediterranean rcgion, in Morocco, Madeira, the Canary Islands, St. Helena; Ccniral Asia; Japan: Honshu, Hokkaido, cic. Duc to ilic superficial similarity of ilic spccicr of ihc *bjerkandrella* group, considerable confusion as to ihcir identity has prevailed for a long time, ihc more complicated bccausc iwo superficially discernible forms have bui a subspecific diffcrcncc (*bjerkandrella* and subrp. *pretiosana*), while a third (micalir), raihcr similar to ilic others and with ilic same biology, is a distinct spccier.

Remarks: Shc present spccics has bccn known for a long time uiidcr the name *bjerkandrella* THUNBERG (1784), bccausc the earlier name cardui STRØM (1783) went unnoticed until WALLENGREN, in 1880, and SCHÖYEN, in 1893, discovered and uscd it, each of them only once. Recently Mcssrs. KARSHOLT and SCHMIDT NIELSEN became aware of the synoiiymy again. Although the descriptions by ihc old authors of the adults and ilic larvae leave no doubi as to ilic identity of ilic iwo spccics, the iypcs of both *cardui* and *bjerkandrella* are lost. Besides, there was a reason against reviving STRØM's older name *cardui*, bccausc a homonym, a generally uscd name, existed in ilic Nociuidac — and would have io be suppressed together wiili *bjerkandrella*. Therefore ilic Commission of Zoological Nomenclature rulcd that *bjerkandrella* be conserved aiid *cardui* STRØM supprcsscd. (Cf. NYE, KARSHOLT & SCHMIDT NIELSEN, 1977 and Opinion ZN(S) 2204).

Another early name for a similar species, *Tinea prunnerella*, givcii by ROSSI (1794) in Etruria, Italy, cannot be cleared. Its terse description aiid notes on ilic food plant and biology could apply to any of tlic three forms: *Tebenna bjerkandrella*, its subrp. *pretiosana* and *T.* micalir MANN. As ROSSI's iypes no longer exist, thc name *Tinea prunnerella* remains obscurc (Nomen oblitum).

Somc interesting material studied: High mountains of Ccriiral Europc: Tirol, (Brenner, 2000 m); Haute Savoic, 1 100 m; Vorarlberg; Obcr-Baycrii.

Caucasus: Armenia: Kasikoparan, 10. VIII. 1882, genit. nr. 9619 ♂. (ZIAN).

Siberia: Jakutsk, 15 VII. 1914 (S. RODIONOFF), gciiii. nr. 9628 ♀. (ZIAN).

S Kuril Is., Kunashir I., env. of Mikhailovsk, 27. VII. 1971 (Y. KOSTYUK), gcnii. nr. 9997 ♂; Shikotan I., Iturup I., 20. VII — 6. IX. 1971 (ERMOLENKO, KOSTYUK). UANK.

Japan: Hokkaido: Kitami: Sirataki, 31. VII. 1974 (T. KUMATA). RMNH. *"Tebenna kawabei"* ARITA, two paratypes, labels as on holotype, genit. slides 73 ♂ and 74 ♀ (ARITA fecit). ZLMU.

Literature:

Pyralis bjerkandriana: FABRICIUS, 1787: 236, nr. 112. — 1794: 278, nr. 150 (*Phalaena*). — THUNBERG, 1801: 36, t. 4 f. 24—25 (*Tinea bjerkandrella*).

Tinea prunnerella: WERNEBURG, 1158: 57.

Choreutis cardui: SCHÖYEN, 1893: 38, nr. 918.

Tortrix vibrana: HÜBNER, [1813], pl. 32, fig. 202. — TREITSCHKE, 1830: 284: 12 (*Cochylis*). — 1835: 33, 34 (*Choreutis vibralis*). — DUPONCHEL, 1842: 180, pl. 65, lig. 8 (*Xylopoda*). — GUENÉE, 1845: 191 (*Simaethis vibrana*). — ZELLER, 1847: 643 (*Choreutis*). — HEYDENREICH, 11151: 63, nr. 188 (*vibralis*). — HERRICH-SCHÄFFER, 1855: 96, nr. 145.

Hemerophila vibrana HÜBNER, [1822]: 66, no. 2.

Simaethis cardui: WALLENGREN, 1880: 1059.

Choreutis bjerkandrella: MANN, 1867: 840. — ZELLER, 1868: 619. — 1878: 116. — HEINEMANN & WOCKE, 1871a: 265, nr. 1302. — 1871b: 18. — MILLIÈRE, 1871: 203. — 1874: 315, pl. 140, fig. 3—6. — PEYERIMHOFF, 1872: 519. — CHRISTOPH, 1873: 48, nr. 3211. — ERSCHOFF, 1874: 95. — SNELLEN, 1875: 74. — MILLIÈRE, 1876: 293. — WOLLASTON 1879a: 342. — 1879b: 29. — HARTMANN, 1880: 54, nr. 1302. — MEYRICK, 11180: 215. — 1895: 706. — CURÓ, 1883: 1. — MEYRICK, 1907: 109, nr. 203. — 1913: 19. — 1914: 25. — 1928: 708. — DONCKIER DE DONCEEL, 1882: 114. — WALSINGHAM 1871: 1059. — 1881: 234. — 1894: 537, 545, nr. 36. — REBEL, 1893: 527. — 1896: 122. — 1906: 44, nr. 202. — NIECKERL, 1894: 15. — PÁVEL & UHRYK, 1896: 64. — SEEBOLD, 1898: 308. — FERNALD, 1900: 241. — STAUDINGER & REBEL, 1901: 129, nr. 2312. — CARADJA, 1901b: 142. — ROTHE, 1902: 97. — *PRO.* HASKA, 1905: 17. — DISQUÉ, 1908: 55, 56, 62, 64, 74. — MEESS in SPULER, 1910: 297. — GRIEBEL, 1910: 44. — Anon., 1915: 161, nr. 941. — MARTIN, 1916: 132. — GERASIMOV, 1920: 29, pl. 10, fig. 2, pl. 11, fig. 8. — FLETCHER, 1921: 128, pl. 64, fig. 2. — STEPHAN, 1925: 117. — ROMANISZYN & SCHILLE, 1930: 151. — HERING, 1932: 706. — 1937: 125, nr. 569, 132, nr. 608, 158, nr. 760, 244, nr. 1230,262, nr. 1262, 283, nr. 1386. — AMSEL, 1933. 124. — Anon., 1935: 4. — PIERCE & METCALFE, 1935: 41, pl. 24. — MARIANI, 1938: 169. — BENANDER, 1946: 32. — 1961: 244. — 1965: 8. — FORD, 1949: 126. — Anon. 1950: 15. — OSTHELDER, 1951: 118. — FORD, 1954: 96, 97, pl. 8, fig. 14. — ESAKI & al. 1952: 458, fig. — 1957, 92, fig. — INOUE, 1954: 49, nr. 241. — ISSIKI, 1957: 32, pl. 4, fig. 125. — KODAMA, 1961: 39. — LHOMME, 1963: 407. — FORD, 1978: 83, 84, pl. 8, fig. 14.

Porpe bjerkandrella: WALSINGHAM, 1908: 987, nr. 108 (2311). — CARADJA, 1920: 14, *Porpe* (*Choreutis*). — TOLL, 1956: 4—6, 18, 27, 29. — POPESCU-GORJ, 1964: 145. — HRUBY, 1964. 261. — AGENJO, 1966: 22. — KROGERUS, 1971: 17. — BRADLEY, in KLOET & HINCKS, 1972: 12.

Simaethis bjerkandrella: TOLL, 1950: 183.

Tebenna bjerkandrella: NYE c. s., 1977: 106—107. — EMMET c. s., 1979: 65. — HEPPNER, 1981: 52 (*bjerkandrella, kawabei*). — MORIUTI, in INOUE c. s., 1982, 1: 242; 2: 203, pl. 10, fig. 43. — DIAKONOFF, 1984: 64.

53 (3) *Tebenna bjerkandrella pretiosana* (DUPONCHEL) (Pl. 6, fig. 53₁₋₃)

Xylopoda pretiosana DUPONCHEL, 11142, Hist. nat. Lép. ou Pap. de France, suppl. 4: 182, pl. 65, fig. Y.

Type locality: France (Provence and Corsica). Provciicc is hereby selected as the rypc locality.

Lectotype: ♂, hereby designated, tlic syiiiypc specimen which served for ilic original illustration, fig. Y on plate 65, circd above.

Synonymy:

Choreutis vibralis var. *australis* ZELLER, 1847, Isis: 643. Type locality. Sicily. Holotype: whcrcabouis unknown, probably lost.

Diagnosis: ♂, 12 mm. Head liglii tawny-ochreous, face paler, sides of face narrowly white-cdgrd. Antcnna dark fuscous, ringed with white, scape liglii tawny-ochreous, frontal tooth with a blackish tip. Palpus with basal segment aiid base of median white, median segment liglii tawny-ochreous, frontal brush mixed wirh fuscous. terminal rcginciii liglii iawny. dark-tipped. Thorax tawny-ochreous, dccpcr colourcd than head, a slcndcr mcdiaii longitudinal line, apcx, and narrow edges to tegulae palc grey. Abdomen pale golden-greyish, venter palc ochreous, posterior edges of segments with broad silvery-grey baiids.

Forc wing elongate-subtriangular, modcraicly broad, costa slightly curved at base, more so towards apcx, apcx obtusely pointed, icrmcn roundcd, long. Light greyish-tawny-ochreous, wiih a bronrc gloss along costa. golden gloss elsewhere, densely dusted wiili white and creamy (posicrior halves of scales) and partly suffused wiih golden-ochreous. Basal patch moderate, to ⅓ of costa and lcss than ¼ of dorsum, cdgc well-defined, convcx; a golden-ochreous dilated sircak from rpcx to cdgc of patch, its top narrowed aiid suffused; this strcak cdgcd on boih sidcs by a brilliant silvery subcostal metallic strcak and a similar one above and along fold, respectively; a scmioval goldcn-ochrcour spot bclow fold, from beyond base, not reaching cdgc of basal patch; a broad band of whitc dusting following basal patch, slightly narrowed only on costa; a sccond similar baiid from a whiic dot on ⅗ of costa, sirongly outwards-oblique, dilated and filling out disc postcriorly, separated froni first band by a broad transverse blotch of ground colour across lcss than upper hall of wing, witli onc large silvcry spoi on its interior cdgc. a smaller spot in middle bclow costa and iwo or ilircc such spots on posterior cdgc, cinitiing a baiid of ground colour to ⅓ of dorsum, parallel io first palc band; posterior part of dorsum dcnscr dusted wiili crcaniy aiid separated froni lowcr part of sccond palc costal srrcak by iwo large, transverse jet-black blotches, parallel to tcrmcii, irregularly cciiircd witli silvcry and limited abovc by vcin 5, bclow by fold; anterior of ihcsc blotches shorter and broadcr, narrowed bclow, prcccdcd by a third, smaller roundish similar spoi, beyond middle of first light band; i n oblong silvcry spot bclow ⅗ of cosia; a broad bnnd of lcss dciisc white dusting bcforc apcx and along tcrincn to tornus, below limiting ihc posterior black patch, nbovc separated anteriorly froni rccond light band by a faint streak of clear ground colour, including short longitudinal streaks along vcins 6—8, followed by a cluster of silvcry dois before apcx of wing. Cilia deep broiizc. wiili a whitc basal band.

Hind wing palc golden-fuscous, irregularly aiid moderately suffused by deeper fuscous-bronze dusting; a faint whitish rather steeply oblique sircah halfway bciwccn lowcr angle of cell and icrincn and a fainter transverse concave fascia of whiic dusting before apcx. Cilia concolorous, wiih ilircc white lines, basal narrow, submedian and apical, equally broad.

Male aiid female genitalia (Pl. 45): As in ilic nominate Subspccicr.

Early stages and bionomics : Exactly similar to those of subsp. *bjerkandrella*. The larvae are cspccially common in spun leaves of *Inula* but are also found on otlicr thistles and iiiany otlicr spccics of Compositae.

Distribution : A common southern European subspecies, especially iii ilic Mediterranean region, but less common than *T. micalis*.

Zeller (1847: 643) states that his *Choreutis vibralis* var. *australis* cannot be discriminated from ilic nominate form (viz. *"vibralis"*, from Gcrmany), oihcr than by smaller size and paler colour. This is evidence, that *australis* is a syiionym of *"Xylopoda" pretiosana* Duponchel and noi of *"Choreutis" micalis* Mann, because onc cannoi think of ihc greatest Microlepidopterist of his time missing thc obvious difference of the subdorsal black-and-silvery spoi, totally absent in 6. prciiorana. bui prcscnr in *micalis*.

It is a piiy that iiic only specimen from ihc Duponchel collection lacks ihc nanic label and is a specimen of *T. micalis*, a male without ihc abdonicn.

Duponchel's beautiful water-colour, plate 65, depicts as *pretiosana* a palc spccinicn with ihc black-and-silvery markings above the fold of the forc wing present, though rcduccd in size, and well-defined, bui without a trace of the decisive subplical spoi, while also ilic colour is exactly correct. Thcrcforc I liavc designated abovc as lectotype ilic specimen ihai served for that original water-colour; this drawing is now in the British Museum (Natural History) in Londoii. where it camc with Walsingham's library (cf: de Joannis, 1915).

"Xylopoda" pretiosana is a form that differs quite sharply from *T. bjerkandrella*, in size, as well as in a considerably palcr colour; on the other hand I must agree with Gerasimov (1930) that ilicrc are no differences in ilic genitalia whatever. Therefore I venture to treat prciioraiia as a subspecies of *bjerkandrella*, also because no evidence is hiiown to me of their occurring sidc by sidc. Howcvcr, this is less easy to provc. Therefore, if my readers have proof of ihc conirary. I would be obliged for records. In

the event of their availability, the subspecies *pretiosana* would of course have to be relegated to the status of a form of *bjerkandrella*.

Liicraiurc:

Simaethis preiiorana: Guenée, 1845: 191. — Rebel, 1892a: 266, 282, no. 43. — 1892b: 243. — 1896: 122, 146, no. 173. — 1906: 44, no. 202. — Walsingham, 1894: 545. — 1960: 28. — Hormusaki, 1907: 77.

Xyíopoda prciiorana: Zeller, 1852: 86.

Choreutis bjerkandrella var. preiiorana: Staudinger & Wocke, 1871a: 265, no. 1302a. — 1871b: 18. — Fernald, 1900: 241. — Staudinger & Rebel, 1901: 129, no. 2311 (2312). — Caradja, 1920: 34, no. 15 *Porpe (Choreutes)*. — Zerny, 1927: 471. — Amsel, 1936: 353, no. 114.

Choreutis pretiosana: Mann, 1869: 387. — 1873: 127. — Rebel, 1872: 243. — 1892a: 266, 282, nr. 43. — 1892b: 241. — 1896: 122, 146, 173. — 1906: 44, no. 202. — 1917: 41. — Snellen, 1875: 74. — Christoph, 1875: 48. — Millière, 1876: 294. — Wollaston, 1879: 342. — Hartmann, 1880: 54. — Seebold, 1898: 308. — Meess in Spuler, 1910: 298. — Hering, 1932: 706 (*Choreutis bjerkandrella* race prciioraiia). — Mariani, 1938: 169. — Weber, 1946: 869. — Kuznetsov, 1960: 28, — Lhomme, 1963: 498.

Tebenna prciioraiia: Heppner, 1981 : 58 (*pretiosana*). — Diakonoff, 1984: 64.

54 (4) ***Tebenna micalis*** (Mann) (Pl. 6, 7, fig. 54_{1-4})

Choreutis micalis Mann, 1857, Wicii. ent. hlunatsclir.. 1 : 181

Type localiiy: S Europe: Fiume.

Lectotype : Lcciolypc, hereby designated, ♂/Fiume, 3.49 Mn (small, square green, black cadre and iiik)/Coll. Wocke (print)/Muscuin Leiden, Lectotype, ♂, *Choreutis micalis* Mann, Selected by A. Diakonoff, 1978 (priiii & iiik, black cadre)/Type (red)/. Abdomen intact. ZIAN.

Synonyniy :

Choreutis pretiosana sensu Millière, 1874: 317, pl. 140, figs. 1—2 (error identif.) (nec Duponchel, 1842).

Choreutis isshikii Matsumura, 1931, 6000 Ill. Ins. Japan: 1078, nr. 2184. Type localiiy. Japan, Honshù: Wakayama Prefecture: Kii. Holotype. Lectotype, selected by Y. Arita, 1975. ♂/Kii, 15. VII. 1913 Issiki (ink)/♂ Genitalia on slide No. Clp-53, T. Kawabe, 1973 (print & ink)/. EIHU.

Tebenna bradleyi Clarke, 1971, Smithson. Contr. Zool., 56: 166, fig. 131, pl. 224. Type locality. New Zealand: Haumoana, Hawkes Bay. Holoiypc. ♂ No. USNM 70102/New Zealand, Haumoana, Hawkes Bny, 13. XI. 1963 (T. H. Davies). USNM.

Diagnosis: ♂♀, 9.5—10 inm. Head palc greyish-tawny or greyish-olive, vertex slightly mixcd wiili whitish, lacc and frons whitish-grey, face bclow wliitc. Antenna purplish banded with white, cilia-

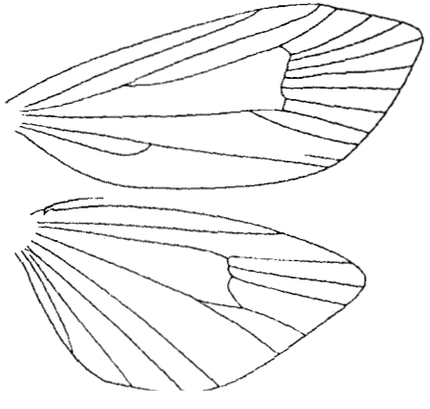


Fig. 13. *Tebenna micalis* (Mann), ♂, wing venation.

tions 1, scape greyish-olive, apcx with a slight frontal scale-tooth. Palpus with basal segment whitc, median with a wliiic base and apcx aiid a light tawny subapical broad band, frontal fringe long, pale grey, wiili 3—4 black parallel stripes, not crossing the segment itself, cxccpi ihc postcrior subapical stripe. Thorax ratlicr dccp fuscous-tawny, wiih a golden gloss, sometimes palcr (ncvcr dccp ochreous-brown or almost ferruginous, as in *bjerkandrella*), a thin whitish parting linc, inncr cdgc of tegula broadly metallic-silvery, tip of ihorax niixcd wiih whiic. Abdoincn opalescent grey, postcrior cdgcs of segments with leaden bands.

Fore wing oblong, suboval, niodcratcly broad. costa slightly curvcd. apcx obtusely pointed, termen almost straight, long, oblique. Coloring variablc. darkcr or palcr: dccp fuscous, partly suffused wiili ochreous-golden-tawny, wiili two broad transverse bands of wliiic irroration, niarkings brilliant metallic silvcry, partly edged witli jet-balck. Basal patch to ⅓ of costa and ovcr ¼ of dorsum, cdgc well defined; patch traversed hy a longer supraplical and a shortcr subplical suffused ochreous golden, to yellowish, strcak. slightly dilaicd, not quite reaching cdgc, a silvcry subcostal rtrcak and incomplete narrow silvcry streaks in base of fold aiid halfway dorsum. respectively; first fascia rather dilaicd downward, from a wliiiic doi on costa, parted on dorsum, inwards-oblique, base twicc as narrow as that of basal patch; second fascia from a double wliiic doi on ¾ of costa, anterior dot largest; fascia angulate and gently extended posterad at ⅓ of its length, io cnd of dorsum along or just abovc fold, connccicd by a variably cxtciidcd branch wiih first fascia, constricted bclow middlc by black niarkings, dilaicd again below these; median arca with uppcr ⅔ broadly quadratc, lowcr ihird forming a quadrate anteriorly; black inarkings arraiigcd thus: a largc prostrate-oval spot in lowcr posterior angle of uppcr quadraic of median arca. a fasciate patch bcyoiid aiid slightly bclow preceding, on icrmcn, in sccond fascia, a ihird, round smaller patch on lowcr quadratc posteriorly, not quiic rcacliing dorsuin; a fcw irregularly arranged black scales beyond firsi fascia, sometimes some morc, bcforc sccond; all black markings variably mixed or centred with largc, thick silvery-metallic scalcs; a strcak of black suffusion along posicrior ciid of costa and icriiicii; variablc silvcry inarkings wiihoui black scales, arraiigcd thus: spots on upper half of wing, viz., on posterior cdgc of firsi fascia, a pair of smaller spois bcforc sccoiid fascia, and oiic or two groups bclow costa; a small group in apcx and a linc along costa bcforc apcx; all silvcry inarkings subject to considcrnblc variation. Cilia long, basal half fuscous-bronze, witli an irregular white apical linc, followed by a glossy dccp fuscous band and a similar but palcr apical band.

Hind wing light greyish-fuscous wiih a slight bronze gloss, with apical ihird suffused darkcr grey-fuscous, this part preceded by a wliitc. suffused aiid fasciate transverse mark, from vein 5 to 2, more oblique than termen. Cilia bronze-fuscous witli a wliiic basal line and a submedian, and an apical white band.

Male genitalia (Pl. 46, 47). Tegumen largc, conical, tuba analis forming two large lateral flaps, bristled along cdgc. Vinculum almost an equilateral triangle, slightly variable probably owing to flattening out in mounts, saccus absent, end of vinculum sometimes slightly truncate, caudal cdgc deeply twice emarginate. Valva small, short, rectangular; sacculus rop rectangular, slightly roundcd, apical half shortly and densely brisilcd, proccss of cucullus semicrescentic, cosia rectangular, iniicr proccss reaching to middle of proccss of cucullus. Aedeagus long and slciidcr. curvcd and narrowed bcyoiid caulis, coecum penis moderately broad, lowcr edgc of apical ihird denticulate, cornuti a loiig sheaf of acicula.

Female genitalia (Pl. 127): Ovipositor ratlicr slciidcr, bivalval aiid tubular, postapophysis longer and more slciidcr than antapophysis which is irregularly thickened, broadest in middle, apcx bent. Sterigma siiiiplr, rounded-trapezoidal, sclcrotic part emarginate abovc. with an apical transverse band of punctulations (bases of scales). Ostium indefinite, colliculum a slender, subtubular funnel, on lower half becoming a semi-tubular band, abruptly dilaicd aiid spindle-shaped at ciid. with central scicrotic slendcr ridgc. Ductus bursae siiiiplc. Corpus bursae erected-pear-shaped, largc. Signum a slciidcr and loiig lamina dentata, as loiig as half circumference of corpus bursae.

Early stages and bionomics: Larvae livc undcr wliitc webbing in spun top leaves of diverse thistles aiid other Compositae, often on *Inula* spccics, aiid on *Pulicaria dysenterica* (Sardinia, AMSEL). The larva mines in tlic early stages (*Gnaphalium luteo-album*, Canary Is.), later skeletonizing the uppcr

side of leaf, undcr cover of webbing. Pupation is between leaves in a wliitc cocoon, usually fastened to the median vein of the leaf. In ilic Mediterranean region and iii Mauritius the larvae are injurious to cultivated artichokes.

Thc waicr-colour plate of preiioiana" sensu MILLIÈRE, 1874, on ilic contrary depicts micalir. When describing ilic serious harm caused to artichoke cultivation in Morocco, JORDAN (teste LHOMME, *1963)* ascribes thc injury to *pretiosana*. DUPONCHEL and RUNGS (1946), describing exactly rhc samc injury, call the offender *Choreutis* micalir MANN! So greatly confuscd are these two forms together with *bjerkandrella*, that tlic rccords in rcfcrciiccs ciicd for all tlircc ncccl confirmation. Similarly it ir not possible at present to sort out tlic food plants for ihc thrcc forms, which mostly are divcrsc Composiiac, many of wliicli might be attacked by more than onc of ihc thrcc forms, possibly cvcn by all thrcc.

According to ARITA (1975), the following host plants have bccn rccordcd for *Tebenna isshikii* MATSUMURA in Japan by Y. TAKAHASHI *(1950,* 1955): *Chrysanthemum coronarium* LINNAEUS, *Cynara scolymus* LINNAEUS, *Achillea sibirica* LEDEBOUR and *Ricinus communis* LINNAEUS. They all belong to ihc Compositae, except tlic last plant which, surprisiiigly, belongs to the Euphorbiaceae.

Distribution: This is also not quiic trustworthy, as rccordcd by earlier authors, due to thc samc confusion. *T.* micalir dccidcdly has tlic widest distribution of tlic three, occurring ovcr central and casi Europc, is plentiful in tlic Mediterranean region whcrc it flies together wiili *b. pretiosana* and is recorded from Armenia (Kasikaporan, CARADJA), Turkmenia (KUZNETSOV) and now found in Persia and Afghanistan. It occurs in Madeira and on the Canaries. Further rccords are Sardinia, Macedonia, Albania, Rumania, Italy, Gafsa, Morocco — aiid Ardennes (in Central Europe). For further, surprising, records, see bclow.

Kcmarks: The spccics may casily bc disccrnccl froni nominate *bjerkandrella* by smaller size, palcr thorax and basal paich of tlic forc wing and by widely different malc genitalia. From both *bjerkandrella* aiid subsp. *pretiosana* it diffcrs at oiic glance by tlic presence of the black-and-silvery subdorsal spot. For further discussion of ihc diffcrcnccs scc ilic remarks on *T. bjerkandrella* and b. *pretiosana*.

Material studied: In connection with tlie remarkably wide distribution of the present spccics (formerly attributed in part to *bjerkandrella* THUNBERG), I present below the complete list of material of *T. micalis*, idcniificd by inc.

France, Alpes Maritimes (CONSTANT). — Spain, Bilbao MBSM; Marbella, El Mirador, 8. VII. 1973 (E. TRAUGOTT-OLSEN). 1 ♂, 1 ♀, genit. slide 9640. RMNH. — Malaga, 16. VI. 1914 (WOLFSCHLAGER) (BURMANN Coll.). — Italia: Liguria: Capo Mele (named: *"pretiosana"*) JACKH Coll. (USNM). Sardegna, Terranova, e. l. *Inula*, 24. VI. 1933 (H. G. AMSEL), 1 ♂, 5 ♀, gciiii. slides 9309 ♂, 9310 ♀, 9534 ♂, 9625 ♀. LNK, MBSM.

N Africa, Tangier, VII. 1908, 1 ♀. — 1893 Q (SCHUYT), 1 ♀. ZMAN.

Dalmatia, Herzegnovi, Igalo, 8. V. 1938 (H. G. AMSEL), slide 9634 (LNK). — Dalmatia, Sucurac bci Spalato, 8. VI. 1918 (NOVAK) 1 ♂, genit. slide ♂ 512 Mus. Vind.; Spalato, 1862, gen. slidc ♂ 513 Mus. Vind. NHMW.

Grcccc, Kerkyra, Dassia, 5 km SE of Korakiana, 16/30. V. 1971 (U. VAN AARTSEN & J. B. WOLSCHRIJN), 1 ♂, 1 ♀, genit. slidc *9579* ♂. ZMAN, Coll. WOLSCHRIJN.

Azerbaidzhan, ASSR, Khurdamir (indistinct) 10. VII. 1963 (EFRENOV), genit. slidc 9523, 1 ♂. ZIAN.

Afghanistan, Pagman, 30 kni NW of Kabul, 2100 m, 20.130. VII. 1962 (E. & A. VARTIAN), 1 ♀; N of Kabul, Ghorbandtal, 1900 m, 30. VIII. 1956 (KASY & VARTIAN), 2 ♂, genit. slidc 8132. Hamadan, 27. III. 1938, HP 90, genit. slidc 9627. NHMW, RMNH.

S Iran, Miyan Kotal, 1900 m, östl. Kazerun, 51 40'öL, 29 30'nB, 4.—7. VI. 1969 (H. G. AMSEL), genit. slidc *9622*. LNK.

South Afghanistan, Sarobi, 1100 m, 30.V. **1901** (*G.* EBERT) **1** ♂, 2 ♀; Gulbahar, **1700 m, 20.** & 25. VIII. **1956** (H. G. AMSEL), **1** ♂, — Hcrai, **970 m, 25.** IV. **1956** (H. G. **AMSEL), 1** ♂, gcnii. slidc **9537.** — W Afghanistan, Balkh, 400 m, **24. V. 1956** (H. G. **AMSEL), 2 d,** 4 ♀, gcnii. slidcs **9540** & **9621** ♂; Polichomri, **700 m, 28. V. 1956** (H. *G.* **AMSEL), 1** ♂. — SW Afghanistan, Registan-Wüste, Darweshan, **500 m,** 20.121. V. **1961** (G. EBERT), gcnii. slidc **9624.** — Bashgultal, **1750** m, Nuristan, **19. V. 1954** (J. KLAPPERICH) **1** sp., without abd. — Afghanistan, Ghorbandtal (N v. Kabul), **1900 m,** *30.* VII. **1965** (KASY & VARTIAN). NHMW. LNK, RMNH. Bukhara, Kashkad rcgion, **Kitab, 10. VII. 1926** (GERASIMOV), **1** ♂, **gen.** slidc **9538.** ZIAN.

Nepal, Kathmandu Valley, Godavari, **1600**—1800 m, **22. V.—6. VI. 1967** (DIERL-FORSTER-SCHACHT), 11 specimens. — Chauni, 1400 m, 1.—24.V. **1967.** — Chisapani Garhi, **1600** m, 11.— 15. V. **1967** (DIERL-SCHACHT). — Prov. nr. 2 East, Jiri, **2000** m, 10.—11. VII. **1964** (W. DIERL), 3 **d,** 1 ♀, gciiii. slidcs **9421** ♂, **9422** ♀. — Jumbesi, **2750** m, 25.—31.VII. **1964** (31 spccimcns) (W. **DICKL**) MBSM, RMNH.

China, Prov. Clickiaiig. W Tien-mu-shan, 6. VI. **1932** (H. HÖNE), **genit.** slidc **9639** ♂. MAKB.

Japan, Tizuna-Kogen, Nagano-ken, Honshu, **17. VI. 1972** (T. **OKU), 1** d, gcnii. slidc **9626** (Lcidcn Mur.). — Sakai, Osaka, **26. IX. 1965 c. l.** *Arctium* lappa L., 3 ♂, gcnii. **slide 7048, 9722,9731.** 3 ♀. slidc **9731.** — Honshu, Sinano, Ootakinawa ft., Ontakosan, 25. VII. **1957** (S. MORIUTI), gcnit. slidc nr. 3 (Y. ARITA fec.). — Honsyu, Kyushû, Hokkaido; Okinawa I. (S. ISSIKI Coll.) USNM. — Ryukyu Is., Ishigaki I., Loocho, 31. V. 1937 (A. **SUGIMOTO), gen. 9630** (KMNH).

Extralimital material.

SW Arabia, Asir Range, **2000** m, Wadi Morah, 81 km S Biljurshi, **24. IV. 1979** (H. **G.** AMSEL), **1** ♂, genit. slidc 10261.

Mariannae Islands, Reunion, Les Colimaçons, 850 m (J. ETIENNE) sur feuilles d'artichaut (3 ♂, 7 ♀), gen. **9673** ♂, **9674** ♀. MHNP, RMNH and Reunion.

Indonesia, Java, Nongkodjadjar, **1300 m** (A. M.R. WEGNER), 3 **d,** 1 ♀, **gen.** slidcs **9692, 9693, 9694.** — Java, Tegal (LUCASSEN) (RMNH).

Australia, Canberra, **26. XI. 1948** (I. F. B. COMMON), **1** ♂, gcnii. slidcs **9724** ♂, **9725** ♀ (Canberra Mur.).

New Zealand, NI. mi. Manganui, coast, 10. II. 1949 (M. A. LIEFTINCK) — Haumoana, Hawkcs Bay, 31. **XI. 1965** (T. H. DAVIES), gciiii. slidcs **9637** ♂, **9638** ♀ (paratypes of *Tebenna bradleyi* CLARKE. USNM, RMNH.

Finally it may be stipulated that ilic material from South Africa, superficially similar to *T. micalis*, appears io have distinct **d** genitalia and is assigned to a distinct new subspecies.

Li i crature :

Choreutis pretiosana sensu MILLIÈRE, 1874: 317, pl. 140, figs. 1—2 (ncc DUPONCHEL, 1842).
Choreutis micalis: HEYDENREICH, 1851: 63, nr. 190. — SNELLEN, 1872: 57. — GERASIMOV, 1930: 29, pl. 10, fig. 3, pl. 11, fig. 8. — AMSEL, 1936: 353, nr. 115. — **KLIMESCH, 1368: 149,** nr. **845.** — REBEL, 1'140: 34, 55. — KUZNETSOV, 1960: 28. — KUNGS, 1945: 121.
Choreutis bjerkandrella var. *micalis*: CARADJA, 1901 : 142. — 1920: 15 ("Übergangsform *micalis*"). — 1899: 196.
Porpe bjerkandrella: TAKAHASIH, 1928: 99, pls. 55—56.
Tebeuna micalis (sic): DANILEVSKY, 1969: 923.
Choreutis bjerkandrella (nec THUNBERG): MEYRICK, 1913: 39. — WALSINGHAM, 1881 : 234. — ISSIKI, 1932: 1483, fig. 2936. — 1950: 458, fig. 1237 (micalirsyn.). — INOUE, 1954: 49, nr. 240. — TAKAHASHI, 1950: 189. — 1955: 32. pl. 4, fig. 125. — **KODAMA,** 1961: 38. — 1969: 121, pl. 58, fig. 229.
Choreutis issikii: INOUE, 1954: 49, nr. 243.
Tebenna issikii: ARITA, 1975: 299, fig. 1, 4—5.

Tebenna isshikii: HEPPNER, 1981: 52. — MORIUTI, in INOUE c. s., 1982. 1 : 242; 2: 203, pl. 10, fig. 41; pl. 251, fig. 8.
Tebenna micalis: HEPPNER, 1981: 52. — DIAKONOFF, 1984 : 64.
Tebenna bradleyi: HEPPNER, 1981 : 52.

55 (5) Tcbcnns ***submicalis*** **DANILEVSKY** (Pl. 7, fig. 55_{1-2})

Tebenna submicalis DANILEVSKY, 1969, Rcv. Ent. **URSS,** 48: 923, fig. 5—6 (*Tebeuna*, crr. typ.).

Type locality: S Kuril Islands: Kunashir I.

Holotype: **d/S** Kuril Is., Kunashir, environs of Scrnovodsk mixed wood, **20.** IV. **1967,** T. ZABELLO (transl. Russian, black ink) holotypc, *Tebenna submicalis* DANILEVSKY (ink)/TYPE (red, print)/. (Teste A. DIAKONOFF). ZIAN.

Diagnosis: ♂, 11 mm. Hced light, olive-grey with a faint bronzc gloss, sides of facc and vertex narrowly cdgcd witli wliitc, face bclow narrowly wliitc, base of scapc cncirclcd with a whiic line. Antenna faintly subserrulate, ciliations in male 1½, whiic; dccp bronzc, banded wiih whiic, scapc light olive-grey, wliitc bclow. Palpus porrccicd, projecting thc thickness of head bcyond facc, whiic, posterior half of median segment palc fuscous, fringe wliiic, a broad longitudinal palc fuscous band, corresponding wiih spoi, posteriorly mixcd wiili blackish; tcrniiiial scgmcnt dark grey mixcd with whiic. Thorax dark fuscous-grey, fincly partcd by whitc, tegula wiili a lcadcn gloss, silvery-whitish tipped and cdgcd, iip of apcx whitish, metathorax leaden-metallic. Abdomen dccp grey-fuscous, posterior cdgcs of segments silvery.

Forc wing suboval, costa moderately curved, flattened towards apex, apcx obtusely pointed, icrmcn roundcd, long, oblique. Light tawny-fuscous to bronze-fuscous, cxccpt on basal patcli, strewn wiih wliitish scales, slightly mixcd witli black. Basal patcli rather greyish, uppcr half suffused with palc golden-ochreous, a thick brilliant silvcry subcostal sircak; sometimes patcli darkcr fuscous-grey with centre suffuscd light ochreous, traversed by a fuscous stria along fold; cdgc of patch rather well defined, in palcr (rubbcd?) spccimcns, more suffuscd; sometimes sliglitly projecting abovc fold, faintly concave bclow fold; transverse fasciae wliitc, usually not irrorated cxccpt along cdgcs, but in dirkcr spccimcns slightly dusicd wiili darkcr all ovcr, sometimes wliitc colour extending ovcr base of dorsum; first fascia variable, usually gradually dilated, bclow fold sometimes irregularly partcd by a blotch of ground colour, sliglitly shifted posterad and not reaching dorsuni; scciiid fascia froiii ⅔ of corta to ciid of dorsuni. sometimes infuscated bclow fold, angulate and cxtcndcd posteriorly abovc its middlc by a blotch of variable size aiid shape; wliitc on costa, rather dusted with darkcr elsewhere, iiicluding a small black spoi bclow costa aiid a larger blotch on posterior half, ending in tornus; a broad spacc bciwccn fasciae dilated to ⅔, thence abruptly narrowcd almost to half itibreadth, iiicluding a large black, semi-oval or semicircular spoi on posicrior half in middlc of disc, a curved scrics of small spots on uppcr half, median of these costal. and a modcratc round spot bclow fold. all rhcsc variably and ihickly centred witli brilliant silvcry; narrow space beyond second wliitc fascia with a variably dcvclopcd marginal series of black, silvery-centred spots. Cilia wliiic, a narrow subbasal black line and tips mixcd wiih black; in darkcr spccimcns light grey-fuscous, with a basal linc of white dusting, a blackish-fuscous, irregular subbasal band followcd by whitish, tips of cilia mixcd wiih whitish.

Hind wiiig variably coloured, palcr or darkcr: palc fuscous, uppcr half of terminal cdgc suffuscd darkcr, witli apcx and cxtrcmc tcrniiiial edge suffuscd wiili wliitc; a broad suffuscd whirc transverse streak at ⅔, palcr on uppcr ⅓, concavc nnieriorly; in dark specimens wiiig dccp and cvcn bronze-fuscous, with a slender wliitc strigula bctwccii veins 2—5, halfway towards margin. Cilia entirely similar to those iii ilic forc wiiig and similarly variable.

Male genitalia (Pl. 48): Very similar to those of *T. micalis* but witli vinculum sliglitly shoricr and broader, valva iiarrowcr and longer, wirh ciid of sacculus more rectangular and less roundcd and especially, the apical proccss of costa strongly elongate, slcndcr and sinuate, cxcccding thc dorsal lobe of

Synonymy:

Anthophila lutosa 1828 HAWORTH, 1811: 472, nr. 4. Type locality. **England.** Holotypc: whereabouts unknown, presumably lost.

Asopia parialis TREITSCHKE, 1829, in OCHSENHEIMER, Schmcit. Eur., 7: 159, no. 11 (emendation).

Diagnosis: ♂, 10—13 inni. Head dccp fuscous-brown, strewn with a fcw wliitc scalcs, facc below and orbits wliitc. Antenna ferruginous, white-banded, scape fuscous. Palpus curvcd and ascending, me-

74 (16) Chorcuiis *aegyptiaca* (ZELLER) (Pl. 9, fig. 74_{1-2})

Simaethis aegyptiaca ZELLER, 1867, Stett. ent. Zeit., 26: 366.

Typc iocaiity: Egypt.

Holotypc: ♂ / Type (disc, red cdgc, print) / Egypt O.E.C. 1864 / BM. 1944—83 / ZELLER's types, *Simaethis aegyptiaca* ZELL. O. E. Cambridge / E25 (priiii) / BM(NH).

Synonymy:

Eutromula hypocroca DIAKONOFF, 1978, Zool. Verh., 160: 23, fig. 15. Type locality. Nepal. Holotype. ♂ / Nepal, Kathmandu-Chauni, 1400 ni, 22. IV. 73, DIERL leg., Staatssig. München / Gen. no. 9544 / Holoiypc ♂, *Eutromula hypocroca*, A. DIAKONOFF, 1976 /. MBSM.

Diagnosis: d, 12—13 mm. Head light grcy, dustcd wiih whiic, facc wliiic, forehead lcss dusicd wliitc. Antenna dark grcy ringed with whitc. Palpus moderately curvcd, subporrected, projecting beyond facc, wiili smoothly apprcssed scalcs, terminal scgmcni slightly shoricr than median, obtusc, flattcncd laterally; wliiic. median and terminal segments cach wiih thrcc narrow dark transverse striae. Thorax light fuscous-tawny, closely dustcd with whiic (iips of scalcs), a whitc, strongly curvcd iinc bordering apical fifth which is hardiy white-dusted. Posicrior leg whitc, apcx of tibia suffused with palc tawny, tarsus witli iwo similar rings, tip dark brown. Abdomen whitish-grey.

Fore wing oblong-triangular, siroiigly dilated, rathcr broad. costa gently curvcd from basc to ⅘, prominent thcrc and niorc roundcd, apcx subrectangular little roundcd, termen little curvcd, raihcr straight, little oblique. Light grey-fuscous, paler towards basc, becoming gradually dccpcr arid vinaceous-grey iowards tcrmcn. Lcss than basal ¼ evenly dusicd wiih wliitc (iips of scales), outer cdgc ill-dcfiiicd, raihcr inbent, uppcr half inwards, oblique; a slcndcr iransvcrsc fascia of whitc dusting at ⅓, gently diverging wiih cdgc of basal patch downwards, wiih a whitish mark on costal cdgc; an irregular broad similar iransvcrsc band at ¾, slightly outwards-convex, thinly parted by a linc of ground colour before middle which is rathcr zigzagging; anterior cdgc with two semicircular prominences along its upper half and a broader subquadrate prominence bciwccii fold and dorsum; on costa this band including a semicircular and ill-defined darker lilac-grey spot; a terminal band of lcss dustcd, niorc vinaceous ground colour, with a narrow pale terminal line. Cilia slightly projecting at apcx, at tornus aiid just above middle; fuscous-grey with a gentle gloss, basal band dull dccp vinaceous-tawny.

Hind wiiig railicr bright vinaceous-orange, bccoming gradually paicr towards basc and dorsum anteriorly, apical part wiih a coppery gloss. Cilia glossy grcy wiili a piiihish tinge.

Variability: A sccoiid male (genit. slidc 9300) niorc dustcd wiih wiiitish or pale grcy. basal patch dcnscr dustcd at basc, postcriorly almost confluent wiili first transvcrsc fascia which is broad, morc or lcss extending ovcr mcdian dark area of ground colour, especially on dorsum; sccond iransvcrsc band more regularly but lcss distinctly edged, with a fine darh median line in thc shape of a question mark instead of a parting linc; terminal arca broadcr, bui morc white-dusted throughout. Otherwise as in described spccinicn.

Hind wiiig dcrpcr pinkish-orange posteriorly, becoming orange-yellow antcrioriy, cilia paicr, grcy-fuscous.

♀ 14 inni. Similar to the male, cxccpi tlic hind wings being railicr dccpcr vinaceous, with infuscated apical third.

Male genitalia (Pl. 60): Tegumen modcraic, top broadiy roundcd. Tuba analis considerably shorter than in *C. pariana*. Vinculum robust, broadly triangular. Saccus ill-defined. Valva broad, rather short, end of costa gently prominent, cucullus gradually roundcd; dcnsciy clothed wiih fine spincs and bristles, starting from slightly bcyond niiddic of costa; cnd of sacculus with a slight transvcrsc ridgc oblique, clothed wiili long, not vcry dense bristics. Anellus wcakiy sclerotic, iop with a pair of lateral rounded tumescences, finely short-haired. Acdcagus rather tliick. wiili a short coccum penis, morc than apical third of top membranous on upper side, below top a double

nous tube, rathcr long, fiiicly short-haired (cf. slidc 9490). Acdcagus moderately long, rathcr straight, with coecum penis, iop obliquely truncate, at the left sidc witli a darkly sclcrotic small subdenticulate rim, sometimes not too well dcfiiicd.

Female genitalia (Pl. 140, 141): Scvciitli segment conical, sternite subtrapezoidal, with broadly roundcd uppcr cdgc. Ostium a broad circular cup-rhapcd imprcssion, with slightly scierotic ventral edgc. Colliculum ill-defined, an obiong subsclerotic part of tlic ductus bursae wiili a refracting wall, below top moderately constricted. Ductus bursac simple along its upper fourth, thence gradually becom-

Female genitalia (Pl. 139): Ovipositor slcndcr, long and extensile, both cighth and ninth segments distinctly elongate. Lobus analis small, obiong, flat, a free ventro-basal lobe entirely absent. Postapophyses marginal, vcry thin, ends gradually dilatcd. Antapophyses about as long, extremely thin, strongly sclcrotic. Seventh scgmciir moderate, sternite slightly sclcrotic, wiili a central round ostium with punctulate cdgc. Colliculum loosely fitting in this ostium, a dark, moderate, oblique funnel. Ductus bursac first turned dorsad, thcncc dcscciiding, vcry long, moderately broad. simple. Ductus bullae originating soon bclow colliculum. Corpus bursae with a finely punctulate wall, flattened, obliquely ovoidal, asymmetrical; base of ductus bursac dilated. Signum subcardiform, finely scobinate.

Early stages and bionomics: Communicated by FLETCHER (1933) thus:

"The larva has been rccordcd previousiy as webbing tcndcr leaves of *Ficus glomerata*, but it has since been found on leaves of Ficur *infectoria* and morc commonly on aerial roots of *Ficus* brngalenrir. feeding on the ncw rootlets growing on thc older ones undcr a shelter of dense silken wcbbing stuck ovcr with pellets of excrement, sometimes several larvae undcr onc wcb. The full-grown larva is about 10 to 11 mm long and 1.25 to 1.5 mm broad, subcyiindrical. slightly flattened, slightly tapering posteriorly, palc yellow; hced flattened, glossy yellow or brownish-yellow, vertex with a black marking on cach lobc; prorhoracic shield lightly chirinizcd; thoracic legs creamy whitisli, claws brown; body-segments distinct, with a narrow wiiitish or palc-yellow middorsal stripe, subdorsally fuscous; four subdorsal trapezoidally-arranged glossy black tubercles (more prominent in some individuals) cach bearing a finc hair; supra-spiracular tubercle similar; spiracles roundcd, minute, narrowly rimmed wirh brown; fivc pairs of equally developed slcndcr pale-yellow prolegs with complete circlcs of brown hooklets; anal plate slightly chitinized, glossy yellowish. Pupation occurs in a elongate purc whitc cocoon, about 11 mm long, usually formed on a root. Thc pupa is about 5.5 mm long and 2 mm broad across the thoracic rcgion, cylindrical, tapering postcriorly. yellow, cycs brown; head subtruncated, ncch constrictcd; third to seventh abdominal segments antcriorly with a dorsal transverse ridgc of small brown spines; when the abdomen is constrictcd some of these ridgcs may be hiddcn beneath tlic preceding scgmcni; anal segment blunt, armcd dorsaiiy with a pointed spine whose tip is upcurved; a few scattered thin hairs on head and abdomen. The pupal pcriod is about a wcck at the ciid of June."

Distribution: Dcscribcd from Egypt, later rccordcd from Transvaal, Socotra Island aiid India. Also iii Israel, Saudi Arabia, Ncpal and Uganda.

Remarks: Thc species is easily recognizable by the ashy-grey fore wing and tlic elegant bright orange hind wing. The labial palpus is truncate and laterally flattcncd. Judging from tlic female genitalia, occupying a quite isolated position, because of thc unusual, long aiid extensile ovipositor. Judging from thc male genitalia, however, seemingly nearest to *C. pariana* CLERCK.

Material studied: Israel, "Tel-Aviv, Lichtf. Dünc, 19. V. 30 (H. G. AMSEL)" 1 ♂, gcnit. slidc 8137. LNK. — Israel, IV.—V. 1966 (TRIAPITZYN), 1 d, genit. slide 9400. ZIAN. — Saudi Arabia, Jedda, IV. 1978 (SENECA) GP 10118. ZMKD.

Extralimital material. india: Pusa, e.l. on leaves of *Ficus infectoria*, 21.III. 1920 (RANGI). Coll. FLETCHER. RMNH. — Africa: Uganda, Kampala, 3. XI. 1934 (H. HARGREAVES). BM(NH).

Liicrarurc: ZELLER, 1867, Trans. cnr. Soc. London, (3) 5: 461, pl. 24. fig. 1. — SNELLEN, 1875, Tijdschr. Ent., 18: 72, 73. — REBEL, 1907, Lcp. Arab. & Socotra: 89. — MEYRICK, 1913, Lcp. Cat., 13: 36. — 1914, Gcncra Ins., 164: 22. — AMSEL, 1933, Zoologica, 2: 262, nr. 248. — FLETCHER, 1920, Mcm. Dept. Agr. India, Ent. 127 (*Simaethis*). — 1933: 24, pl. 22. (*Anthophila*). — HEPPNER, 1981: 53. — DIAKONOFF, 1984: 66.

75 (17) ***Choreutis pariana*** (CLERCK) (Pl. 9, fig. 75_{1-6})

Phalaena pariirna CLERCK, 1759, Icones Ins.: pl. 10, fig. 9

Typc locality: Not indicated.

Chorcutis pariana: HÜBNER, [1825]: 373, no. 3575. — TREITSCHKE, 1835: 31. — WILDE, 1860: 26. — HEPPNER, 1981: 54. — MORIUTI, in INOUE c.s., 1982, 1: 239; 2: 203, pl. 10, fig. 26. — DIAKONOFF, 1984: 66.

Siniacihir *pariana*: STEPHENS, 1829: 161, no. 6782. — 1834 (*Simaethis* Chorcrriir): WOOD, 1839: fig. 784. — 1854: 120, fig. 784. — HERRICH-SCHÄFFER, 1855: 94, no. 141. — KOCH, 1856: 310, no. 184 (*parialis*). — MANN, 1857: 181 (*parialis*). — 1862: 104. — 158. — 1867: 356. — 1869: 387. — 1870: 43. — 1871: 78. — STAINTON, 1859: 158. — ROESSLER, 1866: 257 (357). — STANGE, 1869: 93. — 1899: 3. — VON HEINEMANN, 1870: 4. — JOURDHEUILLE, 1870: 131. — WALLENGREN, 1871: 1057. — STAUDINGBH & WOCKE, 1871 a: 265, no. 1306. — 1871 b: 8. — MILLIÈRE, 1871: 294. — STAUDINGER, 1871: 270. — 1879: 264. — ERSCHOFF, 1874: 96. — MILLIÈRE, 1876: 294. — SNELLEN, 1882: 436. — CURÓ, 1883: 2. — SNELLEN, 1875: 73. — HARTMANN, 1880: 54, no. 1306. — WEBER, 1880: 28. — WALSINGHAM, 1881: 234. — WOOD, 1882: fig. 784. — 1854: 120, fig. 784. — 1839: 784. — DONCKIER DE DONCEEL, 1882: 114 (part: *parialis*). — TER HAAR, 1886: 189, 220, 221. — SORHAGEN, 1886: 138. — 1901: 346. — NICKERL, 1894: 15. — 1905: 1. — MEYRICK, 1895: 706. — 1913: 36. — 1914: 22. — PÁVEL & UHRYK, 1896: 65. — GENTHE, 1897: 65. — SEEBOLD, 1898: 308. — CARADJA, 1899: 196. — 1901 b: 142. — PETERSEN, 1900: 109. — STAUDINGER & REBEL, 1901: 129, no. 2315. — ROTHE, 1902: 97. — REBEL, 1903: 325. — 1904: 345. — PROHASKA, 1905: 17. — 1907: 275. — RAGUZA, 1905: 19. — CROMBRUGGE DE PICKENDAELE, 1906: 1. — HORMUSEKI, 1907: 78. — LEMEERE, 1907: 791 (synonyms erroneous). — SCHOPFER, 1907: 283. — KRULIKOVSKY, 1908: 261. — DISQUÉ, 1908: 39, 50, 67, 78, 107, 110, 128, 132. — JOANNIS, 1909: 788, no. 272. — SCHREINER, 1909: 2, 16, 127. — MEESS, in SPULER, 1910: 297, pl. 8, fig. 2. — GRIEBEL, 1910: 113. — MÜLLER-RUTZ, 1914: 423. — PRÜFER, 1914: 197. — MARTINI, 1916: 133. — Anonym., 1918: 161, no. 1943. — FORBES, 1923: 353. — HERING, 1927: 34. — 1932: 176. — VORBRODT, 1928: 115. — HARTWIEG, 1930: 60. — FÜGE et al., 1930: 96. — AMSEL, 1930: 116. — SCHILLE, in ROMANISZYN, 1930: 151. — ECKSTEIN, 1933: 108, pl. 4, fig. 142. — STEPHAN, 1935: 117. — Aiionyin, 1935: 14. — PIERCE & METCALFE, 1935: 40, pl. 23. — MARIANI, 1938: 169. — TOLL, 1938: 164. — 1950: 182. — 1956: 1, 6, 18, 30, 31, 32. — GRABE, 1955: 63. — VÁRI, 1941: 200. — THURNER, 1941: 26. — FORD, 1949: 126. — POPESCU-GORJ, 1964: 45. — HRUBÝ, 1964: 261. — POPESCU-GORJ & NEMES, 1965: 161. — BENANDER, 1965: 8. — KLIMESCH, 1968: 149, no. 343. — Anonym., 1950: 15. — OSTHELDER, 1951: 118, 119, no. 604. — ŠULCZ, 1958: 64. — DOZDA, 1962: 126. — KROGERUS et al., 1971: 17. — ISSEKUTZ, 1972: 73, no. 1539. — LHOMME, 1963: 495. — AGENJO, 1966: 22. — RAZOWSKI, 1969: 244. — WILTSHIRE, 1975: 118.

Chorcutes parialis: TREITSCHKE, 1830: 34. — FRÉ, 1858: 59.

Xylopoda parialis: DUPONCHEL, 1834: 457, 458, pl. 260, fig. 6. — GUENÉE, 1845: 192.

Chorcutis parialis: ZETTERSTEDT, [1839]: 974. — ZELLER, 1846: 208 (*Chorcutes*). — HEYDENREICH, 1851: 63, no. 186. — DE GRAAF, 1851: 35. — 1862: 54.

Hemerophila pariana: CARADJA, 1920: 15, no. 2316. — DANILEVSKY & KUZNETSOV, 1973: 13, figs. 6, 7, 8b. — FERNALD, 1900: 236—237.

Entromula pariana: BRADLEY, in KLOET & HINCKS, 1972: 12. — GOATER, 1974: SI. — DIAKONOFF & ARITA, 1979: 27, figs. 59—62. — HEPPNER, 1978: 40—41. — EMMET, 1979: 123—124. — EMMET c.s., 1919: 65.

Tortrix lutosa: SAMOUELLE, 1819: 42.

Simaethis lutosa: STEPHENS, 1829: 164, no. 6783. — WOOD, 1832, fig. 785. — 1854: IZ0, fig. 785.

Siniacihir (*Chorcutis*) *lutosa*: STEPHENS, 1834: 29.

76 (18) *Choreutis atrosignata* (CHRISTOPH) (Pl. 9, fig. 76₁₋₃)

Simaethis atrosignata CHRISTOPH, 1888, Horac Soc. ent. Ross., 22: 331

Type locality: U.S.S.R.; Far East: Ussuri Region: Nikolskaya

Lectotype: Lectotype, designated by A. DIAKONOFF; ♂ / Lectotype *Simaethis atrosignata* CHRISTOPH, 1888 (black cadre) / 913 (small pentagonal label, purplc ink) / a mauve metal colourcd disc / a

goldcn disc / ♂ Nikolsk. 16.IX. 76 (CHRISTOPH label: black cadrc, data on rcvcrsc side) / CHRISTOPH Coll. (print) / WALSINGHAM Coll. 1910 – 427 (print) / *Simaethis atrosignata* CHRIST. Horac Soc. ent. Ross., 22 p. 311 (1888) Typc ♂ (WALSINGHAM Collection labcl, DURRANT's hand) /. BM(NH).

Synonyiny:

Simaethis moiwana MATSUMURA, 1931, 6000 Ill. Ins. Japan: 1080, nr. 2105. Typc locality. Japan: Hokkaido. Sapporo, Moiwa, Holotype ♀, Moiwa / 13. IX. 1903 / *Simaethis moiwana* MATS. (all labels in black ink / a red rectangular blank label) /. EIHU.

Hemerophila ussuriensis DANILEVSKY, 1973, Horac Soc. cnt. Union. Sov., 56: 16, fig. 9. Type locality. USSR: Far East: Ussuri Region, Vinogradovka. Holotypc. ♂ / Gen. no. 10052 A. DIAK. / Vinogradovka, Ussur. 7. VIII. 929, DJAKONOV-FILIPJEV (print & ink, Russ.) / Micr. prcp. 9752 (print and ink) / Holotypc ♂ *Hemerophila ussuriensis* DANIL. teste A. DIAKONOFF (ink) / Type (red). ZIAN.

Diagnosis: ♂, 12 mni. Head and thorax lighi tawny-grey to grey-chestnut, mixed with slightly lighter and darker, facc below strewn witli whitish. Palpus crcamy-whitc, median and tcrminal segments blackish, marblcd with whitc, terminal with a finc median ring. Abdoiiicn blackish (abdomen of type missing).

Forc wing subtriangular, broad, thickly scalcd and dull, costa rathcr angulate bcforc middlc, apcx subobtuse, termen prominent in middlc, concave above, gently sinuate bclow this prominence. Light tawny-greyish, rarlicr variegated with divcrsc tinges of thcsc colours, sometimes finely dusted wiih whitish and partly with black. Extreme base of uppcr half of wing dark fuscous; cdgc of basal patch ratlicr dark brown marblcd with anthracite-grey, on costa bcyond base with an anthracite patch; edge of basal patcli black, vertical, strongly zigzag, dilated upwards, sometimes partly interrupted, at ¼ of wing, on costa followed by a small whirc dot; a broad palc whitish-tawny median arca, ratlicr faintly markcd with light fuscous: an irregular broad vcrtical submedian band, palc following arca with a pair of dots on uppcr half and a strongly zigzag inwards-oblique line originating from posterior cdgc of palc arca just above its middlc; an oblong whitc costal dor bcyoiid middlc; a large blackish costal bloich wcll bcforc apcx, variably shapcd. usually a vertical wcdgc or a triangle, preceded by a purple-black outwards-oblique linc from bcyoiid costal oblong whitc spot, to middlc of disc; wcll defined; a variably shaped suffuscd purplish or brown connection of dark patcli witli dorsum bcforc tornus; apcx and tcrmcii with a dccp brown-bronze band, witli extreme posterior cdgc dark purplc, sometimes mixed with a few whitc scales.

Cilia dark grey-purple, tips with tlic usual oblong-crescentic whitc streaks, from bclow apcx to above middlc and from bclow middle to above tornus, exaggerating scalloped appearence of tcrnicn.

Hind wing dark blackish-bronze with purplc reflections, appearing dark grey in certain lights. Cilia palc grey, sometimes tinged vinaccous, with a basal and a broadcr median black band, cilia opposite apcx darkly suffuscd.

Variability: Somc males diffcr from thc Icctotypc, being rather darkcr tinged and rnarkcd with more contrast. Base of forc wing bcforc tlic first transverse fascia suffuscd with rathcr dark slaty-grey, fascia jet-black on upper hall, tawny-fulvous on lower; cdgc of tlic so formed basal patch notched in middle; palc median space strongly contrasting, including a rathcr broad brownish transverse band (second transverse band) bcforc iiiiddlc of wing aiid a well-defined strongly zigzag light chestnut linc from middle of third traiisvcrsc fascia, dcscciiding to bcyond ⅔ of dorsuni. to bcyoiid base of sccond transverse fascia; this vcry dark, ratlicr obscurcd by terminal cdgc being entirely filled out by dccp chestnut-bronze; terminal edge narrowly black-purple; third fascia prcccdcd on costa by a large wliitc oblong dot and contrasting two small suffuscd wliitc dots; tlic dark subapical costal patcli turning anthracite. Cilia almost anthracite.

Although so much darkcr than tlic (possibly bleached) old lectotype specimen, thcsc males show all tlic elements of the typical pattern; thc forc wing is conspicuosly broad, witli a strongly arclicd costa. Especially characteristic is tlic dccp vinaceous to anthracite-blackish subapical costal patch.

broad, tortuous only in niiddlc (3x). Corpus bursac ovoidal, irregularly densely reticulate. Signuin single, a roundcd scobinate sclerite (GS 9583).

Early stages and bioiioniics: Fullgrown lama rccordcd to be 12 mm long (that of *pariana* is only 9 mm), pale yellow-green, with conspicuous, large, blackish-brown pinacula of setae, causing coarse dotting. Hcad pale yellow-brown, a small brown mark on cheek bclow, hind margin of head black; spiracula black-ringcd. Thoracic shield yellow-browii. wiili scattered dirk dots. Anal sliicld dccpcr yellow ihan body. Prolegs with some 19 crochcts in a circlc. Sixth ocellus vestigial, ocelli 1—3 separate, 3—5 closcly approximated. Antenna wiili long seta of sccond scgmcni ovcr 4 times as long as third segment. Lives under slight wcbbing upon uppcr surface of leaf, skeletonising this in small patches, thc leaf becoming hyaline. When disturbed, drops dowii on a thread. VI—VIII. (KODAMA, 1969, no. 231). Food plants (in Japan): *Broussonetia kazinoki* SIEBOLD aiid *B. kaempferi* SIEBOLD (Moraceae) (KODAMA, 1969; ARITA, 1978).

Distribution: Chiiia: Kiangsu (Hungtan); West Tien-mu-shan. Shanghai. — Japan: Honshú, Kyushú.

Kcniarks: A large greyish species with ratlicr suffuscd and oficii indistinct markings, of which most characteristic and constant is the sharp wliiic strigula parting ilic blackish median suffusion on costa. Orangeish discal marks of the hind wing oficii are ill-defined. The prcsciii species docs not resemble *E. nemorana*, but judging froiii the male genitalia it is closely allied.

Material studied: Japan: Honshú: Fushiki, 1886 (LEECH), genit. slidc 9583 ♂. — Hasimoto, Kii, IX. 1920 (ISSIKI), genit. slide 9138 ♀ (LNK). — Hikosan (Buzen), 29. VII. 1953 (H. KUROKO), genit. slide 8139 ♂. — Tsunagi, Iwate, 24. V. 1970 (T. OKU), genit. slidc 9658 ♀; 12. V. 1968, gcnit. slidc 9287 ♀ (RMNH). — Juniko, Aomori Pref., 2. VIII. 1970, (T. OKU), genit. slidc 9659 ♀ (RMNH, LNK, DEIE). — Japan (VON SIEBOLD) (RMNH; 3 worn specimens).

China: Shanghai, IX. 1918 (Coll. CARADJA, MGAB). — Lungtan bei Nanking, Prov. Kiangsu, 12. 7. 1933 (H. HÖNE), genit. slide 9655 ♂. — W Tien-mu-shan, 9. 6. 1935 (H. HÖNE), genit. slidc Y657 ♀. (MAKU).

Literature: MEYRICK, 1913: 35. — 1914: 21. — CARADJA, 1926: 158. — MATSUMURA, 1931: 1079. nr. 2192 (*Simaethis*). — ESAKI, 1952: 457, fig. — INOUE, 1954: 48, nr. 231. — ISSIKI, 1957: 33, pl. 4, fig. 129. — OKANO, 1959: 273, pl. 181, fig. 11. — KODAMA, 1961: 38, fig. — 1969: 122, pl. 58, fig. 231 (*Anthophila*). — ARITA & DIAKONOFF, 1179: 33, figs. 9, 17, 25, 67, 68 (*Eutromula*). — HEPPNER, 1981: 54. — MORIUTI, S., in H. INOUE c. s., 1982, 1: 240; 2: 203, pl. 10, fig. 29, pl. 239, fig. 2. — DIAKONOFF, 1984: 66.

81 (23) *Choreutis nemorana* (HÜBNER) (Pl. 10, fig. 81₁₋₄)

Tortrix nemorana HÜBNER, [1799], Samml. Eur. Schmett., Tortr., 7, pl. 1, fig. 3.

Type locality: Europe.

Holotype: Whereabouts unknown, presumably lost.

Synonyniy:

Asopia incisalis TREITSCHKE, 1829, Schmett. Europa. 7: 157. Type locality: Austria (herewith selected). Lectotype: herewith designated, **d** / TREITS 2994 (black cadrc, print, numerals in black ink, syntype from TREITSCHKI coll) / Gen. no. 10043 A. DIAK. / Lectotype ♂, Designated by A. DIAKONOFF, 1978 (black cadre) /. TREITSCHKE Collection. TMAB.

Diagnosis: **d9.** 12.5—17 mm. Head light greyish-tawny, dciiscly mixed with white, face aiid iiicdiaii band of frons whitc mixed wiili grcyisli-iawiiy. Antenna purplc. banded wiili white, ciliations in male under 1, scape light greyish-tawny. Palpus flattened laterally, long, at base rectangularly bent, thence porrccicd. nicdian segment gently upcurvcd towards apcx. terminal segment obliquely ascending; whiic, median scgmcni with frontal friiigc slightly mixcd with grcy, terminal scgmcni cxccpt at base niixcd or suffused wirh grcyish; rmooih laterally, more or less rough along lowcr cdgc, median segment on postcrior half of lowcr cdgc wiili a moderate, rough. projecting fringc, terminal scgmcnt spindle-shaped, subobtuse, on dorsal side with a short pointed tuft. Thorar rathcr bright greyish-fulvous, slightly mixcd wiili white, shouldcr suffuscd whitc, a narrow nnd faint submedian transverse whiic line, angulate rostrad in middlc, tip of rhorax narrowly whitc. Abdomen dccp grey-bronze, on posicrior half becoming suffuscd with purplish-ferruginous, anal tuft dark fcrruginous.

Porc wing broad, subtriangular, costa strongly curved at basc, little curvcd in niiddlc, flattened along posterior fourth, apcx obtusely rectangular, tcrmen proiiincnt in niiddlc, gently concave abovc and below this, little oblique. More than basal half bright greyish-fulvous, becoming brighter fulvous towards costa and posteriorly, somewhat paler greyish-suffused towards base of dorsum; posterior cdgc of this arca almost vcriical, postmedian, rathcr well-defined, bluntly angulate abovc middlc, broadly concave bclow this; a slcnder whitc linc on cosia bcyond base and a white streak bcyond ¼, contiiiiucd by a slcndcr fascia of whitish dusting to dorsum bcforc middlc, inodcraicly ouiwardr-convcx above and again bclow fold, gently angulate inwards just below fold; a brighter larger wliitc streak on cosia beyond middlc, followed by a small fulvous transverse mark; remainder of wing olivc-ochrcous, cxccpi along costa and tcrmen dusicd witli fulvous aiid whitish (wliitc cdgcs to fulvous scales); a dark vertical indistinct fascia of dccp brown dusting rising from tornus but not reaching costa.;a fcrruginous submarginal suffusion along tcrmcn and bcforc apcx, followed by a narrow marginal streak of dccp purple and whitc dusting (purplc scales wirh whiic tips). Cilia dccp purplish, basal third lighter purplish-vinaceous, tips of cilia foriiiing three prominenccs: in apcx, broadcr in middlc, broadest towards tornus, bctwccn these prominences tips of cilia whitc, so exaggerating scalloped appearance of wing.

Hind wing dccp purple, median third from base to just bcforc margin variably colourcd golden-ochreous, more or less touched on cdgcs with viiiaccous, a band of sparse purple dusting parallel to tcrmen across ochrcous spot; dorsum as far as vein 1c palc grcy, dusted with purplc, suffuscd with purplc lowards tornus. Cilia pale-greyish, basal third with a greyish-purple band on both sides, cdgcd by a wliitc line, remainder of cilia suffused with dccp purplc along lowcr third of tcrmen aiid a small spot opposite apex.

Variability: The species is little variable as to the pattern, but the colours inay vary slightly: rhc terminal band may be brightly ochreous, the prcccding broad band may be paler, whitish-grey; the hind wing with light spots may bc broadcr or narrower, more orange or golden with a metallic gloss, etc.

Male genitalia (Pl. 66): Tegumen moderate. Vinculum robust, as long as tegumen, strongly concave. Tuba analis aiid socii longer than tegumen, rigid aiid conical. Valva obliquely truncate; costa broad, semioval, to middlc of disc of valva, basad strongly narrowcd. Cucullus foriiiiing a separate obloiig aiid rounded process, dcnrcly long-bristled. Sacculus concave, sclerotic, narrowed, at top wiih a longitudinal flat harpe, densely bristled throughout; cdgc of valva between cucullus and sacculus slightly oblique, straight and simple. Anellus a sclerotic robust cylinder, its extended apical edgc with a small dorsal tooth. Juxta sclerotic, robust and inverted-T-shaped. Aedeagus moderateley long, shorter than valva, straight, gradually attenuated, top slciidcr. obliquely cut off bclow. bifid, coecum penis moderate, cornuti absent.

Female genitalia (Pl. 142): Ovipositor normal. Eighth tergite a sclerotic half-ring. Scvcnih sternite sclerotic, caudal rdgc forniing an indistinct oblong-triangular or semicrescentic sterigma, small triangular sclerites at its angles. Ostium small, straight behind cdgc of sterigma. Colliculum narrow, little sclerotized, irregularly plicate. Ductus bursac with uppcr part 3 times tortuous, in median dilated coil, a semitubular irregular dark cestum. Corpus bursac erected-ovoidal, proximal part transgressing gradually into ductus bursae. Signum a denticulate suboval sclerite, with downcurved uppcr end.

Early stages and bioiioniics: Larvae on fig tree (*Ficus carica* L.), in a slight netting or wcb upon iippcr side of leaves, eating holes, finally making a longitudinal spun fold of the undcr side and

pupating thcrciii. usually making but liiilc damage (LHOMME, 1963). According to DANILEVSKI & KUZNĚTSOV (1973), in spring the larvae eat holes in leaves, in summcr and autumn also eat figs, which they damage on ihc outside, or tunnel inside.

Disiribuiion: Widcly distributed in ilic southern Palaearctic together wiih thc food plant, but locally penetrating northwards aiid recorded from regions whcrc no figs grow (cf. KOCH, 1856, in Wiesbaden!), but probably such rccords are erroneous (cf. OSTHELDER, 1951, S Baycrn). Central Europc, Circum-Mediterranean to S Tirol, also Canary Is., Madeira, Malta, NW Africa, Asia Minor, Iran; Crimea, Caucasus, Georgia, Azerbaidjan, Armcnia. Turkmenia, Uzbekistan (DANILEVSKI & KUZNĚTSOV, 1972).

Remarks: A large, orangeish spccies, common in regions wiili ilic domestic fig irec. It is distinguished by its broad wings aiid scalloped termen of ilic forc and hind wing, exaggerated by thc white tips of cilia. The spccics varies liiilc. It is closely related to ilic high mountain spccics C. iandaracina MEYRICK, froiii Simla.

Material studied: Specimens of interest: a female, alas without abdomen, but without doubt conspecific: China, Likiang, Prov. N Yunnan, 4. VIII. 1935 (H. HÖNE, LNK). Two females, TREITSCHKE's syntypes, all labelled with the same labels as the lectotype: "TREITS 2994".

Lircraiurc:

Tortrix nemorana: ZINCKEN, 1821: 97, 116.
Xylopoda nemorana: DUPONCHEL, 1834: 24, 457. 462, t. 260 f. 7. — GUENÉE 1845: 192.
Hemerophila nemorana: HÜBNER, [1822]: 62, nr. 3.
Hemerophila (Simaethis) nemorana: CARADJA, 1920: 15.
Hemerophila nemorana: WALSINGHAM, 1908: 988.
Choreutis nemorana: HÜBNER [1825]: 373, nr. 3577. — MANN, 1869: 387. — 1873: 127. — HEPPNLK, 1981: 54. — DIAKONOFF, 1984: 66.
Simaethis nemorana: HERRICH-SCHAFFER, 1855: 95, nr. 143 (= *incialis* TR., laps.). — LEDERER, 1857: 102. — 1863: 46. — MANN, 1862: 104. — STAUDINGER, 1870: 271. — HEINEMANN & WOCKE, 1870: 4. — STAUDINGER & WOCKE, 1871a: 265, nr. 1305. — 1871b: 18. — WALLENGREN, 1871: 1058. — MILLIÈRE, 1871: 294. — SNELLEN, 1875: 73. — RÖSSLER, 1877: 376. — HARTMANN, 1879: 194, nr. 1305. — 1880: 54, iir. 1305. — STAUDINGER, 1879: 264. — CARÒ, 1883: 2. — MINA-PALOMBO & FAILLA-TEDALDI, 1889: 159. — REBEL, 1892: 266, 282, nr. 44. — 1893: 527. — 1896: 122, 146, nr. 173. — 1898a: 38. — REBEL (& ROGENHOFER), 1894: 88, nr. 157.— 1903: 325.— 1904: 345.— 1906: 44, nr. 203. — 1910: 349. — 1917: 60. — WALSINGHAM, 1894: 537, 545. nr. 37. — NICKERL, 1894: 15. — PAVEL & UHRYK, 1896: 65. — SEEBOLD, 1896: 308. — CARADJA, 1899: 196. — 1901b: 142. — STAUDINGER & REBEL, 1901: 129, nr. 2314. — RAGUZA, 1905: 19. — DISQUE, 1908: 77. — MEESS, in SPULER, 1910: 297. — MEYRICK, 1913: 36. — 1914: 32. — MÜLLER-RUTZ, 1914: 428. — KUWAYAMA, 1924, nr. 254: 49—57, nr. 255: 69—76. — MINKIEWICZ, 1925: 330—365. — CUSCIANNA, 1927: 17—34, f. 1— 11. — REBEL, in NORDMANN, 1931: 16. — SCHAWERDA, 1936: 80. — MARIANI, 1938: 169. — KLIMESCH, 1942: 361. — 1951: 29. — WEBER, 1946: 369. — HACKMAN, 1952: 8. — OSTHELDER, 1951: 119. — KUZNĚTSOV, 1960: 20. — AGENJO, 1966: 22. — VALLETTA, 1973: 81.
Allononyma (Simaethis) nemorana: KLIMESCH, 1968: 149, nr. 344.
Anthophila nemorana: HAANSHUS, 1935: 199. — OSTHELDER, 1936: 71. — KLIMESCH, 1951: 29. — LHOMME, 1963: 494.
Choreutis incisalis: ZETTERSTEDT, 1840: 974. — ZELLER, 1847: 23. — HEYDENREICH, 1851: 63. nr. 184. — KOCH, 1856: 319. — MANN, 1854: 574. — 1857: 181. — 1861: 192. — OSTHELDER, 1951: 49.
Asopia incisalis: ZELLER, 1847: 640.

82 (24) ***Choreutis sandaracina*** (MEYRICK) (Pl. 10, fig. 82)

Simaethis sandaracina MEYRICK, 1907, J. Bombay Nat. Hist. Soc., 17: 748.

Type locality: Himalaya: Simla.

Lectotype: ♂ / Lectotype (print, round, red centre) / Simla, Himalaya, C. G. N., Y.98 (MEYRICK's hand, black ink) / lectotype, *Simaethis sandaracina* MEYRICK, J. F. G. C., 1949 / ♂ Genitalia on slide 15. III. 1949, J. F. G. C. Y204 (print & ink, cadre) / *Simaethis sandaracina* MEYR. 3 / 1, E. MEYRICK dci., in MEYRICK Coll. / *sandaracina* MEYR. (MEYRICK's hand) /. BM(NH).

Diagnosis: ♂, 17.5 mm. Hcad light greyish-tawny, dcnscly dusicd witli white, face bclow white. Palpus rather long, dilated and ihickcned bcyond basc, curvcd aiid ascending, median segment roughish along lowcr edge, terminal segment broad and short, clavate, top roughish; whitc. on apical half moderately dusicd wiih palc tawny. Antenna purplc, banded abovc with wliiic, scape light greyish-tawny, dusted wiili whitc; ciliations under 1. Thorax fulvous, partly mixed with light grey scales edged on apical part wiili whitc, tegula appearing whitish-edged.

Forc wing broad, dilated subtriangular, costa curvcd. apcx subobiusc, termen slightly roundcd, long, liiilc oblique. Bright fulvous wiili a median transverse band of dccpcr ferruginous-fulvous suffusion, less distinct on dorsum; basal patch dccpcr ferruginous, on dorsal third iurning grcyisli (scales finely cdgcd witli whitc), on costa bcyoiid basc wiih a whitc transverse stria to fold; basal patch cdgcd wiih a wliiic stria (firri strcak) on costa to ccll, ihcncc to dorsurn bccomiiig grcyish (whiic edges of scales), convex above, concavc on fold, rather angulate and projecting posterad abovc dorsum; costa beyond wliiic strcak suffuscd wiih light orange; second strcak formcd by a hroadcr whiic fasciate mark just bcyoiid middle, reaching to cell, rhciicc continued by a vcry irregular and interrupted palc grey streak to ⅔ of dorsum, little outwards-oblique; costa bcyoiid rccond streak to bcforc apcx witli a large yellowish-olive suffused paicli; a sulfuscd broadcr whitish-grey subterminal fascia, slightly sinuate and dilaicd downwards from costa bcforc apcx to tornus, surroundcd by a dccp reddish-ferruginous suffusion, filling out tcrnicn. Cilia dccp fcrrugiiious. on costa bcforc apcx briglii ochreous, towards tornus bccomiiig purplish; cilia along termen distinctly scallopcd: projecting at apcx. more so in middle, less on tornus, concave in between.

Hind wiiig glossy briglii golden-orange, costa as far as ccll froin base to tcrincii. suffused with dark purple (palc leaden uiidcr dorsum of forc wing). dorsum as far as vein 1b glossy fuscous. Cilia long, glossy fuscous-bronze, becoming whitish around apex, blackish arouiid tornus, throughout witli a bronzc basal third, separated by a palc suffused subbasal line; a blackish-fuscous suffusion along central third of icrmcii, obscuring palc subbasal line there.

Male genitalia (Pl. 66): Tegumen rather high, tuba analis small, socii flat and slender lateral ridges. Vinculum vcry strong, thickened at ilic sides, sclerotic. Valva moderate, narrowed, broad and dccply concavc at base; sacculus wiili a ridge-like modcraic. dcnscly haired harpe; top of valva obliquely truncate aiid slightly curvcd downwards, with a dcnsc, limited paicli of bristles. Anellus a long cylinder, wiih a higher, simply emarginate ventral cdgc and dorsal edge excised rectangularly. Aedeagus slender, straight, gently dilated apicad, coecum penis small.

Female genitalia: Unknown.

Early stages and bionoinics: Unknown. Adult taken VIII

Distribution: Known only froiii the iypc locality.

Remarks: An elegantly coloured, bright fulvous species with distinct transverse lines, white on costa, palc ashy-grey in disc. The species resembles rather *C. nemorana* HÜBNER which without doubt is its nearest relative; it differs froin the former by a less sinuate aedeagus and less prominent hair patches of the valva.

Literature: HEPPNER, 1981: 55. — DIAKONOFF, 1984: 66.

nite sclerotic or subsclerotic, seldom modified. Ostium bursae in intersegmental membrane, mostly a weak funnel. Ductus bursae, a very narrow and long delicate tube, usually slightly dilated at entering corpus bursae, sometimes gently sclerotic here or containing a bivalval dark sclerite (modified cestum); seldom this is enlarged and of complicated shape; directly beside this originates a membranous slender ductus seminalis, leading to ovoidal bulla seminalis. Corpus bursae simple, ovoidal, finely punctulate. Signum mostly absent, very seldom a pair of flat, horn-shaped or narrow rod-like signa.

Early stages and bionomics: The larvae have concealed life habits and are still unknown for most, even quite common, species. They feed on seeds and usually live in flowers or seed heads of diverse species of Gramineae, Juncaceae and Cyperaceae; a few are known to mine leaves and stems of plants (Glyphipterix *umbilici* HERING). The adults fly in day-time among grasses in moist places and are best collected by sweeping. Their peculiar habit is to sit upon plants, slowly moving the wings up and down.

Distribution and remarks: The family is represented in the Palaearctic Region chiefly by the large genus Glyphipterix HÜBNER, with 54 species, while the three other genera are small, with one or two species only; these small genera must be of tropical origin, being more numerous in the Far East, Japan and China, some of them sparkling with elegant metallic colours. The species of Glyphipterix are often not easy to recognize; a close study of the minor differences of the markings, together with the genital characters of male and female is usually necessary. The identification is complicated by considerable variation of the fore wing pattern, often displaying a kind of polymorphism and resulting in disappearance of one or more costal white streaks or metallic discal dots, while the shape of the white dorsal mark and its length may vary considerably. Therefore the use of a single such character for identification can be misleading and has caused creation of synonyms. This kind of polymorphism in some European species (especially the *simpliciella* group), is the more frustrating, because of lack of information about the early stages and biologies.

As the ductus bursae and ductus seminalis are of little taxonomic value, they have either been omitted in some figures or drawn only at the base; the bulla seminalis has been omitted for the same reason.

The probable autapomorphic characters of the Glyphipterigidae are summed up by KYRKI (1984: 78, his 'Glyphipterix HÜBNER supragenerie group"), as follows: "head smooth scaled, tentorinal processes absent, larva with two L-group setae and enlarged. dorsally shifted spiracles in the 8th abdominal group"; but he remarks that all these characters are shared with some other yponomeutoid genus group, and so have tentative value.

Uncertain species

It has not been possible to find any material of "*Ussara hilarodes*" MEYRICK, 1935, from China: Tienmushan, and thus to clarify its identity and ascertain whether it is indeed conspecific with *Glyphipteryx hilarodes* MEYRICK, 1909, from Assam, as stated by that author. Consequently also the question remains open whether the former name pertains to a Palaearctic genus and species.

Known food plants of the Palaearctic Glyphipterigidae

As is remarked above, classic Lepidopterists often recorded names of plants upon or around which adults of certain species were collected. When copying these records — a common practice — the following authors apparently recorded there names as those of the food plants of the *Glyphipterix* species concerned, and thus they have remained for a long time. A notorious example is *Drosera* species, stated over and over as being hosts of G. *thrasonella* by diverse authors, finally by LHOMME (1963). These records might have originated from a note by KOCH (1856), of "*Aechmia*" *thrasonella* "swarming around a spot of *Drosera rotundifolia*" but KOCH also reports "*Aechmia*" *fischeriella* "in young twigs of raspberries" (!). Two more questionable records are by MILLIÈRE, in 1871: of "*G. equitella*" auctt., feeding on

leaves of *Silene* (Caryophyllaceae) and, in 1872: of *G. haworthana* feeding (?)on *Asplenium trichomanes* L., which sounds most unlikely to me. Again for the probable complex "*G. equitella*" auctt. KALTENBACH (1874), referring to WOCKE, records Saponaria *officinalis* L. as host. There all too improbable records are omitted from the following list.

Gramineae

Dactylis glomerata LINNAEUS
- Glyphipterix *simpliciella* (STEPHENS): seed borer; throughout the region (HARTMANN, 1880, STAINTON, 1870, CHOPRA, 1925).

Festuca spec.
- Glyphipterix *fuscoviridella* (HAWORTH), ? culm borer, in England (HERING, 1957) (LHOMME, 1963).

Pleioblastus variegatus MAKINO var. *viridis* MAKINO.
- Glyphipterix *semiflavana* ISSIKI, culm borer, in Japan (MORIUTI, 1960).

Cyperaceae

Carex spec.
- *G. thrasonella* (SCOPOLI), culm borer (DISQUÉ, 1901).

Scirpus spec.
- *G. thrasonella* (SCOPOLI), culm borer (DISQUÉ, 1908).

Carex vulpina LINNAEUS
- *Glyphipterix forsterella* (SCOPOLI), seed borer, in England (MEYRICK, 1928).

Cyperus longus LINNAEUS
- Glyphipterix *schoenicolella* BOYD, seed borer (Le MARCHAND, 1937), in Gironde (LHOMME, 1763).

Eriophorum angustifolium HONCK.

Eriophorum gracile KOCH

Eriophorum lanatum (= *latifolium* HOPPE?)
- Glyphipterix *haworthana* (STEPHENS), seed borer, throughout the region (STAINTON, 1870) (HARTMANN, 1880).

Juncaceae

Juncus glomerata THUNBERG (= *J. effusus* LINNAEUS).

Juncus spec.
- *Glyphipterix thrasonella* (SCOPOLI), culm borer, throughout the region (HARTMANN, 1880) (MERSHEVSKAYA, 1976); Lithuania.

? *Juncus trifidus* LINNAEUS
- *Glyphipterix nicaetella* MÖSCHLER, smoked out from dense growth in great numbers, perhaps feeding on this plant (WEBER, 1946).

Luzula campestris (L.) DE CANDOLLE
- *Glyphipterix fuscoviridella* (HAWORTH), stem borer, also in leaves, in Europe (MEYRICK, 1928) (LHOMME, 1961).

Luzula pilosa (L.) WILLD.

Luzula spec.

Luzula luzuloides (LAM.) DANDY & WILM. (= *albida* (HOFFM.) DC.)
- Glyphipterix *bergstraesserella* (FABRICIUS), stem borer, in Europe (MEESS, in SPULER, 1910) (WOCKE, 1874, SCHÜTZE, 1931), close to fool of the culm. PEYERIMHOFF (1872: *L. pilosa*) (MÜLLER-RUTZ, 1914) (HERING, 1932: culm). Culm borer, near base (DISQUÉ, 1891). Also in seeds (GRABE, 1955).

Araccae

Acorus calamus LINNAEUS. (ARITA, in litt.).

Acorus gramineus SOLAND

Lepidotarphius perornatellus (WALKER), stem borer, in Japan (KODAMA, 1961).

Crassulaccae

Cotyledon umbilicus LINNAEUS (= *Umbilicus pendulinus* DC.)

G. umbilici HERING, leaf miner (HERING, 1927), Canary Is., Mediterranean.

Securigera spec.

G. equitella (SCOP.), on leaves, Europe (HERING, 1957).

Sedum acre LINNAEUS

"*G. equitella*" auct., stem and leaves, in Europe (STAINTON, 1870, HARTMANN, 1880, KLIMESCH, 1951).

G. minorella SNELLEN, idem (SNELLEN, 1882).

Sedum album LINNAEUS

"*G. equitella*" auct. (SCHÜTZE, 1931), leaves and buds (NICKERL, 1908) (in Bohemia).

Sedum sexangulare LINNAEUS

"*G. equitella*" auct. (LARSEN, 1916; TOLL, 1931; WOCKE, 1874) (Schlesien), leaves and buds (SORHAGEN, 1886).

Sedum telephium LINNAEUS

"G. equitella" auct., in Bohemia (NICKERL, 1908), leaves and buds.

Sedum dasyphyllum LINNAEUS

"*G. equitella*" auct., in stalks (MEYRICK, 1928) and mining in leaves (CHRÉTIEN, 1897).

Key to the Palaearctic genera of the Glyphipterigidae, based on the superficial characters

1. Pale grey fore wing marked only with a row of black, silver-centred dots, mostly along posterior half of wing. Haustellum sometimes absent ..... *Chrysocentris*, p. 340
– . Fore wing pale grey but markings otherwise 2
2. Abdomen brightly coloured, with dense lateral fringe of scales. Haustellum short ..... *Lepidotarphius*, p. 253
– . Abdomen normal, not so coloured, nor fringed. Haustellum well-developed 3
3. Fore wing with veins 7 and 8 short-stalked, 9 approximated to stalk at base; without white costal streaks ..... *Carmentina*, p. 259
– . Fore wing with veins 7 and 8 separate, 9 distant at base; mostly with white costal streaks ..... *Glyphipterix*, p. 262

Key to the Palaearctic genera of the Glyphipterigidae, based on the characters of the male genitalia

1. Valva deeply bipartite longitudinally ..... *Lepidotarphius*, p. 253
– . Valva entire 2
2. Valva rhomboidal, with apical curved spine. Saccus and aedeagus long, straight and slender ..... *Carmentina*, p. 259
– . Valva oblong-oval or spatulate, sometimes long-pointed, without curved spine, saccus and aedeagus not so long, straight, nor slender 3
3. Valva oblong-oval, sometimes long-pointed ..... *Glyphipterix*, p. 262
– . Valva more or less spatulate ..... *Chrysocentris*, p. 340

Key to the Palaearctic genera of the Glyphipterigidae, based on the characters of the female genitalia

1. Ductus bursae with basal rubrical sclerotic cestum shaped as an inverted funnel. *Lepidotarphius*, p. 253
– . Ductus bursae with basal cestum, if present, not thus 2
2. Ostium and free, erect, sclerotic tube. Signa absent ..... *Carmentina*, p. 259
– . Ostium not thus. Signa present or absent 1
3. Ductus bursae with a sclerotic modified cestum at base and/or signa present ..... Glyphipterix (partim), p. 262
– . Ductus bursae without a cestum, without signa *Chrysocentris* and *Glyphipterix* (partim), p. 340 and p. 262

16 *Lepidotarphius* PRYER (Pl. 11; 1 species: 97 – 98)

Lepidotarphius PRYER, 1877, Cistula Ent., 2: 235.

Type-species: *Lepidotarphius splendens* PRYER (= *Glyphipteryx perornatella* WALKER), by monotypy.

Synonymy:

Desmidoloma ERSCHOFF, 1892, Mémoires Lépid., 6: 672. Type-species: *Staintonia fulgens* ERSCHOFF, by original designation.

Diagnosis: Head slightly compressed dorso-ventrally, smooth-scaled. Ocellus posterior, concealed under scales. Haustellum short, concealed. Antenna in male moderately flattened, short-serrate along lower edge, not perceptibly ciliate, somewhat shorter than fore wing; antenna in female slender, short-serrulate, not perceptibly ciliate. Maxillary palpus rudimentary, 2-segmented, basal segment

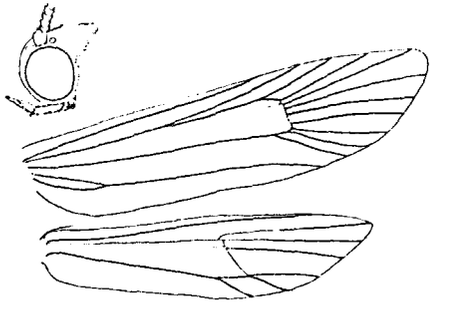


Fig. 22. *Lepidotarphius perornatellus* (WALKER), ♂ sketch of head and wing venation.

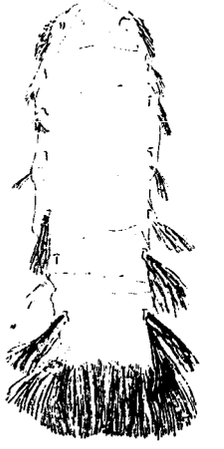


Fig. 23. *Lepidotarphius perornatellus* (WALKER), ♂, sketch of the abdomen with lateral scale tufts, ventral aspect.

from cnd of dorsum, almost vertical, gradually excurved, top roundcd, extreme basc pure whitc; a modcraic srrcak before and parallel to lowcr half of termen, narrower than preceding strcak. cnds roundcd, anterior somewhat irregular; a raihcr large rounded-suboval silvcry dot halfway bctwccn tops of fourth costal and subterminal marks, rcspccrivcly; a transverse smaller silvcry spot, continued over basal half of cilia. on concaviiy bclow apcx; apcx filled out with silvcry black. Cilia whitc, basal half bronze-grey wiih darkcr iips, cilia abovc apcx wirh a jet-black marginal strcak, cilia on cnd of dorsum dark grey-fuscous with a whirc bar from basc of sccond dorsal mark.

Hind wing rathcr broad. oblong-semioval, termen much more curved than costa, rathcr pale glossy fuscous-golden. Cilia dccpcr fuscous-golden-bronze.

Variability: ♂♀ 15—16.5 mm. Generally darkcr grey-olive-golden with dccpcr purple suffusion postcriorly; onc ♀ from Francc (gcnit. slidc 9334) more suffused with dccp reddish-purple; sometimes costa and basc in darkcr specimens with a greenish huc. Females exactly similar to males. Third costal strcak sometimes as long as sccond, both sirongly clavate by silvcry; dark cdgcs of markings on posterior part of wing variably dilaicd and somctimcs extending in horizontal striae bctwccn markings; rhrcc posterior cosial marks somctimcs longer than in the rypc; dorsal streak variably clavate and diversely more or less pointcd, bui invariably bent most at thc basal third; preterminal mark often brokcii into ilircc roundish dots, two anterior sometimes more approximated.

Hind wing usually darkcr than in the typc spccimcn, grey-fuscous with a fainter gloss. Cilia morc greyish-tinged.

A nice scrics of this little known spccics from Italy, Francc and Austria cnablcs me to prcscnt these minor details of rhc variation, which actually is slight.

Male genitalia (Pl. 98): Tegumen high and rather narrow, dorsal wall ending in an crccied point. Vinculum modcratc, lowcr cdgc rhickcncd but without a distinct ridge, upper frontal angles forming distinct roundcd knobs, higher than broad. Saccus straight, poinrcd, moderate, slightly shortcr than the height of vinculum in its middlc. Valva robust, oblong-spatulate, basal third naked and considerably narrowcd, cxiremc basc much dilaicd and dccply cmargiiiatc in middlc, so forming a larger dorso-baral process and a smaller pointcd ventro-basal onc. Aedeagus modcratc, less than ¾ length of valva, straight, gently and moderately dilaicd along apical half, top roundcd. Cornutus, a modcratc iubc gently narrowcd postcriorly, ciid witli fine numerous backwards-directed spines. Anellus with basal half a widc. ovoid sac.

Female genitalia (Pl. 163): Lobi anales very small. Apophyscs long, robust, antapophyscs sinuate, with a slight thickening abovc middle and a vcry short branch abovc this. Ostium completely hyaline, as are ductus and corpus bursac; ostium with a small central dark cup-shaped sclcriic, 'thc cork"; cestum small, an oblong sclcriic wiih numerous longitudinal folds aiid a complicated basal dilatation, shaped as short and widc folds.

Early stages and bionomics: Unknown. A mountain spccics. in Francc collected at 2000 m abovc sea level in VII—VIII, in Digne, at 600 m, VI. In Italy, Montc Baldo, at 1400—1500 m, VII, VIII and in Spanish Pyrcnccs, at 1400 m, VI.

Distribution: Mountains of C aiid S Europc: Italy, Tirol, Pyrénées; Francc, Alps and Eastern Pyrénécs; Swiizcrland; Austria. USSR: Caucasus.

Rcmarks: A fine large spccics, tlic largest of tlic spccics group. It is recognizable by its size and also by tlic long, little dilaicd dorsal strcak, sirongly curvcd bclow middle and rathcr obtusely poinicd. Both sexes havc distinciivc genitalia. For a dctailcd comparison wiih tlic spccics that resemble *gianelliella* most closely, viz. G. *equitella*, see Kcinarks under that spccics.

The small cestum, charactcristic for tlic prcscnt group, is a complicated sclerotic body at thc extreme ciid of tlic ductus bursae, a shori iubc with sirongly longitudinally plicate wall and with shori additional walls that dilate its basc. This cestum is quite similar in thc spccics of thc G. *equitella* group; in *gianelliella* it is largest. Othcr small superficial diffcrcnccs are tlic largc size of thc insect and ihc shape

of thc hind wing, useful and important characters in addition to tliosc of thc genitalia, but only after sufficient experience. An cndcavour is made to use ihcm in ihc kcy to thc spccics and varieties of the group.

According to CHRÉTIEN (1899), thc typc locality "Turin" should be specified as Col de Tcndc, near Turin, in Piemonte.

Material studicd: Italy: Monte Baldo, Bocco di Navcnc, 1500 m, VII. 1970, genit. slidc 93330; thc same, 1400 m, M. VII. 1968, gcnit. 93440. Swiizcrland: Campocologno, 1. VI.—7. VII. 1928, 1929, 1915. Pontresina, 7. VIII. 1929. — S Tirol, Umhausen, 29. V. 1948; Klausen, 27. V. 1954. — Francc, Digne, 600 m, 2.—5. VI. 1959, genit. 93340. — Spain, Pyrénées, La Molina, 1400 m, 30. VI. 1960. — Austria inf., Dürnstein, 1. VI. 1941 (KLIMESCH). (All by K. BURMANN. Coll. BURMANN). — Spain, Lerida, 1400 m, 28. VII. 1975 (C. GIELIS). — Francc, Pyrénées or., St.-Martin-de-Canigou, 5. VIII. 1894; Puy-Vachcr (La Grave) (LE MARCHAND). Isergebirge, 480 m (SOFFNER). — Nay (CHRÉTIEN). — Switzerland, Valais. MNRP.; Zermatt, 1700 m (NBSM, LNK). Iser Mts., 480 m (SOFFNEK). — Italy, Piemonte, Susa, Rocciamelone, 1000 m, 8.—20. VI. 1959. — Switzerland, Triftschlucht, 17. VII. 1932 (E. JÄCKH). JÄCKH Coll., all named "G. majoreila HEIN.". USNM. — USSR, Caucasus. Daghestan, Levashi. 21. VI. 1926 (RYABOV), gcnii. slidc 9252 ♂.

Literature:

Glyphipteryx gianelliella: FREY, 1880: 381. — CHRÉTIEN, 1899: 147. — STAUDINGER & REDEL, 1901: 130, in. 2330. — MEESS, in SPULER, 1910: 299. — GIANELLI, 1910: 552. — MEYRICK, 1913: 43. — 1914: 30. — CARADJA, 1920: 15. — HERINC, 1927: 432. — LE MARCHAND, 1939: 193. — LHOMME, 1963: 503. — HEPPNER, 1982 c: 50. — DIAKONOFF, 1984: 70.

146 (45) *Glyphipterix equitella* (SCOPOLI) status nov. (Pl. 17, fig. 146_{1-4})

Phalaena equitella SCOPOLI, 1763, Ent. Carniolica: 254, no. 659.

Typc locality: Yugoslavia: Slovenia.

Holotype: Whcrcabouu unknown. Prcsumably lost.

Synonyniy*):

Aechmia majorella VON HEINEMANN & WOCKE, [1876], Schm. Deutschl. Schwiz, 3 (2): 397. Type locality. Environs of Vicnna, Austria. Lectotype: hereby designated, tlic largest male spccimcn of tlic original scrics of VON HEINEMANN & WOCKE, from tlic environs ol Vienna. Whereabouts unknown. ZIAN?

Glyphipteryx minorella SNELLEN, 1882, Vlinders Ncdcrl.: 753. Typc locality. The Netherlands, Province of Noord-Holland: Vogelenzang. Lectotypc, ♀/gen. no. 9361/Vogelenzang 20. 6. 80 ♀ (fadcd inh, SNELLEN's hnnd)/Coll. SNELLEN (print)/Museum Leiden *Glyphipteryx equitella* Sc. Dct. v[AN] E[ECKE] (print and ink + black cadrc)/Lccioiypc ♀ *Glyphipterix minorella* SNELLEN, design. by A. DIAKONOFF, 1978 (print + ink)/. RMNH.

Glyphipteryx crassiluncella REBEL, 1916, Ann. Naturhist. Hofnius.: 157. Typc locality. Grcccc, Creic Id. Lcctotypc, liicrcby designated, ♂/Gen. no. X351/Kristallenia (print)/Kreta, RBL. '04/*Gl. crassilunella* RBL. Typc (in REBEL's hand)/Leciotypc 1. **NHMW.**

Glyphipteryx zermattensis AMSEL, 1933, Dcuuchc cni. Zeitschr. Berlin, (1932): 20, pl. 1, fig. 1. Typc locality. Switzcrland: Zermatt. Holotypc. Whcrcabouu unknown. Presumably lost.

Glyphipteryx sexguttella TOLL, 1936, Ann. Mus. zool. Polon., 11: 404, fig. 14 (nec fig. 15). Type locality. Poland: Wolszkow. Holotype. Whcrcabouts unknown. Prcsumably lost (teste J. RAZOWSKI, in litt.).

*) For the surmized synonymy of *Oecophora angulosella* O. G. COSTA, 1834, cf. remarks on uncleared species, p. 375.

Diagnosis: ♂♀, 9–13.5 mm. Head and thorax deep golden-bronze-fuscous, sides of vertex narrowly edged with white. Antenna dark fuscous, finely white-ringed, scape from below white. Palpus rather long, when bent, tile tip excccding vertex; rather thickened with short bristly scales roughish beneath, except on basal half of median segment; white, median segment with two obliquc dark purplc streaks close together across apical half, top white, terminal segment acutely pointed, shorter than median, deep purplc, with an obliquc white submedian transverse streak and a lateral longitudinal white streak. Abdomen palc grey-fuscous-golden, posterior edges of segments and tip of apex greyish-white.

Fore wing oblong-lanceolate, moderately broad, costa rather curved along basal half, less curved posteriorly, apex obtusely pointed, termen gently concave below apex, modcratcly rounded and very obliquc below. Olive-fuscous with a golden gloss, posterior ⅔ suffused with deep purplc, edge of suffusion traceable, inwards-obliquc. Markings white, sometimes somewhat irregular, more or less darker-edged, in disc turning metallic lilac-silvery. Costa with white streaks, usually there are six, often five, seldom seven; their position and shape are rather constant, so in case of five obviously the sixth (subapical) streak is absent, in case of seven there is a short white mark halfway between second and third streak; first streak strongly obliquc and rather straight, or curved at extreme base, reaching below ⅓ of disc; second usually more slender, with lower half silvery and clavate, sometimes touching discal metallic spot; three or two following marks wedge-shaped or dentoid, seldom rather slender, with tips silvery; these marks in a closely approximated group distant from third streak and converging to diverse degrees; second space (between second and third streak) usually slightly but distinctly wider than first and third space. First dorsal streak slightly variable, but usually gradually and strongly curved in middle, acutely pointed and so appearing less obliquc and always shorter than in *gianelliella*, but its curve, shape and length are subject to slight variation (which makes certain specimens rather similar to *gianelliella*), but always smaller, with narrower, more pointed hind wings; second dorsal streak metallic lilac-silvery except the slightly dilated white base, excurved, slightly inwards-oblique, top clavate, sometimes joined to that of the second costal streak, so as to form a slender transverse fascia, with median third strongly outwards-convex; an elongate subterminal mark, clavate at both ends before and parallel to lower part of termen; a round dot in disc halfway between second preceding and tip of fourth costal streak, a slender metallic mark over base of subapical concavity of termen. Cilia white, less than basal half deep leaden-grey with blackish tips, a white notch below apex. cilia above apex with a jet-black marginal line, cilia on end of dorsum grey with a white bar.

Hind wing broadly lanceolate. costa little curved, termen and dorsum together forming a gentle gradual curve; apex rather pointed, light fuscous with a pale grey basal third, with a silky gloss throughout. Cilia light fuscous-grey with a bronze gloss.

Variability: As already stated above the markings are variable, as to the number of costal streaks (six, sometimes five, seldom seven) and the shape, curve, position and length of the first dorsal streak.

Male genitalia (Pl. 98, 99): Rather similar to those of *G. gianelliella*, but somewhat less sclerotized. tegumen less high and thickened above, vinculum larger, cup-shaped, lower edge rather conical, pointed in middle with a marginal ridge or thickening which in its middle gives rise to a narrow keel, continued over saccus; saccus dark. distinct, its free part about as long as the ridge is wide. Valva as in *gianelliella* but shorter, at base sacculus edge more concave than costal edge (in *gianelliella* the reverse); base of valva deeply emarginate, upper process large and broad, lower shorter, pointed. Acdeagus straight, top more abruptly dilated. Anellus a wide hyaline sac, finely bristled on the vergc of retracted portion. Cornutus a rather wide straight tube.

Female genitalia (Pl. 163): Lobus analis moderate. Apophyses strong darkly sclerotized, antapophysis simple, not furcate, at basal ⅓ distinctly bent forward (ventrad; thereforc clearly distinct from these of *gianelliella*). Ostium hyaline, funnel-shaped, with a concave dark sclerite (a "cork"); ductum similar to that in *gianelliella*.

Early stages and bionomics: The larva has a black head. Prothoracic plate blackish-brown. Body pale yellow, with small, dark pinacula. A small transverse dorsal plate on abdominal segment IX

and anal plate dark brown. Thoracic legs brown-ringed. Mines in stems and leaves of *Sedum acre*, probably also in *S. anglicum* (in Britain), and on other *Sedum* species. Mined plants become whitish and withered. Larva full grown end V. Pupa in thick cocoon between leaves or on rocks. (PELHAM-CLINTON, in lit.).

Distribution: Central and southern Europe, probably also northern Europe, but in western Europe only in the South: France, ? Belgium. The typical, large form, not in the Netherlands nor in England: ". . .in England we have seen nothing at all analogous to this *majorella* variety." (STAINTON, 1870: 282). Germany, Austria, Switzerland up to 2800 m, Poland, Romania, Hungary, Bulgaria, Greece, Dalmatia, Italy, Spain, S France, Israel?, Caucasus, Central USSR, Denmark?, Sweden?.

Remarks: FISCHER VON ROESLERSTAMM, as well as HERRICH-SCHÄFFER, had recorded the occurrence of a larger (10—11 mm) and a smaller (7.5—8.5 mm) 'form" of the present species, but did not find any other differences except the size. MANN (1854), however, had introduced the name *"majorella* mihi" (a nomen nudum) for the larger form and VON HEINEMANN subsequently stated that this was not only larger but also had relatively broader fore wings, the dorsal white streak less acutely pointed and the metallic dots less reddish-tinged. He regarded the larger form as a distinct species and described it under MANN's name, *G. majorella* VON HEINEMANN; it has been known under this name ever since. (We will see that all the differences summed up by him are infra-specific).

However, SNELLEN (1882) astutely argued that not the smaller of the two "species". but the larger, is SCOPOLI's *equitella*, because the original description states its size to be 2½ lines which is only ⅓ line (or 0.7 mm) smaller than the average size of the common *G. thrasonella* (SCOPOLI). As SNELLEN did not have the larger form, which does not occur in the Netherlands, he refrained from a judgement of its specific status, but nevertheless suggested a new name for the smaller form, viz. *minorella*. Apparently SNELLEN's statements, published in Dutch, escaped attention, so that the name *G. majorella* VON HEINEMANN remained in general use, beside *G. equitella* (SCOPOLI).

SNELLEN's argument, however, obviously turns the scale. ir is not the smaller, but the larger insect that is the typical *G. equitella* (SCOPOLI). To the smaller species, that has hardly distinct male and female genitalia, the name *Glyphipteryx klemannella* FABRICIUS, 1781, seemed to apply, superseding *G. minorella* SNELLEN, 1882. However, I had the privilege to study the type of *klemannella* FABRICIUS, which proved to be conspecific with *G. thrasonella* (SCOPOLI) (cf. there). Another name brought forward in this connection, viz. *"Oecophora angulosella"* O. G. COSTA, 1834, in my opinion should be regarded as an uncleared name. (cf. p. 375).

Material studied: Austria, N Tirol, Vennatal, 1500–1600 m, Vi. 1943—1968, genit. slides 9332 ♂, 9336 ♀; Umhausen, 15. VII. 1944—45; Telfes, 1100 m, Innsbruck, Auer, V—VI: Dürnstein (KLIMESCH). (All Coll. K. BURMANN.)

Hungary, Máriaremete, 25. VIII. 1935 (BUNDAY); Sashegy, 21. V. 1894 (PAVLI.). TAMB.

Germany, Oberpfalz, Barnau; Li, Gumpoldskirchen, 325 m (KOSCHABEK): Oberbayern, Mittelwald, genit. 9259 ♂. MBSM.

Fraiice, Basses-Alpes, Digne, 650 m, 3.—6. Vi. 1759 (GLASER).

Switzerland, Zermatt, 1700 m, 1.–24. VII. 1935 (H. G. AMSEL). ZMA. Gornergrat, 31. VII. 1932 (WEBER) (sub "*zermattensis*"). KLIMESCH Coll. Wallis, Simplon, 1400 m (E. BAUER), slide 9364 ♀. MBSM.

Italy, Aosta, Cogne-Liliac, 1700 m, 6. VII. 1961.

Spain, Port Bou, 21. III. 1968 (KLIMESCH) KLIMESCH Coll., Samml. ERTL, genit. slide 9467 ♂. MBSL.

Austria, Wien, genit. slides 9318 ♂, 9321 ♀.

Poland, Pieniny, Chorsztyn, V.—VI. 1949 — 1950 (S. TOLL, R. ZUKOWSKI). PANK.

Literature:

Phalaena Tinea equitella: DE VILLERS, 1789: 583, no. 1008 (Part. ?).

Aechmia equitella: FISCHER VON ROESLERSTAMM, 1838: 240, pl. 82, fig. 2a—d (part.). — HEYDENREICH, 1851: 87 (part.). — BRUAND, 1845: 82 (pari.). — MANN, 1855: 467 (pan.). — 1867: 73 (part.). — FOLOGNE, 1863: 138 (pari.), — RÖSSLER, 1866: 256 (356). — STAUDINGER, 1871: 270 (pan.).

Aechmia majorella MANN, 1854: 590 (nomen nudum). — HERRICH-SCHÄFFER, 1855: 56. — HEYDENREICH. 1851: 87, no. 740. — SNELLEN, 1882: 753.

Glyphipteryx equitella var. *majorella*: FREY, 1854: 175. — HERRICH-SCHÄFFER, 1854: 93. — HEINEMANN & WOCKE, 1876: 387.

Glyphipicryx *majorella* HEINEMANN & WOCKE, 1876: 397. — WIELER, 1880: 30. — REBEL, in STAUDINGER & REBEL, 1901: 130, nr. 2332. — KOTHE, 1902: 197. — PROHASKA, 1905: 19 (*maiorella*). — MEESS, in SPULER, 1910: 299. — MEYRICK, 1913: 13. — 1914: 30. — MÜLLER-RUTZ, 1914: 425. — 1922: 24. — Anon., 1915: 161. — SCHAWERDA, 1916: 36. — VORBRODT, 1928: 116. — HERING, 1927: 433 (*maiorella*). — 1932: 117. — MARIANI, 1938: 68 (*Glyphipterix maiorella*). — WEBER, 1946: 369. — OSTHELDER, 1951: 120. — TOLL, 1956: 11, figs. 13, 18—19, 23—29. — KLIMESCH, 1958: 63. — LHOMME, 1963: 504. — HRUBÝ, 1964: 259. — POPESCU-GORJ, 1955: 161. — KLIMESCH, 1968: 150, nr. 850.

Glyphipteryx sexguttella TOLL, 1938: 126. — 1956: 6, 11 (*G. equitella* ab. *sexguttella*).

Glyphipicryx *zermattensis*: WEBER, 1945: 369.

Glyphipteryx ***equitella*** auctt. (sensu lato) (partim). — ZELLER, 1839: 203. — KOCH, 1856: 418, nr. 739. — SCHLEICHER, 1956: 668. — MANN, 1867: 840. — WOCKE, 1874: 74. — BÜTTNER, 1880: 450. — FREY, 1880: 380. — DONKIER DE DONCEEL, 1882: 133. — CURO, 1883: 69. — JOURD'HEUILLE, 1883: 190. — REBEL, 1893: 527. — NICKERL, 1894: 24. — PÁVEL-UHRYK, 1896: 172. — MINÁ-PALOMDO & FALLA TEDALDI, 1897: 187. — REUTTI, 1898: 181. — CARADJA, 1899: 208. — STANGE, 1899: 137. — ROTHE, 1902: 97. — REBEL, 1904: 345. — RAGUSA, 1905: 19. — PROHASKA, 1907: 276. — DISQUÉ, 1908: 124. — KRULIKOVSKY, 1908: 261. — JOANNIS, 1909: 788. — GRANELLI, 1910: 76, nr. 553, — GRIEBEL; 1910: 144. — PROHASKA, 1911: 19. — HAUSLER, 1912: 155. — Anon., 1915: 161. — REBEL, 1917: 126. — MARTINI, 1916: 133. — STEPHAN, 1925: 117. — HERING, 1927: 433. — ZERNY, 1927: 471. — FLETCHER, 1927: 35. — MEYRICK, 1928: 710. — VORBRODT, 1928: 116. — Anon.. 1930: 44. — FÜGE et al., 1930: 97. — SCHÜTZE, 1931: 196. — VON UFFELN, 1931: 16. — SCHILLE, 1931: 153, nr.672. — ECKSTEIN, 1933: log, nr. 662. — HERING, 1937: 484, nr. 2393. — SCHAWERDA, 1937: 112. — TOLL, 1938: 126. — MARIANI, 1938: 168. — JÄCKH, 1942: 194. — FORD, 1949: 127, nr. 847. — 1954: 98, pl. 8, fig. 28. — 1970: 85, pl. U, fig. 28. — OSTHELDER, 1951: 120. — KLIMESCH, 1951: 29. — GRABE, 1955: 63. — TOLL, 1956: 5, 6, 11—15. — KLIMESCH, 1958: 22. — AGENJO, 1966: 22. — SOFFNER, 1967: 113. — BARRETT, 1974: 69. — DIAKONOFF, 1976: 83. — HEPPNER, 1982c: 48 (***crassilunella***). — DIAKONOFF, 1984: 70.

147 (46) *Glyphipterix equitella* forma ***minorella*** **SNELLEN** status nov. (Pl. 17, fig. 147$_{1-3}$)

Glyphipicryx *minorella* SNELLEN, 1882, Vlinders Nederl.: 773.

Type locality: Netherlands: Province of Noord-Holland: Vogelenzang.

Lectotype: 9, hereby designated / Gen. no. 9361 / Vog.[elen]zang, 20/6/80 Q (faded ink, SNELLEN's hand) / Coll. SNELLEN (print) / Museum Leiden *Glyphipteryx equitella* Sc. Det. V[AN] E[ECKE] (print and ink + black cadre) / Lectotype 9 *Glyphipterix minorella* SNELLEN, design. by A. DIAKONOFF, 1978 (print + ink) /. RMNH.

Synonymy:

Glyphipteryx equitella auctt. (nec SCOPOLI, 1763) (err. ident.).

Glyphipirryx *sexguttella* TOLL, 1936, Ann. Mus. zool. polon., 11: 404, fig. 14 (nec fig. 15). Type locality. Poland, Wolszkow. Holotype. Whereabouts unknown. Presumably lost (teste J. RAZOWSKI, in litt.).

Diagnosis: ♂♀, 7—9.5 mm. Head pale grey-bronze, vertex and orbits finely edged with white. Palpus moderate, curved, basal segment white, median golden-bronze with two converging transverse white lines, terminal segment white above. bronze below. Antenna bronze, paler towards base. Abdomen pale purple, edger of segments and sides paler, greyish-silvery in certain lights.

Fore wing rather narrow, oblong-oval, broadest at ⅓, costa little curved at ends, apex subobtuse, termen gently concave, strongly oblique. Deep bronze-purple, becoming paler on basal fifth, white, silvery and pale violet. Five thick wedge-shaped costal streaks, anterior two oblique, others almost vertical; first streak well before middle, well defined, gently outwards-curved, acute, to ⅔ of disc beyond middle, second streak less oblique, slightly shorter, midway between first and third, this slightly closer to fourth, fifth short, just before apex; first dorsal streak from dorsum beyond ⅓ of wing length, thick, moderately oblique, little narrowed from base to just below middle of disc, thence curved posterad and almost horizontal, pointed, tip a trifle under that of first costal streak; second dorsal a white marginal subtriangular *dot* at the beginning of cilia (end of dorsum indefinite), continued by a silvery streak, angulate in middle of disc at ⅔ length of wing, thence to end of second costal streak (in right wing not reaching this end); discal metallic dots very small, rather ill defined: two before termen, one larger, on terminal concavity, another, minute, before this in disc; apex with a round black dot. Cilia white, on basal half suffused with pale bronze, border line deeper suffused with bronze, around apex darker, costal cilia with a black marginal line.

Hind wing narrowly lanceolate, acutely pointed, whitish-gray, with a silvery gloss. Cilia pale fuscous, with a golden gloss.

Variability: The slightly rubbed male, 8 mm, is paler, with markings exactly similar but less contrasting.

Six additional specimens, ranging from 8.5—9.5 mm are rather darker, with rather variable shape of fore wing (more or less dilated) and shape and length of first dorsal streak: sometimes more curved, more slender, mostly reaching as far as, sometimes exceeding, the tip of first costal streak, while second dorsal may be more or less oblique (cf. discussion below).

Male genitalia (Pl. 99): Tegumen rather slender and high. Vinculum robust, broadly semioval. Saccus short, simple, with a median thin furrow. Valva oblong, obliquely clavate, basal half moderately narrowed, sacculus edge stronger convex than costa, more than basal half with long bristly hairs. Anellus short, cylindrical. Aedeagus slender, top curved upwards, denticulate. Central cornutus narrowed, with a thick wall.

Female genitalia (Pl. 164): Ovipositor moderate, fleshy and weak. Postapophyses thin and long, sometimes thickened above middle. Antapophyses slightly thicker, quite shorter, with proximal parts more or less sclerotic, variably dilated. Eighth sternite finely aciculate, with a single rather irregular submarginal almost complete row of fine bristles. Ostium a moderate funnel, without sclerotizations. Ductus bursae slender, moderate, cestum, a moderate slightly curved wrinkled tube with abruptly dilated base. Corpus bursae oblong-oval.

Early stages and bionomics: Apparently the same as in the nominate form. Larvae V, in leaves and stems of *Sedum* acre. pale yellow, head and thoracic shield black (STAINTON, 1854a). Adults VI—IX, apparently univoltine. Cocoon tough, between spun leaves.

Distribution: Central, West and South Europe. Probably widely distributed, but confused with the nominate form, which usually is much larger. Germany, ?Austria, Switzerland, Poland (Podolia: *sexguttella*), the Netherlands, Great Britain, Greece, Transcaucasus: Daghestan.

Remarks: I am satisfied that *minorella* should be regarded a form of *equitella* and not a variety.

The variability of the present material is considerable, being of the same kind as in the nominate subspecies, *G. e. equitella* (SCOPOLI). Minor differences are found in the shape of the fore wing and in the shape and position of its markings, but are slight; they may become more evident when studying a long series, not available now. Sometimes this variation is considerable, particularly with regard to the

dorsal strcak; howcvcr, close study of thc gcnitalia does not support tlicsc diffcrciiccr as bcing specifically important. In my opinion thcy must bc infra-specific; one rimply has to allow a widcr extent of variability in rhc *equitella* group of species and formae than in otherr.

Howevcr, ihc diffcrcnces of thc gcnitalia do providc a means for separating e *equitella* and its formr: *minorella* and sbsp. *crassilunella*. There are again the peculiarities of the cighth sternite of thc female, viz. the clothing with bristlcs and tlic dcgrce of dcvclopmcnt of thc sublateral lobcs (= sclerites) that facilitate the rcparation of *e. f. minorella* from *e. equitella*.

Judging from thc size of *sexguttella* TOLL, 7 mm, it must be a rynonym of *minorella*. Unfortunatcly tlic type specimen of tlic former could not be located and must be rcgardcd as lost (J. RAZOWSKI, in litt.).

Material riudicd: Tlic Netherlands. Den Haag, 12. Junc 1896 P. T. C. SNELLEN, 1 0, genit. slidc 9286; ihc same, 14. IX. 1879, 1 0 (no abd.). RMNH. — Leeuwarden, VI (ALBARDA), 1 0, genit. slidc 9398 (ZMA); Huissen 16. VIII. (VAN MEDEMBACH DE ROOY), 1 0 (MIZA). Melissant. 31. VIII. 1969 (J. K. HUISMAN), gcnit. slide 10109. — Germany, Silesia, Schnoitsch, 30. 5. 1856 (Coll. WOCKE), 1 ♂, genit. slidc 9325 ♂; 0, Ems (abdomen missing). ZIAN. — Germany, Obcrbaycrn, Mittelwald, unterhalb des Jörthal, 1750 ni, 20. VII. 1920. Genit. slidc 9363 ♂; Neustadt, 2 ♀,genit. slides 9323 ♀ (locality illegible). MBSM. — N Grcccc, Olympus, Kataphygion AI, 2100 m (F. KASY), 2 0, gcnit. slide 9338 ♀, 1 ♂, GS 9362 ♂. NI-IMW. — Gallia incr.. Mt. Pacanaglia, 16. VI. 1963 (M. u. W. GLASER). — Macedonia, Matka, Treschkaschlucht, 23.—27. VI. 1955 (J. KLIMESCH). Coll. KLIMESCH. — Germany, Mittelrhein, Loreley, A. VI. 1938 (E. JACKH).

Literature: DIAKONOFF, 1976: 83. — LEMPKE, 1976: 19. — EMMET c.s., 1979: 66. — Heppner, 1982c: 51. — DIAKONOFF, 1984: 70 (var.).

Remarks: Thc two closely allied subspecies of this group and tlic forma *minorella* have in common thc large dorsal crescentic sircak that ir subject to considerable variation, in its lcngtli and shape, and therefore presents a rather untrustworthy character. In general it is not always casy to separate thc spccicr witli external charactcrs only, while tlic genital charactcrs, though bcing rather constant, are very slight.

Superficially *G. gianelliella* RAGONOT can be separated by ihc prcscncc of scvcn costal whitc marks, but usually thcre are only six, since one often disappears. Also in other spccicr a single or cvcn two more or lcss abortive additional costal marks may occur, sometimes in onc wing only, or be asymmetrical right aiid left. Anothcr characicr, especially in thc present group, is tlic sirc of thc adult, gianelliella bcing by far thc largest, followcd by *e. equitella*, then but slightly smaller *e. crassilunella* and finally *e. f.* minorclla. Howcvcr size is of not an absolute criterion.

Tlic superficial characters of markings: length and shape of tlic dorsal strcak cspccially, are extensively dcscribcd under each species. Thc following may be said in general of thc gcnitalia, offering apparently tlic only reliable criicria for thc separation of tlic taxa.

The valva in *gianelliella*, which in line with its large sirc, has also ilie most robust gcnitalia, is longest, with a dilaicd posterior ⅓ being oblong-oval, gently rouiiidcd at tlic top; in *e. equitella* thc valva is ratlicr clavate, witli top more rounded than in tlic other iwo; in *e. f. minorella* it is least dilated; tlic saccus is longest, intcrmcdiaic and shortest, in *gianelliella, e. equitella* and e f. minorella, respectively; the processus basalis niorc oval in tlic iwo first, poiiiicd in minorella.

Kailicr more disiinci are tlic fcnialc genitalia. Although tlic internal parts: ostium, ductus bursac, cestum and corpus bursac, are similar, ilic setae of the scvcnih sternite are important. In *gianelliella* ihc two sclerotic ventro-lateral lohcr (sternal lobcs) are traceable (in ilic othcrs thcy are completely ibscnt) aiid are beset wiih long bristles along their posterior cdge, in lcss that a scmicircle; their bases are somewhat tliickcncd aiid clcvatcd; iii *e. equitella* only four or fivc bristlcs are present on each side, wirh wcak, not elevated bases; whilc iii *e. f.* niinorclla thcre are no bristlcs at all (in this forni it is casy to misiakc thc bristles along ilic dorsal cdgc of tlic cighih scgmcnt, showing through thc abdomen, for tlic

sternal bristlcs: these dorsal setae are wcak aiid somewhat irrcgularly spaccd along tlic width of the eniirc scgmcni).

Thc oviposiior in *gianelliella* is small, witli tips of anal lobes producccd in subrigid short proccsscs; in *e. equitella* thc ovipositor is subobtuse, top simply split; in *e. f. minorella* the oviposiior is usually more pointed, coarsely short-bristled and dccpcr split. Tlic postapophyses are much longcr in *gianelliella*.

148 (47) ***Glyphipterix equitella crassilunella* REBEL status** nov. (Pl. 17, fig. 148)

Glyphipteryx crassilunella REUEL, 1916, Ann. naturhist. Hofmus.: 157

Typc locality: Crctc

Lcctotypc: hcrcby dcsignatcd, ♂ / Gen. no. 9351 / Kristallenia (print) / Kreta, RBL. '04 / *Gl. crassiluncUa* RBL. Type (in REBEL's hand) / Lectotype. *Glyphipteryx crassilunella* REUEL. Designated by A. DIAKONOFF, 1976 /. NHMW.

Diagnosis: ♂, 11 mm. Head light olive-greyish with a golden gloss, face whitish, orbits narrowly whitc. Antenna light olivc-grcyish. front of scape white. Palpus rathcr long, curvcd, poinicd. little flaticiicd dorso-vcnirally, terminal segment as loiig as median; median scgmcnt wiih long roughish bristly projecting scales bclow, white with a subapical dark bronzc band; terminal scgmciit slcndcr, roughish bclow. bronrc witli a subbasal aiid a submedian white bands, apical half wliiic, bronrc in front. Thorax golden-bronze.

Fore wing lanceolate, rathcr broad, broadcst in middle, costa curvcd throughioui, apcx obtusely poiiiitcd, termen scarcely concave bclow apcx, gently convex bclow. Rather dccp unicolorous golden-bronzc with a purple glors. Costa with fivc somcwhat irregular wliiic streaks, first tliickcr and longcr than othcrs. oblique and slightly sinuate, turning horizontal just abovc middlc of disc, sccond and ihird sircaks slcndcr, first spacc somewhat smaller than sccond, third strcak slioricr. as far from sccond as from fourth; fourth irrcgularly quadrate, short, fifth loiigcr, slender and straight, slightly inwards-oblique, dorsum with a curvcd tliick strcak froni just before middlc, curving outwards, cnd acute and horizontal, not reaching that of firsi costal sircak; sccoiid dorsal strcak modcraic, ratlicr faint; metallic discal marks minuic, light violet: small points on ends of costal lines, narrow connection of sccond costal aiid dorsal streaks, a single, longitudinal, subdorsal and a minute prcapical, discal mark; a narrow strigula on icrmcn bclow apcx; apcx with a dull black spot. Cilia with apical half (damaged) whitish, basal lialf glorsy fuscous with black tips, a white "notch" bclow apcx aiid a black apical strigula along cnd of costa.

Hind wing ratlicr broadly lanceolate, ovcr ½, costa lcss curved than termen, rather dull bronze-fuscous, unicolorous. Cilia glossy fuscous.

Early stages aiid bionomics: Uiikiiowii.

Distribution: For a loiig time kiiown oiily froni ilic type locality; now also from Sardinia aiid tlic Canary Islands.

Rcniarks: A moderate-sized rubrpccics, as to tlic facies, intermediate bctwccn *e.* cquiiclla and *e. f. minorella*. The dorsal strcak ir quite charactcristic. in thc tlirce syntypes it ir thick, strongly but gradually excurved aiid gcntly, also gradually of narrowcd, with oiily thc apical pnrt iiarrowcd niorc abruptly; in other material (cf. bclow) it is quite similar. *G. e. equitella* is distinctly larger, witli broader forewings, with dorsal strcak considcrably variable, but never so thick, besides mostly angulate in or abovc middle, seldom bclow middlc; *G. e. f.* minorella ir smallcr, ilic dorsal strcak much thinner and so appearing loiigcr, if ratlicr tliick then narrowcd along its entire length and not so abruptly, wiih tlic tip lcss acute.

Tlic male gcnitalia of ilic tlirce forms: of *equitella* (*equitella, minorella* and *crassilunella*) are very similar, in *minorella* the valva hcing a trifle narrower at thc base, tlic saccus cxiremcly short, in cquiiclla thc saccus rather longcr and a trille clavate, in *crassilunella* (Pl. 100) thc saccus of intermediate length. Tlie bristliiig of thc eighth stcrnitc in thc females of minorella aiid *equitella* is dccidcdly different. Of

sbsp. *crassilunella* unfortunately no females are known. In view of this evidence I am compelled to assign to the present *crassilunella* the status of a subspecies, pending discovery of the females.

Material studied: Crete, Kristallenia, 2 syntypes (now lectoparatypes), marked with red ink "type", in REBEL's hand, genit. slide **9382** (another, without abdomen). NHMW. – Sardinia, Tempio-Paus.[ania], 1. and 6. V. 1933, 2 ♂ (H. G. AMSEL). LNK. Canary Is., Bandana, ♂ (F. KASY). NHMW.

Literature: Cf. sub *G. equitella*.

149 (48) ***Glyphipterix umbilici*** HERING (Pl. 17, fig. 149)

Glyphipteryx umbilici HERING, 1927, Zool. Jahrb. Syst. 53: 431.

Type locality: Canary Islands, Palma

Holotype: ♂ / Palma, El Paso / Canar. Ins., 28. IV. 1926, No. 2826, O. & M. HERING / Mine an *Umbilicus pendulinus* / Holotype (red) / *Glyphipteryx umbilici*, det. MART. HERING / Gen. no. 9236 /. LNK.

Synonymy:

Glyphipterix talhouki DIAKONOFF, 1978, Zool. Verh., 160: 61, figs. 47, 49. Type locality. Near East: Lebanon. Holotype. ♂ / Gen. no. 9578 / Aley, Lebanon, 10. V. 1942, A. S. TALHOUK coll. (print and blue ink) / Holotype ♂ *Glyphipterix talhouki* A. DIAKONOFF, 1975 (black cadre) /. KMNH.

Diagnosis: ♂, 11.5 mm. Head and thorax pale ochreous-fuscous with a golden-purplish gloss. Antenna pale ochreous-fulvous. Palpus moderately long, curved, subascending, rather thick, basal segment snow-white, median white, with four black transverse bands, gently converging towards middle of segment, terminal segment about ½ median, tip subobtuse, flattened fronto-caudally, in front with a black parting line, slightly shifted laterad. Posterior leg purplish-fuscous, articulations banded white, spurs white. Abdomen fuscous-grey, with bronze reflections, basal tergite silvery.

Fore wing ovate-lanceolate, costa gently curved, apex and termen rounded, cilia below apex appear to be notched, termen very oblique. Fuscous-bronze-purplish with some olive tinge towards base and costa anteriorly. Costa with five white marks, two fasciate, three dentoid, first from middle of costa to middle of width, pointed. towards end touched with pale fuscous, point slightly upcurved; second mark close beyond first, slender and ill-defined. slightly shorter and coiling but point free of first mark; a silvery-purplish brilliant metallic sickle from below middle of second white mark, gently outwards-oblique above, vertical from middle of wing to dorsum before tornus, third costal mark small, oval-shaped. continued by a clavate metallic streak not reaching middle of wing breadth; a comma-shaped thick spot above tornus, two posterior costal dots approximated, in a subapical pair. wedge-shaped, fourth with a minute metallic mark on tip, fifth pure white; a small wedge-shaped metallic mark on upper third of termen; a small metallic point in disc before **ilius**; apex centred with a small deep fuscous-purplish dot. Cilia white with deep fuscous-bronze basal half, notched by white opposite terminal metallic mark, cilia on costa before apex emitting a slender blackish marginal strigula over apex.

Hind wing pale fuscous-purplish, with a slight silky gloss, becoming paler towards base. Cilia concolorous, along costa pale grey.

Male genitalia (Pl. 101): Tegumen high and rather narrow, top rounded. Tuba analis pointed, rather slender, about ¼ the length of tegumen. Vinculum oblong-semioval, sclerotized, ½ length of tegumen, end with an oval small appendix. Saccus short, slender, originating before and venral of the end of tegumen, less than half its length. Valva narrow, longer than tegumen, apical half oblong-subovoid, bristly, top rounded, base broadest; basal half narrowed towards ⅓, naked except a submedian series of sparse bristles, base dilated; labis hood-like, triangular. Transtilla sclerotized, dark, triangular. Aedeagus slender, straight, ½ length of tegumen + vinculum, top with hood-like dilated, finely granulate. Cornutus a rather long pointed rod. Anellus indistinct.

Female genitalia (Pl. 165): Lobi anales separate, acutely pointed. Postapophyses long, moderately thickened along posterior half. Ninth segment membranous and ill-defined, below this a pair of

sublateral crescentic small folds are just visible, concave outwardly. Sterigma unmodified, posterior edge of seventh + eighth sternite straight. Ostium a small cup of slightly diverse size (cf. figs.). Cestum moderate, two narrow and pointed straight or slightly curved ("*talhouki*") valves. Corpus bursae plume-shaped. Signa a pair of round delicate scobinations.

Early stages and bionomics: Larva making "Beiderseitige Gangminen" *) in the leaves of *Umbilicus pendulinus* D.C., with a broad track of excrement in the middle. "Die Larve wechselte öfter das Blatt und erzeugte zuletzt sogar grosse Platzminen. Zur Verpuppung wurde die Mine verlassen ... Anfang April 1926 gefunden eine Minen ergaben Ende des Monats und Anfang Juni den Falter ..." (HERING, 1957: 431). In Sardinia flying in June (AMSEL & HARTIG, 1951).

Distribution: Canary Islands. Sardinia. – Near East: Lebanon.

Remarks: The species somewhat resembles *G. equitella* ssp. *crassilunella* REBEL, but differs by dark edges to white markings, by much more approximated and both longer and convergent first and second costal streaks, by shorter, more approximated and almost triangular fourth and fifth streaks, etc., and also by the distinct genitalia in both sexes.

After close comparison with additional material of the present subspecies, I am satisfied that the specific name *G. talhouki* is not tenable and must be sunk as a synonym.

Material studied: ♂ / Palma, El Paso / Canar. Ins. 28. IV. 1926. No. 2826, O. & M. HERING / Mine an *Umbilicus pendulinus* / Paratype [red] / *Glyphipteryx umbilici*, det. MART. HERING / Gen. no. 9236 /. – 9, identical labels, but: / Gen. no. 9237 /. ♂, 1. V. 1933, 9, 6. V. 1933, Sardegna, Tempio-Paus. (H. G. AMSEL), 2 specimens. LNK.

Literature: AMSEL & HARTIG, 1951: 92. – HEPPNER, 1982c: 54. – DIAKONOFF, 1984: 70.

150 (4Y) ***Glyphipterix pertenuis*** DIAKONOFF (Pl. 18, fig. 150)

Glyphipterix pertenuis DIAKONOFF, 1979, Zool. Med. Leiden, 54: 306, fig. 12.

Type locality: N Africa: Tunisia, El Ariana.

Holotype: ♂ / Gen. no. 9349 A. DIAK. / Tunisia, El Ariana, 12. V. 1913 / Holotype ♂ *Glyphipterix pertenuis* A. DIAKONOFF, 1979 (black cadre) /. RMNH.

Diagnosis: ♂, 7 mm. Head and thorax greyish-purple, with a bright goldeii gloss. Antenna fuscous-bronze, minutely pubescent. Labial palpus rather long, curved and ascending, slightly flattened dorso-ventrally. pointed; below pale ochreous, towards tip slightly infuscated, above silvery-white; apical segment as long as median. Abdomen greyish-bronze.

Fore wing oblong-lanceolate, apex produced, hardly pointed, costa gently curved throughout, slightly concave before apex, termen very oblique, slightly excavate below apex, obliquely rounded below. Greyish-bronze with a strong golden gloss. Costa with seven white marks, on both sides faintly edged with fuscous suffusion; first streak moderate, from middle, second similar. gently converging, not reaching middle of disc. following marks small, short, almost dot-like, about equidistant and decreasing in size posteriorly; a black dot in apex; dorsal streak from before middle, long and slender, gradually curved, narrowed and pointed. only base more abruptly dilated. its tip not quite reaching below tip of first costal; second dorsal streak ill-defined, linear, ending to reach tip of second dorsal; discal metallic dots not evident, probably due to rubbing. Cilia missing.

Hind wing lanceolate, moderate, pointed, costa and dorsum similarly curved; light bronze. Cilia missing.

Male genitalia (Pl. 101): Keeled like those of *G. heptaglyphella* and *sulcosa*, but with a distinct saccus: very slender and externally ⅓ times the height of the vinculum, which is much longer than in the first named species (where there is only a hardly developed very short stump) and much thinner and also longer

*) Tunnel mines visible on both sides of the leaf.

XVIII. *G. simpliciella* group of species

A group of considerable extent, containing small to minute bronrc or purplish spccics wiih usual markings. Again thc genitalia, cspccially ihosc of thc female, providc ihc only trustworthy characters for ihc separation of ilic spccics.

Malc genitalia. Generally similar to thosc of the preceding *equitella* group, bui with slight rpccific differences in the shape of valva and oihcr parts, cspccially saccus, thc comparative size of thc anellus and length of the acdcagus. Vinculum divcrscly dcvclopcd, as also is saccus. Valva narrow and long, of a specific shapc: morc or lcsr narrowcd at base, morc or less dilatcd posteriorly, top roundcd symmetrically or obliquely, cic.

Female genitalia (not of all spccics available). Ovipositor picrcing: lobi anales sclcrotic, acutely poinicd, with postapophyses dilaicd posterad and sclcrotic, bccoming much thicker than antapophyses. Eighth sternite wiili specifically distinct bristling. Ductus bursae oficn shori. Ccrium, longitudinally wrinkled terminal tube, mostly prcsciit. Corpus bursac sometimes with paircd punctulate parietal signa.

160 (59) *Glyphipterix pygmaecella* Rebel (Pl. 18, fig. 160)

Glyphipteryx pygmaecella Rebel, 1896, Aiiii. Naturhist. Hofmus., 11: 132.

Typc locality: Caiiary Is.: Gran Canaria I.

Lcctoiypc: hcrcby dcsignatcd, ♂ / Gen. no. 9352 / 10. V. (pencil) / Gr. Canaria L. Palmas—Hed. 95 (fadcd ink) / *Glyphipt. Pygmaecella* Rbl. Typc (fadcd black and red ink) / Lectotype ♂ *Glyphipterix pygmaecella* Rebel. Designated by A. Diakonoff, 1978 (black cadre) / TYPE (red, oblong, prini) 1. NHMW.

Diagnosis: ♂, 7 mm. Head and thorax rich fuscous-bronze, unicolorous, with a rcddish gloss, head sonicwhai depressed. Antenna concolorous. Palpus slender, rather long, curvcd and flattened dorso-vcnirally; dark bronzc wiih usual whitc obliquc transversc stripes outwardly, snow-white inwardly (abovc). Abdonicii paler bronzc.

Fore wing rich fuscous-bronze, slightly paler and greyish along basal third except at margins, soon bccoming ricli purplish-bronze postcriorly. Costa with fivc silvcry-whiic streaks, firsi io third outwards-oblique, bccoming gently morc curvcd outwards, lowcr halves more tinged silvcry, sccond and third wiih rilvcry tips clavate; streaks four and fivc shorter, little curvcd, gcnily inwards-oblique; firsi dorsal white sircak large, railicr bcforc middle, excurved, thick at bisc, gradually narrowcd upwards, in middle of disc vcry narrow and horizontal, iip noi rouching firsi cosial sircak; rccond costal rircak slender, little inwards-oblique, fused wiili tip of second costal, silvery with a whiic slightly dilatcd basc; an oblong silvery-violet oval spot bcforc termen, a rouiid silvcry dot on tip of palc "notch" of tlic cilia, in disc prccedcd by a minute violet point, sometimes not traceable; a black dot in apcx. Cilia palc grey-bronze wiili a whitish notch-like wcdgc on lowcr half of cilia; apical half of cilia throughout whitish-grcy.

Malc genitalia (Pl. 105): Similar to thosc of *G. equitella* f. *minorella*, but with smaller vinculum and longcr and more robust saccus; valva long and raihcr narrow, top rcgularly roundcd and moderately dilatcd; base less narruwcd, aedeagus longcr; in *equitella* sbsp. *crassilunella* sacculus is much stronger and longer.

Female genitalia: Unknown.

Early stages and bioiioiiiics: Uiikiiown.

Distribution: Originally described froiii tlic Caiiary Islands: Tcncrifc and Gran Canaria. Now also rccordcd from Hungary.

Rcniarks: Thc small species is recognizable by ihc dentoidal small dorsal rircak, abruptly narrowcd io a fine line on upper half, so having more or less ihc rhapc of a minute drop and ir much smaller than this mark in any other species of thc prcsciii group, where it usually is semilunar.

Material studied: Tenerife, Orotava (Hed.), 1895, paralcciorypc (no abdomen). RMNH. — Tcncrifc, 1883, Genit. slide 9951, 2 ♂. MGAB. — Hungary, Mcczck Tubes, 10. VI. 1965 (Szeloyi); Brassó, Kartész, 5. VI. 1910. TAMB.

Literature: Rebel, in Staudinger & Rebel, 1901: 130, nr. 2333. — 1906: 47, nr. 204. — 1910: 350. — Walsingham, 1907: 989. — Meyrick, 1913: 43. — 1914: 30. — Redel, 1917: 60. — Caradja, 1920: 15, nr. 2333. — Hering, 1927: 433. — Heppner, 1982c: 52. — Diakonoff, 1984: 71.

161 (60) *Glyphipterix simpliciella* (Stephens) (Pl. 18, fig. 161,-3)

Heribeia simpliciella Stephens, 1834, Ill. Br. Ent., (Haust.), 4: 263.

Typc locality: England.

Lccioiypc ♂: dcsignaicd by A. Diakonoff, 1976, thc specimen labelled: / Type (round label, red margin, prini) / *simpliciella* mihi (print) / Stephens Coll., *Glyphipteryx fischeriella* d. Named by Stephens (prini and ink) /. In ihc Briiish Collection, BM(NH). Abdomen intact (icsie A. Diakonoff).

Synonymy:

Heribeia cognatella Stephens, 1834, Ill. Brit. Ent., Haustellata, 4: 26. Typc locality. Great Britain. Lectotype ♂, dcsignaicd by A. Diakonoff, 1976: / Type (round label, rtd cadrc, prini) / *cognatella* mihi (print) / Stephens Coll. *Glyphipteryx cognatella* c. Namcd by Stephens (print and ink) /. In thc British Collcciion, BM(NH). Abdoincn intact (teste A. Diakonoff).

Oe[*cophora*] *conjunctella* O. G. Costa, 1834 a, Specie nuove Lcpidort. Regno Napoli, 5, pl. 2, figs. 3a—c. (teste W. G. Tremewan, 1977). Typc locality. Italy, Naplcs Region. Holotypc, whereabouts unknown, presumably lost.

Ornix *colluripennella* O. G. Costa, 1834 b, Annuar. zool. Napoli, 1834: 77 (noincn nudum); *Elachista (Ornix) colluripennella* O. G. Costa, [1836], Fauna Regno Napoli, Lcp. [301], [312], pl. [Lep. Nott.] 2, figs. 3a—c (teste W. G. Tremewan, 1977). Invalid: unnecessary substitute namc for Oe[*cophora*] *conjunctella* O. G. Costa, 1834 a.

Elachista aechmiella Duponchel, 1838, in Godart & Duponchel, Hist. nat. chenilles Lép. méd., 11: 533, no. 1637, pl. 308, fig. 7. Typc locality. Francc, "département du Nord". Holotypc. ♂ / TYPE (red, prini) / C. Duponchel (ink, round) / 2316 (do) / *aechmiella* D. (ink) / Museum Leiden, *Glyphipterix simpliciella* (Steph.) (tcsic A. Diakonoff) (ink and print) / Gen. no. 9314 A. Diak./.

Aechmia fischeriella Zeller, 1839, Isis, 32: 204, nr. 3. Typc locality. Bohemia and Poland (Glogau). Holotypc. Whereabouts unknown. Apparcnily lost.

....., *desiderella* Fischer von Roeslerstamm, 1841, Abbild. z. Bcrichi.: 242 (non binom.).

Acchmia *desideratella* Duponchel, 1842, Hist. nat. Lép. Francc, Suppl.: 322 (lapsus).

Aechmia roeslerstammella Fischer von Roeslerstamm, 1843, Abb. Bericht. Ergänz. Schm., 17: 308, pl. 82, fig. 3a—d. Typc locality, hcrcby dcsignaicd: Schönnbrunn, Austria*). In a footnote in thc above work wc rcad: "Auf dcr Kupfertafel *Desiderella* bcrcichiict", whilc Duponchel, 1843, Lép. Francc, Suppl. 4: 322, no. 481, pl. 77, fig. 3, indicaics this spccics wiih ilic namc "*Aechmia desideratella*". Holotype. Whereabouts unknown. Apparcnily lost.

*) Whcre ihc species was collected by Fischer von Roeslerstamm himself.

reaching tip of rccoiid discal streak; firsi interspace always smaller ihan sccond; ihird to fifth streaks shorter, curved-wedge-shaped, becoming less obiiquc posicrad; firsi dorsal streak long, slcndcr, modcrately curvcd, nut quite gradually narrowcd but of variable width and shape, to wcll bclow and bcyond tip of firsi costal; secoiid dorsal railicr slcndcr but ihickcr than second costal, little obliquc, dilated downward, mixcd wiih silvery-metallic in disc; subterminal mark thick, roundcd-oval, palc violet; subapical terminal doi modcraic, transverse, palc violet. Cilia palc grey, basal half glossy slaty-grey with darkcr fuscous suffusion along cdgc of this colour, a whitc wcdgc-shapcd (notch-like) spot bciow apcx.

Hind wing rather palc grey-bronze, basal half palc grcy (in lectotype), to rarhcr dark purple-bronzc, with a silky gloss. Cilia glossy purplish-fuscous or, seldom, grey-fuscous, darkcr suffused towards base, cilia along basal half or slightly morc, of dorsum, whiic to snow-white, the limit of this color raihcr wcll-dcfincd.

Malc similar to ihc female.

Variability: Tlic rpccics varies slightly in size: 6—9 mm, width of tlic forc wing, length and thickness of tlic firsi dorsal streak.

Malc genitalia (Pl. 105): Tegumen high, with almost parallel sides, top obtusc. Vinculum semi-oval, wiih lowcr cdgc strongly thickcncd. Saccus rathcr short, with a median cavity. Valva long, slender, gcnily curvcd upwards, vcry gradually dilaicd posicrad, top of cucullus more distinctly roundcd, obtuse. Acdcagus straight, raihcr thick, hardly constricted bcforc top, this coarsely spined. Cornurus a club-likc tubular sclerite, iiarrowcd towards iop.

Female genitalia (Pl. 169): Ovipositor robust, rhomboidal, wiih acute, sclcroiizcd lobus analis, wiili an apical spinc. Postapophyses strong, thickcncd. robust aiid straight, soldered with lobus analis. Antapophyscs ovcr ihc half length of postapophyses. Seventh sternite large, sclcroiizcd, trapezoidal. Eighth sternite in ccntrc wiih two small bristly papillae, each with 5 or more brisilcr. Ostium a simple smooth scmisphcroidal cup (largcr than iii *simpliciella*), colliculum tubular, little wider ihan ductus bursae, this short. Cestum a plicate cylindcr at ihc cnd of ductus. Corpus bursae ovoidal, sometimes slightly constricted abovc distal end, shorter aiid widcr ihan in *simpliciella*. Signa entirely absent.

Early stages and bioiioniics: Although ihc spccics was dcscribcd and ilic connection with its food plant published as long ago as 1859, thc validity of *schoenicolella* was rccognizcd only in 1928, aficr its incorporation in MEYRICK's "Revised Handbook". In tlic same ycar WATERS reported elaborately on ilic spccics and its biology in Southern England. Tlic larvae borc in tlic seeds of *Schoenus nigricans* aiid fccd from May onwards, producing adults bctwccn July and August in ilic same ycar, but much earlier occurrence of tlic adults from tlic beginning of May is probable and may continue until Septembcr. Thc full grown larva is about 4 mm, palc yellowish-green, ihc head and prothoracic and supra-anal shields glossy black; it is largcr ihan ilic larva of *G. simpliciella* whicli has black dots and a transverse blackish linc supra-anally, but no shield. The spccics ir widcly distributed in Great Britain and may be found wherever its food plant grows. In Britrin oniy onc lung generation, no larvac to bc found in autumn; larvae and pupae collected any time during summer produce moths tlic same ycar (PELHAM-CLINTON, in lit.).

Distribution: Dcscribcd from England and for a long time known oiiiy from Oxford and Cambridge, there locally common. Lately rccordcd from France (Girundc), where it appears to live in *Cyperus longus* L. (LL MARCHAND) in IV and V.

Material studied includes some ncw rccordr listed bclow: tlic Netherlands (The Hague, the Island of Texel), Germany (Bavaria), "Austria" (no particulars), Bulgaria, Greece, Italy, Spain and Tunisia. Apparently thc spccics is widcly distributed ovcr western aiid southern Palaearctic region — and perhaps clrcwlicrc. It follows tlic localities of its food plant, *Schoenus nigricans* L., viz. the inland sidc of sea dunes and such sandy but moist places, wlicrc *Cyperus longus* also occurs; tlic record of this sccond food plant should be confirmed, however. Collecting of *Schoenus* seed heads aiid rearing will prove, I am surc, that ihc spccics has a widc distribution.

Rcmarks: Thc spccics is vcry similar io *G. simpliciella*, bui is largcr, slightly lighter colourcd, has a trifle more pointcd forc wings and — as a rule — longcr and morc curvcd dorsal streak, whilc first and sccond costal streaks are nearer to cach other ihan sccond and ihird. Thc latter character, howcvcr. is untrustworthy, for such position of costal marks can bc cncounicrcd in *simpliciella* as wcll. Thc excellent chancicr is thc whitc dorsal cilia in thc hind wings which ir dccisivc, as far as 1know. Thc genitalia in ihc two sexes, of coursc. are also disiinci; these diffcrcnccs from *simpliciella*, noi conspicuous, but constant, are as follows. Malc: ihc valva is gcnily dilaicd bcyond middle, with top more roundcd (in *simpliciella* it is not noticeably dilaicd. narrower, wiih top morc pointed); ihc saccus is iongcr; ihc vinculum less ruundcd, morc semi-ovoidal; ihc aedeagus ihickcr, without thc noich bcforc iop of ihc dorsal sidc, or (as in *simpliciella*) thir noich is hardly traceable, iop a trifle morc clavate. Female: ostium a simple, ample, regularly semispherical cup wiih smooth walls (in *simpliciella* raihcr comprcssscd, a thick pancake wiih concentric structure). The eighth stcrniic wiih a pair of small bristly papillae in its ccntrc; in *simpliciella* only a pair of single or sometimes doubic brisilcs; this is a useful and trusiworthy character.

Material studied (all comparcd wiih thc lectotype): Thc Ncihcrlands, Province Souih Holland, Vogelenzang, 20. VI. 1880 (P. C. T. SNELLEN Coll.), 1 ♂, gcnii. slide 9437. — Tcxcl Island, de Koog, dc Muy, 2. VIII. 1957 (A. DIAKONOFF), 1 ♀, genit. slide 9260. RMNH. — Germany (Dcuischc Bundesrepublik), Bavaria mcr., Gröbenzeller Moor bci München, 5. IX. 1940 (L. OSTHELDER), 10, genit. slidc 9439 (MBSM). — "Austria" / *Fischeriella* ALPH. / 10, gcnii. slidc 9438 (ZIAN). — Sp.[eyer?] 25. V. 1884 (MBSM). — Tunisia, El Ariana, 9.— 13. V. 13, 1 ♂, genit. slidc 9440 (MGAB). — Bulgaria, Nessebar, 24. VI.—5. VII. 1964 (J. SOFFNER). Coll. SOFFNER, Stassfurt. — Grcecc, Pelo., Zachlorou (Klav), 26. VI.—3. VII. 1964 (J. KLIMESCH). — Italy, Liguria, Noli, Savona, 10.—20. IX. 1951 (J. KLIMESCH). — Spain. Arag., Albarracin, 12.—22. VI. 1953 (J. KLIMESCH).

Literature:

Glyphipteryx schoenicolella: STAINTON, 1859a: 153. — 1859b: 365. — 1870: 266, pl. 7, fig. 3. — STAUDINGER & WOCKE, 1871: 309, nr. 2314. — HARTMANN, 1880: 93, nr. 2314. — REBEL, 1896: 133. — MEYRICK, 1928: 709. — WATERS, 1928: 252—253. — PIERCE & METCALFE, 1935: 42, t. 24. — ZERKOWITZ, 1946: 129. — FORO, 1949: 127. — 1954: 98, pl. 8, fig. 9. — 1978: 85, pl. 8, fig. 9. — LHOMME, 1963: 502. — BRADLEY & PELHAM-CLINTON, 1967: 126. — BRADLEY, in KLOET & HINCKS, 1972: 12 (part.). — SVENSSON, 1974: 159.

Glyphipterix schoenicolella: FORD, 1949: 127. — 1954a: 98. — 1954b: 98, pl. 8, f. 9. — KROGERUS, 1971: 17. — BRADLEY, in KLOET & HINCKS, 1972: 12 (part.). — GOATER, 1974: 52. — BARRETT, 1974: 69. — DIAKONOFF, 1976: 83. — LEMPKE, 1976: 19. — EMMET c. s., 1979: 66. — HEPPNER, 1982c: 52. — DIAKONOFF, 1984: 71.

Glyphipteryx fischeriella (nec ZELLER): CROMBRUGGHE DE PICQUENDAELE, 1906: 3. — MEYRICK, 1913: 43. — 1914: 30.

163 *(62) Glyphipterix fortunatella* WALSINGHAM (Pl. 18, fig. 163)

Glyphipteryx fortunatella WALSINGHAM, 1908, Proc. Zool. Soc. Lond.: 989, pl. 52, fig. 18.

Typc locality: Canary Islands, Tenerife I., Guimar.

Lectotype: herewith designated, ♂, nr. 9Y103 WALSINGHAM Collection, Tenerife, Guimar, 10.—14. IV. 1907. BM(NH).

Diagnosis: ♂, 6.5 mm. Hcad and ihorax glossy golden olive-fuscous. Palpi raihcr lung, modcrately curvcd, flaiicncd dorso-ventrally and diverging; glossy white, incdian segment wiih iwo lateral obliquc blackish bands, terminal segmcni as long as median, with a basal and a submedian blackish rings, tip blackish in front. Abdoiiicn palc golden, anal tuft iippcd wiili whitc.

Forc wing lanceolatc, railicr narrow, costa curvcd at extremities, apcx pointed, termen gently roundcd, vcry oblique, tornus indcfiniie. Pale golden-fuscous, tinged olive, palcr on basal half, mark-

ingr purc whiic, cdgcd wiih dccpcr fuscous. in disc brilliant mcrcury dots. Costa wiili five whiie rather long streaks, distinctly alternated and not reaching middlc of dirc, first linc from middle, strongly oblique, longest, acute and rather thick; rccond linc raihcr closc to firsr. gcntly convcrging, slighily shorrcr, third short, almost vertical, remotc froin rccond, third to fifth equidistant and approximated, bccoming a iriflc longcr. respectively, and appearing much longcr, being conrinucd ovcr dark costal cilia; first dorsal sircak froin middlc, vcry slcndcr. not attenuated, gradually oniy gently curved, tip reaching beyond that of first costal linc; a small spot on cnd of dorsum, ruffusedly dilarcd and continued ovcr cilia, indistinctly continued by a curvcd metallic strigula more or less parallel to middle part of tcrmcn; cnd of sccond line and a rircak from subapical notcli of cilia limiting a dull black apical rpoi, brilliantly silvcry wiili a faintest pinkish tinge. Cilia whitish, basal half glossy golden-fuscous with blnckirh tips, cilia on costa dccp fuscous throughout, distinctly barred wiih whitc opposite fourrh and fifrh costal lines, respectively, wiih a marginal blackish linc around apex; a narrow whirc notcli well bclow apex; cilia on cnd of dorsum infuscated throughout, with a whitc bar opposite sccond dorsal mark.

Male genitalia (Pl. 105): Of ilic G. *simpliciella* STEPHENS type. Tegumen raihcr large, moderately broad. Vinculum brondcr ihin high. Sacculus straight, vcry rlcndcr, rarhcr short. Valva long and slender, gcntly narrowcd bcyond base, gradually but little dilated porrcriorly, bristled only over less than cosial ihird. Aedeagus straight, moderate, gently clavate at top, coecum penis roundcd; cornuti fine denticulations and a rlcndcr central tube. Anellus a moderate cylindcr.

Female genitalia (Pl. 169): Ovipuriior iong, extensile, eighth segment elongate. Lobi anales rclcroiic. cutting, wirh acute, iiccdlc-likc tips. Postapophyses iong and ihick, antapophyses shortcr, slendcr, at cxircme base wiih some thrcc slcndcr bristles, placed far laterally; eighth sternite apparently devoid of any brirılcr. nakcd; tergite wiiii a sclcroiic median stripe. Scvcnrh sternite swollen, forming an oval thickened lip, behind this a moderate oval ostium ir conccalcd. Ductus bursae short, colliculum illdefined, slcndcr aiid tubular. Cestum a long, modcraiely curved tube, sclcroiic and dcnrcly plicate lengthwise aiid but little shorter than rcinaiiidcr of ductus bursae, with cndr little dilatcd; corpus bursae small, oblong-ovoidal, simple.

Early stages and bionomics: Unkiiowii. Adults flying IV aiid V.

Distribution: Canary Islands, Tcncrifc 1: Guimar, Villa Orotava, Realejo.

Remarks: This tiny spccics is ilic smallest Palaearctic *Glyphipterix* known to me. The long cilia of the narrow forc wings havc a long black longitudinal bar abovc the apex, giving thc insect an appearence of a *Phyllonorycter* spccics.

Material studied: Tenerife, Realejo, 7. V. 1907, nr. 78548 WALSINGHAM Collection, paratype ♂, genit. slide 9231, [Rec. in cxcliangc. Ex coll. BM(NH)]. LNK. – Tenerife, Los Silos, 1972; Gomera, Hemiga (J. KLIMESCH). KLIMESCH Coll.

Literature: MEYRICK, 1913: 43. – 1914: 30. – HEPPNER, 1982c: 49. – DIAKONOFF, 1984: 71.

List of uncertain species (nomina dubia)

CHOREUTIDAE

Tinea prunnerella ROSSI, 1794: 46, no. 484. (? *Tebenna*). p. 148

GLYPHIPTERIGIDAE

Glyphipterix nattani GOZMÁNY, 1954: 277, fig. 14 = ? *G. simpliciella* STEPHENS, 1834: 132 p. 368, 370

Ussara hilarodes MEYRICK, 1935: ncc *Glyphipterix hilarodes* MEYRICK, 1909. p. 250

Elachista angulosella O. G. COSTA, 1834 a = *E. pernicipenella* O. G. COSTA, 1836.

Oe[cophora] angulosella O. G. COSTA, 1834 a, Specie nuove Lepidott. Regno Napoli: 4, pl. 2, figs. 4a–e (teste W. G. TREMEWAN, 1977). Type locality: Italy, Kingdom of Naples. Holoiypc: whereabouts unhnown, prcsumably lost.

? *Elachista (Ornix) pernicipennella* O. G. COSTA, 1834, Fauna Regno Napoli, Lep.: 3011 311, pl. / Lep. Nott. / 2, figs. 4a–c (teste W. G. TREMEWAN, 1977). Invalid name: unnecessary substitute nainc for *Oe[cophora] angulosella* O. G. COSTA, 1834 a.

Oe[cophora] angulosella COSTA has been coiisidcrcd a possible synonym of "*Glyphipterix equitella* SCOPOLI" (TREMEWAN, 1977). Howcvcr, judging from the natural size of the forincr, viz. about 8 mm, as indicated undcr the original figure (pl. 2, fig. 4b), COSTA's spccics cannot be that, bui raihcr "*Glyphipterix equitella* auctorum", ihc correct name for which is G. *equitella* f. *minorella* SNELLEN, as is elaboraicd above. Howcvcr COSTA's figure 4a dcpicis a quite unusually inarkcd spccics on form, viz. with thc tliird costal mark an equilateral triangle; COSTA's dcscripiion docr not agree with these markings. Thcrcforc it is not possible to identify "*angulosella*" wiili SNELLENS *Glyphipterix equitella* f. *minorella* aiid ilic forincr nainc *angulosella* should be rclcgaicd to ilic category of uncleared names (nomina dubia).

Glyphipterix medianella TURATI & FIORI, 1930, Mcin. Soc. ent. Ital., 69: The type ir lost (icsic HARTIG, in litt.), and iiic idcniiiy of ilic spccics remains uiihiiown.

Tinea ahornerella HÜBNER, 1796, Samml. europ. Schmett., Tineae V, pl. 26, fig. 178. The original figure ir not decisive, resembling a small *Glyphipterix*, dark wiili a single whitc oblique sircak on the dorsuin. Onc of ilic carly students of HÜBNER's worh. HERRICH-SCHÄFFER, 1834, Syst. Bearb. Schmett. Eur., 5, synonymic list: 49, rccords the name ihus: "*ahornerella* ti. 178 (*aillyella*) v. *thrasonella*". Thereforc, tentatively, I have placed the name in the synonymy of *G. thrasonella* SCOPOLI.