

## DESCRIPTIONS OF NEW MICROLEPIDOPTERA

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The present paper comprises descriptions of ten new species of Microlepidoptera most of them reared. All are rather sharply characterized, even the species belonging to the difficult genus *Tischeria*. The knowledge of the life history in the case of the reared species, will always render recognition certain.

## HELIOZELIDAE

***Antispila voraginella*** new species

Head and thorax dark brown, almost black, antennae exceeding half the wing length in the male, dark brown throughout. Fore wings dark brown, with reddish and greenish reflections; cilia distinctly purple in basal half, paler and gray in outer half. An oblique, pale golden fascia at basal fourth, broadest on dorsum; obliquely placed costal and dorsal triangular spots just beyond middle; a pale golden spot at apex. Hind wings dark brown, coarsely scaled. Legs blackish. Underside of abdomen paler, silvery in male. Expanse, 6 mm.

Type (♂) and ten paratypes (1 ♂, 9 ♀) reared from miners of leaves of wild grape (*Vitis arizonica*), Zion Canyon, Utah. The mines are very common, the whitish blotches either single or formed from the confluence of several mines; as many as twenty or twenty-five pupal cases may be cut from a single leaf. The pupal case is broadly elliptical, often lopsided. On July 24, most of the cases had already been cut out, and only a few mining larvae were secured. The moths emerged April 9 to 16 of the following spring, the date of emergence of the type, April 9.

This species is separated from the similarly marked *Antispila ampelopsifoliella* Chambers by the dark head, entirely dark antennae, the longer antennae of the male, less red in the color of the fore wing, and the dark coarsely scaled hind wings.

Type and nine paratypes in the writer's collection; one paratype in the Academy of Natural Sciences of Philadelphia.

**Coptodisca quercicolella** new species

Face pale silvery gray, head strongly tinged with pale golden on vertex and posteriorly; antennae pale gray at base, dark brown toward apex. Thorax and basal half of fore wing silvery gray; wing abruptly darkening at the middle, where the scales are dark reddish bronze and black-tipped. This dark area occupies the whole of the outer dorsal half of the wing, and extends upward in varying width to the middle of the costa. Its outer edge in costal half is concave and sharply defined, and forms the inner black margin of a triangular orange yellow patch bordering the first and brilliant silvery costal spot; very rarely the line of black scales does not reach costa. This yellow patch and the more or less quadrate yellow area immediately posterior to the first silvery costal spot and limited outwardly by the inner black border of the second silvery spot, are the only orange yellow areas in the otherwise dark ground color of the apical half of the wing. A dorsal silvery spot opposite first costal and a few silvery scales on termen below apex. Apical black spot preceded by metallic blue scales; the usual black scales opposite apex and black pencil in the whitish cilia. Hind wings dark gray. Abdomen dark gray, with reddish and greenish iridescence. Expanse, 5 mm.

Type (♂) and five paratypes, Cornville, Arizona, 3400 ft., May 1 to 10; twenty paratypes, Prescott, Arizona, 5300 ft., May 14 to 25; all reared from mines on *Quercus* sp., received from Mr. Harold R. Brisley of Clemenceau, Arizona.

The mines are very small, at least when in evergreen leaves, and of the usual *Coptodisca* type.

This species is the most easily differentiated of the genus; it is at once recognized by the sharply outlined triangular shape of the orange yellow patch preceding the first silvery costal spot.

Paratypes have been placed in the Academy of Natural Sciences of Philadelphia and in the California Academy of Sciences.

## GLYPHIPTERYGIDAE

**Choreutis immutabilis** new species

Palpi grayish ochereous, brush whitish and fuscous dusted, two parallel white bands crossing tip of second segment and brush, third segment with extreme base and two annuli darker. Antennae blackish with whitish annulations. Head and thorax brownish, the latter marked with three longitudinal metallic lines. Fore wings decidedly broad, basal fourth bright brownish ochereous, outer margin of ochereous area nearly straight, and

farther from base on costa; pinkish or bluish metallic subcostal and median longitudinal streaks. Outer three-fourths of wing uniformly clothed with broadly white-tipped dark brownish fuscous scales, the general effect being a grayish white with dark fuscous dusting; sometimes a faint golden tinge on middle costal region. The outer half of the wing is marked with patches of metallic scales superimposed on velvety black, the most prominent being three in a row in the lower half of the wing; the smallest of these within the cell, a larger angulated patch at end of cell, a third transverse, parallel to termen. A curved metallic streak at two-thirds of costa. In apical part of wing, three more or less broken black streaks ending in metallic scales. Cilia dark gray, metallic. Underside gray, with a single white spot at two-thirds of costa. Hind wings uniform brownish gray above, apex broadly rounded, termen evenly rounded; underside with white costal spot only or with two white bands. Underside of body whitish. Legs brownish fuscous, banded with white. Expanse, 15 to 17 mm.

Type (♂), Fredalba, San Bernardino Mountains, California, August 21; ten paratypes (4 ♂, 6 ♀), same locality, August 8 to August 30, all collected by G. R. Pilate.

This species is characterized by the uniform coloration of the outer three-fourths of the fore wings, without any sign of paler fascia or streak at two-thirds, the broad fore wings and uniformly colored upper surface of the hind wings.

Type and eight paratypes in the writer's collection; one paratype in the Academy of Natural Sciences of Philadelphia; one paratype in the California Academy of Sciences.

#### PLUTELLIDAE

##### ***Acrolepia reticulosa*** new species

Head grayish brown with yellow and whitish hairs intermingled; tips of segments of labial palpi pale, antennae annulate with dark brown. Fore wings ashy brown, with a greater or less mixture of white scales; marked with transverse, irregular and broken lines of dark brown and black scales. A patch of white scales in fold near base is divided by a line of blackish scales; before middle of dorsum is a large quadrate pure white patch extending nearly half way across the wing, bordered on each side by black scales; three small white dorsal spots beyond, the third at the tornus; three small white costal streaks in the apical third of the wing; a white streak on termen just before apex extends out through the cilia. The apical fourth of the wing is heavily dusted with white scales; it is sometimes almost pure white, except on the margins. On the wing before the apex, is an elongate black spot, and beneath it, usually, a smaller black

spot. Cilia brown, with a coppery luster. Hind wings gray. Legs pale ashy, segments white-tipped. Abdomen brownish at base, shading posteriorly to dark fuscous; tuft yellowish. Expanse, 16 to 17 mm.

Type (♂), Old Faithful Camp (7400 ft.), Yellowstone National Park, July 4, 1924; two paratypes (♂), same locality; all taken at the edge of the lodgepole pine forest.

Types in the writer's collection.

#### GRACILARIIDAE

##### ***Phyllocnistis finitima*** new species

Palpi and head shining pale grayish metallic; antennae dark gray, basal segment not enlarged into an eye-cap. Fore wings elongate, dorsal two-thirds for over half the wing length shining pale gray or silvery, the silver color predominating above the fold, thus forming a somewhat contrasting silvery white basal streak, which extends beyond the middle of the wing and is margined along its upper side and around its tip to the fold with dark brown. The gray basal area is scarcely or not at all convex toward costa. Remainder of the wing bright reddish orange. From basal sixth of costa, a very oblique almost longitudinal silvery white costal streak extends to beyond the middle of the wing; its dark inner margin extends to the base and lies parallel to the margin of the basal gray area. An angulate silvery fascia beyond middle, dark margined on both sides, of almost equal width throughout, scarcely broadening on either wing margin. A black apical spot, preceded by silvery scales; four black lines radiate from it into the white cilia. Between these black lines and the margin of the silvery fascia are two more dark lines in the costal cilia. Basal half of cilia along termen dark brown. Hind wings brownish gray. Legs silvery gray outwardly, dark brown above, spurs silvery. Expanse, 7 to 8 mm.

Type (♂), and eleven paratypes (♂, ♀) reared from mines on leaves of *Senecio* sp., White House Canyon, Santa Rita Mountains, Arizona. The mine is identical in character with that of *Phyllocnistis insignis* on *Senecio*. The mines were collected March 17; imagoes emerged from March 20 to April 5; the date of emergence of the type is March 20.

This species is close to *insignis*, with which it agrees in structure, general color and type of markings. It is however a much larger insect, with much more elongate wings, and markings differently proportioned; the most striking differences are the straight upper side of the gray basal area in *finitima* (this side being decidedly convex toward costa in *insignis*), the greater

length of the gray basal area, and the even width of the angulate fascia.

Type and ten paratypes in the writer's collection; one paratype in the Academy of Natural Sciences of Philadelphia.

#### LYONETHIDAE

##### ***Bucculatrix sexnotata*** new species

Face shining yellowish white, tuft orange in front, shading to dark brown behind, eye-caps shining yellowish white, antennal stalk buff, spotted with dark brown above. Thorax and forewings very dark brown, faintly shining. Six silvery white spots placed as follows: an oblique spot from base of costa to fold; oblique triangular costal spots before middle and at three-fourths; triangular dorsal spots at one-third and before tornus, each a little anterior to the corresponding costal spot; the sixth spot at apex. A line of dark scales runs through the cilia along termen. Hind wings brown. Legs dark brown, hind tibiae with yellowish hairs, tarsi paler, yellowish. Abdomen dark brown above, paler beneath, tuft orange. Expanse, 7 mm.

Type (♂) and one paratype (♀) reared from larvae on leaves of *Aster divaricatus*, Powell County, Kentucky, collected October 12.

The mine is a short, narrow, transparent linear mine, a little over a centimeter in length; after leaving the mine, the larva feeds on the underside of the leaf, eating out patches, but leaving the upper epidermis untouched. Cocoon brownish, shining. The type emerged April 18, the paratype April 27 of the following spring.

Nearest *Bucculatrix locuples* Meyrick.

Types in the writer's collection.

##### ***Bucculatrix cuneigera*** Meyrick

1919. *Bucculatrix cuneigera* Meyrick, Exotic Microlepidoptera, II, p. 288.

1920. *Bucculatrix errans* Braun, Ent. News, xxxi, p. 77.

I take this opportunity to state that a comparison with type specimens of *B. cuneigera* Meyrick shows the above synonymy.

##### ***Tischeria cinereotunicella*** new species

Face and scale flap of basal segment of antennae whitish, vertex yellow. Thorax and base of fore wings (in ♂ type and ♀ allotype) pale lemon yellow, shading gradually deeper to an orange yellow, with the tips of the scales in the apex microscopically brownish, the minute brownish tips not producing a

dusted effect, however. The entire wing is shining, with a strong blue luster. One smaller male paratype shades to a much deeper almost reddish brown color in the apex and along the outer half of the costal margin, and the scales in the apical half of the wing are distinctly brown-tipped. Underside of fore wings brownish, without sex scaling. Hind wings pale gray, with distinctly yellow cilia, except in the male paratype where the wings are darker and cilia gray, scarcely tinged with yellow; very narrowly lanceolate in both sexes, less than half the width of fore wing, except at extreme base. Abdomen above, in male yellowish, shaded with fuscous, in female bright yellow; beneath, dusted with dark brown. Expanse, 10.5 mm. (type and allotype); 8 mm. (paratype).

Type (♂), and allotype (♀), Clermont County, Ohio; paratype (♂), Brown County, Ohio: all reared from large gray mines on oak, *Quercus bicolor*, and *Quercus imbricaria*. A fourth specimen, apparently this species, was accidentally reared together with specimens of *Tischeria (Coptotriche) zelleriella*.

The mine starts as a narrow gray line and very gradually enlarges into a trumpet-shaped mine, with the frass, which is retained within the mine, crowded down into the beginning of the mine or deposited in concentric crescents on the loosened gray epidermis; toward the end of the mining period, the mine broadens out and becomes paler, but still keeps the peculiar grayish tint, and is marked with curved dark lines. Pupation takes place in a wrinkled chamber, with epidermis torn at the ends, as in *zelleriella*.

The mines from which the type specimens were reared were collected in September; the imagoes emerged the following April; the type and the allotype, April 28; paratype, April 25.

The habits of the larva, the head structure of the moth, the general shape and color of the fore wing ally this species to *zelleriella*; from which it is at once separated by the narrowly lanceolate hind wings of both sexes.

The suspicion arises that this may be Chambers' *Tischeria castaneaeella*; but it is scarcely possible that Chambers would have failed to notice the strikingly peculiar color of the mine. In view of the certainty of the association of the sexes in my reared specimens, and the definite notes upon the life history, it has seemed better to describe this as a new species.

Types in the writer's collection.

**Tischeria mediotriata** new species

Face and vertex whitish, lateral scales of the tuft brownish; antennal flap orange yellow. Fore wings bright orange yellow, faintly shining, with a broad, sharply limited lemon yellow stripe from base to two-thirds, nearer the dorsal margin, its lower edge parallel to dorsal margin, its upper edge diverging from costa; a patch of faint dark dusting at tornus, a scattered line around apex; sometimes faint dusting on middle of costa. Fore wings straw colored beneath, without sex scaling. Hind wings whitish, with pale yellow cilia; more than half the width of the fore wings, evenly lanceolate. Abdomen yellow above, whitish and undusted beneath. Expanse, 9 mm.

Type ( $\sigma$ ), reared from a miner on a leaf of *Quercus gambelii*, North Rim, Grand Canyon, Arizona, 8100 ft.; allotype ( $\varphi$ ), from *Quercus* sp., Fredalba, San Bernardino Mountains, California; two paratypes ( $\sigma$ ,  $\varphi$ ), Fredalba, California; all in the writer's collection.

The mine is a small elongate whitish or yellowish blotch at the margin of the leaf on the upper side; at pupation the epidermis is wrinkled and the margin of the leaf bent over in a slightly spiral twist. The mine from the Grand Canyon was found July 27 and the imago emerged August 6; the mines from the San Bernardino Mountains were collected at the beginning of August, and the moths emerged August 24-29.

This species may be at once separated from all other species by the clear lemon yellow undusted and sharply limited basal stripe of the fore wing. From *Tischeria citrinipennella* Clemens, its closest ally in character of mine and in appearance of imago, it is further distinguished by the absence of fuscous spots at the base of the wings. *Tischeria nubila*, to which it is also allied, has a very different mine.

**Tischeria omissa** new species

Face straw colored, vertex pale straw colored or deeper, more ochreous, with grayish scales intermixed. Antennae fuscous; ciliation in male long at base, becoming shorter outwardly. Wings straw colored, deepening outwardly, and faintly tinged with orange around apex and in cilia. The wings are more or less densely dusted with blue-gray scales, which in some places cluster into definite markings. The more constant of these markings are the following: a small patch near base within the costal margin, a larger oblique patch at basal third, lying also within the costal margin, three irregular connected patches crossing the wing obliquely from beyond middle of costa to

tornus; a patch within the dorsal margin near base, an oblique patch near middle of dorsum; a patch covering the apex of the wing. In darker specimens, the dusting is especially heavy at base of wing and along basal half of costa, obliterating the above-mentioned clusters of dark scales near base; in very pale specimens, the dark markings are much shrunken in size and the wing between them is almost undusted. Hind wings varying from pale to dark gray. Legs yellowish gray, shaded with dark fuscous. Abdomen dark fuscous. Expanse, 10 to 11 mm.

Type ( $\sigma^7$ ), and sixteen paratypes ( $\sigma^7$ ,  $\varphi$ ) reared from mines on hollyhock (*Althaea rosea*), Berkeley, California, received by the writer from Mr. Wyatt W. Jones; eight paratypes ( $\sigma^7$ ,  $\varphi$ ) in the collection of the California Academy of Sciences, also reared on hollyhock and received from Mr. Jones. Two paratypes from the author's series have been placed in the Academy of Natural Sciences of Philadelphia.

There are several generations a year; in the series are specimens emerging in May, August and October; the date of the type is May 1. The mine is a whitish, translucent blotch, with pupation taking place in a small wrinkled, silkened-lined chamber. The mines occur in great numbers on the leaves together with mines of *Bucculatrix althaeae* Busck.

Of the group of *Tischeria heliopsisella*, but distinguished by the clear straw yellow of the fore wing and blue-gray scales with no mixture of white.

#### NEPTICULIDAE

##### **Nepticula virgulae** new species

Tuft brownish ochereous, faintly tinged with red between the yellowish white eye-caps; antennal stalk dark brownish fuscous. Thorax and fore wings almost black; a faint purple tinge on thorax and base of fore wings; at middle of wing a brilliant silvery slightly convex fascia, usually broadest on the dorsum. Cilia whitish; marginal line of scales thus sharply defined around apex. Hind wings gray, cilia darker; in the male with a narrow yellowish chitinous plate on the upper side of costa of hind wing from base to near middle. Underside of body and legs dark silvery gray. Expanse, 4 mm.

Type ( $\sigma^7$ ) and allotype ( $\varphi$ ), Clinton County, Ohio; two paratypes ( $\sigma^7$ ,  $\varphi$ ), Clermont County, Ohio; all reared from miners of leaves of hazel (*Corylus americana*). The date of emergence of the type is April 24; that of the allotype May 15; the mined leaves were collected in the preceding August and

September. The mine is long, gradually broadening to a width of  $1\frac{1}{2}$  or 2 mm. at its end; with frass in a broad tract or more or less scattered. Larva green; cocoon reddish brown. The mine is considerably broader than the body of the larva, much broader than that of *Nepticula corylifoliella*, which often occurs with this species, but narrower however than the mine of *Nepticula ostryae-foliella*.

Superficially, *Nepticula virgulae* is very close to *Nepticula rubifoliella* and *Nepticula nyssaefoliella*; but is separated from both by the presence of the chitinous plate on basal half of costa of hind wing of male; it is further separated from *nyssaefoliella* by the smaller size, darker hind wings, and absence of androconia on the hind wings of the male. Except for the chitinous plate it is indistinguishable from *rubifoliella*. The chitinous plate of this species is structurally identical with that found in *Nepticula platanella*, with which this species also agrees in venation.

Types in the writer's collection.

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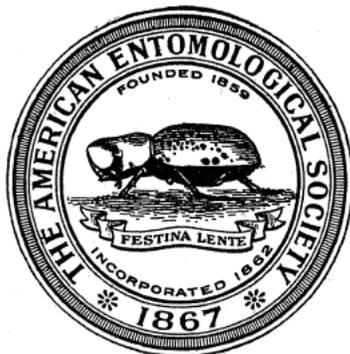
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