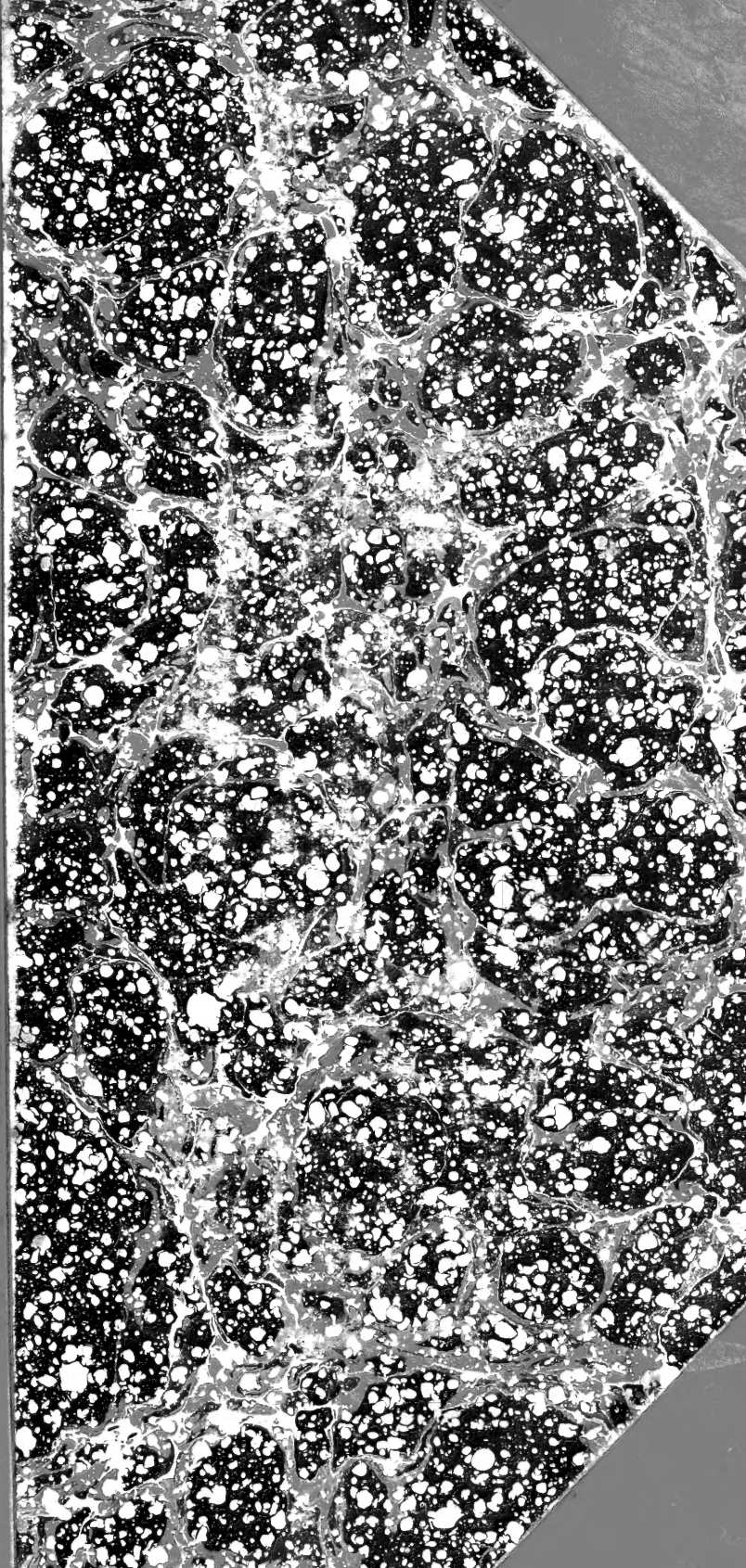
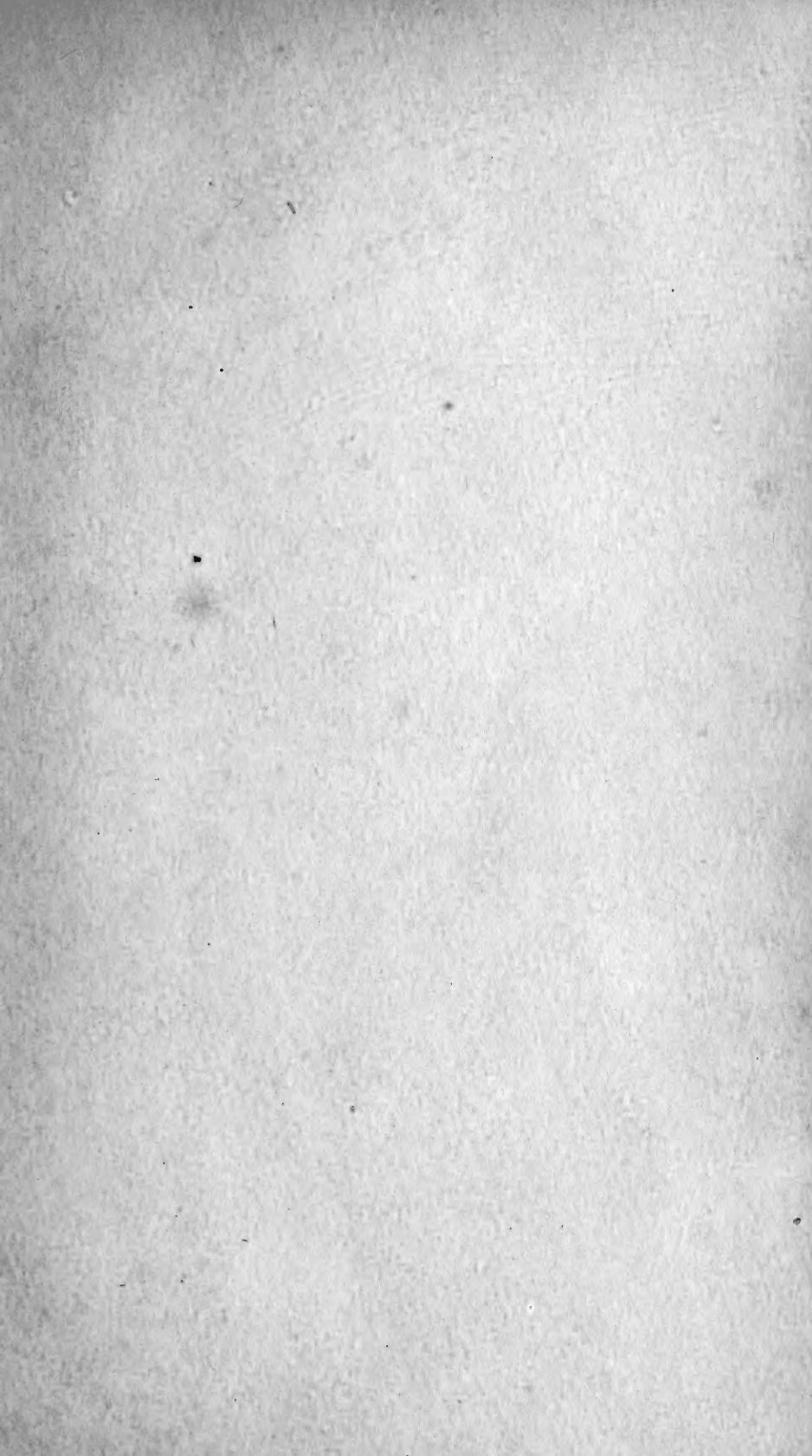


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# NOTES

ON THE

# LEPIDOPTERA OF AMERICA.

BY

AUG. R. GROTE

AND

COLEMAN F. ROBINSON.

Reprinted from the Annals of the Lyceum of Natural History of New York, Vol. VIII,  
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*Notes on the Lepidoptera of America.*

No. 1.

BY AUG. R. GROTE AND COLEMAN T. ROBINSON.

Reprinted from the Annals of the Lyceum of Natural History of New York, Vol. VIII.,  
April, 1867.

Family, NYMPHALIDAE.

GRAPTA, *Kirby.*

**Grapta gracilis, n. s.**

*Male and Female.* *Upperside*, much the same as in *Grapta faunus*, *Edwards*; the preapical oblique dark brown costal band of the primaries is constantly more diffuse, and the succeeding yellowish marks more restricted, than in its congener. Usually there is a third fainter black spot on the interspace above first median nervule. On the secondaries, the terminal dark band is narrower than in *G. faunus*, and the sub-terminal, interspaceal, yellow-fulvous marks, while deeper in color, are brought nearer to the external margin; within these, the dark color is less intense and shades more rapidly to brownish, than in its congener. All the exerted portions of the external margins on both wings are narrower; this is especially perceivable when comparing the "tails" of the secondaries of the two species together.

*Underside*, paler than in *G. faunus*, and affords ready distinguishing characters. Basally, the wings are of a rich dark clear brown, marbled with paler shadings nearer the body, and with darker lines inclosing brown elongated patches. Outside of the brown space is a broad whitish band, distinctly covered with fine, short, wavy, transverse, disconnected, brown striæ, and shading into the dark wood-brown strigose terminal shade. The discal mark of the secondaries is a white **L**, entirely surrounded by the dark brown scales of the basal shade. Body and legs much as in *G. faunus*; tarsi, whitish, paler; antennae notably shorter than in its ally.

*Expanse*, ♂ & ♀, 1.50 to 1.60 inches. *Length of body*, 0.70 to 0.75 inches.

*Habitat*, Atlantic District (Mount Washington, N. H.!).

This species may at once be distinguished from *G. faunus*, by its smaller size, and the distinct ornamentation of the under surface, which wants all the green scales and spots which characterize its congener, as well as the dusky fulvous apical and terminal shades which occur on both wings beneath in *G. faunus*. Messrs. C. T. Robinson and F. G. Sanborn have communicated the specimens which form the basis of the present description. This species appears a more closely knit form compared with either *G. C-argenteum*, or *G. faunus*, when the narrower serrations of the external margins of the wings and its total appearance are taken into consideration.

Mr. Scudder's remarks, in his "Butterflies of New England," Proc. Essex Institute, April, 1863, undoubtedly apply to *Grapta gracilis*, and are as follows :

"I have taken four specimens of a *Grapta* at the White Mountains from the valleys to the summit, which may possibly belong to this species (*i. e.* *G. C-argenteum*, *Kirby*), but seem to indicate the presence of a new species; it is fully as small as, if not smaller, than *G. C-argenteum*, its upper surface is like that of *G. faunus*, while its under surface is more like *G. C-argenteum*, but differs from that in having the broad ashy band quite hoary, nearly white, and extending also with equal distinctness across the secondaries; the discal spot of secondaries is a white **L** with both limbs nearly equal similar and straight."—l. c. p. 169.

Family, HESPERIIDAE.

HESPERIA, *Fabr.*

### **Hesperia bimacula, n. s.**

*Female.* Head, above, and prothorax, covered with dark brassy yellow scales; the tips of the palpi are stained with the same shade. Thorax and abdomen, above, blackish, clothed with lateral, longer, mixed olivaceous and aeneous hair. Beneath, the palpi

are white; the eyes are also margined narrowly with white. Thoracic parts, beneath, clothed with longer, mixed griseous and whitish hair. Abdomen, beneath, whitish, with longitudinal darker streaks, laterally clothed with mixed griseous scales. Legs, obscure aeneous; femora with white scales inwardly. Antennae, rather short and stout; above, sub-annulate; "club," blackish; beneath, more plainly annulate with yellowish white, the apices tinged with dark fulvous.

Wings, broad, somewhat longitudinally wrinkled; above, lustrous olivaceous brown, with dark olivaceous longer scales. Anterior wings, above, without markings, except two, unequal, pale yellowish, obliquely placed maculations at the base of the interspaces between the upper median nervules. Of these, the upper is much the smaller, and is brought nearer the external margin than the lower; beneath this latter there are faint indications of a third, paler spot, above the internal nervure. Base of the wing and costal region, sparsely clothed with obscure aeneous-yellow scales; fringes, prominent, *whitish*, with a faint darker basal shade. Posterior wings, immaculate, with longer, aeneous olivaceous and yellowish hairs spreading over the disc and along internal margin, this latter as long as the abdomen, anal angle slightly and rather broadly exerted; fringes as on anterior wings. Beneath, the anterior wings are evenly covered with obscure aeneous or golden yellow scales, which are very prominent along costa, leaving the lower portion of the wing, above internal margin, free; the two yellow maculations of the upper surface are here repeated. The posterior wings are immaculate, concolorous with anterior pair, being almost everywhere evenly covered with golden yellow scales, least prominently so before internal margin.

*Expanse*, 1.50 inches. *Length of body*, 0.70 inches.

*Habitat*.—Atlantic District. (Philadelphia!)

A little larger than *Hesperia pocohontas*, *Scudder*, and resembling this species in the shape of the wings. It will be readily recognised by the whitish fringes and the simplicity of its markings.

## Family, SPHINGIDAE.

Tribe, *Macroglossini*.HAEMORRHAGIA, *Grote and Robinson*.*Sesia*, p., Fabr., Walk., Clemens.*Cephonodes*, p., Hübner.*Macroglossa*, p., Boisd.GROUP I. (*Aberrant*.)

Discal cell of primaries free. Vitreous field of secondaries crossed by five nervules. Sp. 1.

Thorax beneath with lateral red

shades.....1 *H. gracilis*, *G. & R.*!

GROUP II. (*Typical*.)

Discal cell of primaries crossed by a longitudinal bar. Vitreous field of secondaries crossed by six nervules. Sp. 2-5.

Inner margin of external band of ♂ primaries dentate on the interspaces. Sp. 3 and 4.

Abdomen shaded with olivaceous on the sides of terminal segments.....3 *H. thysbe*, *G. & R.*!

Abdomen terminally entirely

deep red.....4 *H. fuscicaudis*, (*Boisd.*)—

Inner margin of external band of ♂ primaries not dentate on the interspaces. Sp. 2 and 5.

Size moderate. Hind tarsi

red.....2 *H. buffaloensis*, *G. & R.*!

Size large. Hind tarsi

black.....5 *H. floridensis*, *G. & R.*!

***Haemorrhagia gracilis***, *Grote and Robinson*.

*Haemorrhagia gracilis*, *G. & R.*, Syn. Cat. N. A. Sph. p. 26, Plate 3 figs. 1-2 ♂, P. E. S. P. Nov., 1865.

♂. Form somewhat small and slight. Head and thorax, above, clothed with olive green appressed hair; basal abdominal segments, above, similarly colored. Palpi, black at the tips, whitish beneath. Orbits of the eyes, white; in front of these a few whitish scales. Laterally, the under thoracic parts are clothed with long white hair, extending from behind the eyes to base of secondaries. Centrally, the under thoracic parts are clothed with long white hair, which is separated from the lateral white hair by two sub-lateral broad stripes of long reddish hair; a character which is very distinctive when we compare it with the concolorous pectus of allied species. Anterior femora clothed with thick white hair. Anterior tibiae, pale red, as are also the middle and posterior legs, both femora, tibiae, and tarsi. Abdomen, except basal segments above, dark red; third basal segment fringed anteriorly with pale hairs; fourth, dorsally, with a few similarly colored appressed hairs; fifth and sixth, with a few pale lateral hairs. Anal tuft, black laterally, centrally pale red. Under surface of abdomen, pale red, with a central sub-obsolete series of pale spots composed of aggregated hairs. Laterally, spots of similar pale hairs at the base of the segments. The sides of the abdomen show sub-tufts fringed above with pale yellowish, similarly colored hair to that forming the lateral and central series of abdominal spots. Anal tuft, concolorous with abdomen beneath; extremities of anal hairs, black.

Wings, vitreous; anterior pair largely bright red at base, the scales encroaching on the discal cell from the base. Discal cell free. External margin with a moderately broad, dark red, even band, narrowing to internal angle, not dentate on the interspaces. Costa and internal margin, bordered somewhat narrowly with dark red scales. Posterior wings bright red at base and over anal angle; external margin with an *even* border of dark red scales. Centrally the secondaries are vitreous, the diaphanous field crossed by *five* nervules. Under surface, resembling upper; the red color of the primaries is a little brighter, especially along costa and at apices, when compared with the color of these parts on the upper surface. The posterior wings are distinctly shaded with pale yellowish over and within anal angle, on the interspaces inside of the external border.

*Expanse*, ♂, 1.75 inch. *Length of body*, 0.85 inch.

*Habitat*.—Canada West (Saunders).

We have as yet but a single male specimen before us, which came originally from Mr. Bowles' Collection. We have conjectured (l. c.) that *Sesia ruficaudis*, *Walker* (non Kirby), was based upon the present species. From a comparison between Kirby's description and that given in the British Museum Lists, it is evident that these refer to distinct species, and the descriptions have been properly kept apart by Dr. Clemens. From the brevity of Mr. Walker's description, it cannot be properly ascertained what species is referred to, and the few points of resemblance between the description of *S. ruficaudis*, *Walker*, and *H. gracilis*, *nob.*, may be accidental, a view which derives some support by the circumstance that Mr. Walker adds to his description the remark: "This is probably a mere variety of *S. thysbe*"—a phrase that could not properly be applied to the very distinct *H. gracilis*. We have already (l. c.) given Kirby's description of *S. ruficaudis*, a description which will not apply to any species known to us, but probably to one which yet remains to be rediscovered.

### ***Haemorrhagia buffaloensis*, n. s.**

(Plate 16, figs. 18 ♂, 19 ♀.)

*Male*. Head, above, deep green; palpi, smoothly scaled, converging at the tips which prominently exceed the "front," blackish above and laterally, beneath, with the entire under thoracic surface, pale yellowish white; eyes margined below with pure white scales; maxillae, well developed, blackish; antennae, rather stout and long, tapering to base, serrate outwardly, with a short attenuate terminate hooklet. Thorax, above, bright green, becoming somewhat discoloured, tinged with ochreous, posteriorly. Basal segments of the abdomen, above, pale ochreous; third and fourth, entirely deep red; terminal segments olivaceous, shaded medially with deep red and distinctly marked laterally by patches of the

same color; anal segment provided with an ample tuft; laterally, at base, a few pale ochreous hairs; beyond, on each side, the anal hairs are largely black, the longer scales from beneath fringe these black lateral portions of the tuft, which are also somewhat folded towards each other terminally; medially, the anal tuft is obscure reddish tipped with black. Beneath, the anal hairs, with the entire abdominal surface, are dull ferruginous or rusty red. The pre-anal segment shows medially a few white scales; laterally, longer, pale ochreous hairs converge inwardly from the margins of the segments. Anterior coxae, thickly clothed with pale yellow white hair, concolorous with under thoracic surface. Legs, slender, finely scaled; anterior femora, tibiae and tarsi, obscure pale ferruginous or red inwardly, outwardly pale yellowish white; middle femora and tibiae, entirely pale whitish, with a dark discolored dot at the joint above; tarsi, ferruginous, paler towards the base. Posterior legs with the femora and tibiae pale yellowish white; tarsi and base of the tibiae, dark ferruginous or red; tibial spines rather feeble, pale colored.

Anterior wings, narrow, much produced at apices, short along internal margin, dark claret brown, covered at base with bright green scales; discal cell narrow, brought near the base of the wing, traversed longitudinally by a bar of scales. The costa is narrowly covered with ferruginous scales from just beyond the base to apex. Centre of the wing taken up by an oblique vitreous space free from scales, much as in *H. thysbe*. A terminal brown marginal band narrowing to internal angle, its inner margin sinuous, *not* dentate on the interspaces. On internal margin, below the vitreous space, a few scattered pale scales. Secondaries smaller, but quite similar to those of *H. thysbe*, in general coloration and appearance; the vitreous space crossed by six nervules. Under surface, resembling upper, dull rusty red, with a few pale scales at extreme base.

The *Female* resembles the male in general appearance, size, and coloration, but the abdomen is more rounded and shorter. The anal tuft is pointed and narrower, beneath black, red at base; above, dull reddish, tipped with blackish; antennae, slenderer than in the male.

*Expanse* (♂ and ♀), 1.65 to 1.70 inch. *Length of body*, 0.80 to 0.90 inch.

*Habitat*.—Atlantic District. (Buffalo, N. Y.!) )

This species is closely allied to *H. thysbe*, *G. & R.*, from which it may at once be separated by its smaller size and the non-dentate inner margin of the terminal band of the primaries in the male. We have elsewhere drawn attention to the character afforded by the inner margin of the terminal band in *H. thysbe*; it is, however, in the males alone that it is prominently dentate on the interspaces. There are several other less striking characteristics which will at once separate *H. buffaloensis* from *H. thysbe*, on a comparison between specimens of either sex. From *H. gracilis*, *G. & R.*, the new species may be at once distinguished by the longer and narrower primaries, with the discal cell crossed longitudinally by a bar of scales; by the different color of the legs and under thoracic surface, and by the diaphanous space on the secondaries being crossed, as in *H. thysbe*, by six nervules.

*Haemorrhagia buffaloensis* has been frequently reared from the larva by collectors in Buffalo, N. Y. We figure a variety of the female, in which the usually wholly vitreous fields of the wings are sparsely and evenly clothed with scales. We have observed a similar variation in specimens of *H. thysbe*.

### ***Haemorrhagia floridensis*, n. s.**

(Plate 16, fig. 20, ♂.)

♂. Size, large; form, stout. Head, above, dark olive green. Labial palpi, projected beyond the front, approximate at their tips; above, blackish; beneath, with under thoracic surface, clear yellowish white. Legs, generally finely scaled: anterior pair outwardly clothed with whitish scales; inwardly, the tegument is almost naked, blackish and dusted with ferruginous atoms. Middle pair with the femora clothed with yellowish white hair outwardly; inwardly, blackish, naked; tarsi shading to blackish towards the



extremities. Hind tarsi and the basal portion of the tibial hairs, black; inwardly, the tarsi are obsoletely shaded with pale hairs. Thorax, above, entirely dark olive green, which color extends over the two basal segments of the abdomen above. Next four segments above, very deep red, fringed sparsely anteriorly by short white hairs which are easily removed by attrition, appressed. Fifth and sixth segments with olive green lateral shades. The fifth and sixth, and the anal segment, show yellowish-white sub-tufts at the sides. Anal tuft, reddish in the middle, where the hairs are longest; black at the sides; underneath, entirely bright red, where the hairs are more thinly spread out and shorter than above, allowing the lower black surface of the superior tuft to be seen. Under surface of abdomen, bright red; terminally a few yellowish white hairs, gathered on anal and pre-anal segments into small medial sub-tufts. Antennae, black, rather massive, gradually swelled to the tips, terminating in the usual extremely fine and reflected spinule; beneath, rugose or regularly serrated; above, smooth.

Anterior wings with the costa sub-sinuate, rounded at base, medially depressed, rising again to apices; external margin very oblique; internal angle prominent. At extreme base these are covered with olive green hairs; beyond, dark red; costa and internal margin bordered with dark red scales; centrally the pellucid tegument acquires in certain lights a bright blue reflection. The terminal band is obscure dark red, with its inner margin sinuate, not dentate, on the interspaces. The discal cell, retired towards the base of the wing as is usual in this genus, is nearly filled with dark red scales and but partially hyaline, but sufficiently so as to allow a distinct longitudinal bar to be seen, traversing the cell, appearing as the inward prolongation of first median nervule. Under surface of anterior wings, bright red, much paler than upper surface; terminally, the band is of an obscure tint, but along costa and over apical interspace the color is brighter. Internal margin bordered with paler, somewhat ochreous red scales, as is also the extreme base of the wing.

Posterior wings, above, bright red, largely vitreous, the hyaline space crossed by six nervules. The narrow terminal band, along external margin, is deep red, shading to bright red over anal angle

and the base of the wing. Under surface of posterior wings, bright red, paler than upper surface; at extreme base some ochreous and yellowish white scales.

*Expanse*, ♂, 2.40 inch. *Length of body*, 1.40 inch.

*Habitat*.—Florida. (Melonville, Fla., "February"—Chas. Linden!)

Distinguishable from *H. thysbe*, by its stouter form, the edentate inner margin of the terminal band of the ♂ primaries, and by the differently colored feet.

*H. fuscicaudis* (*Sesia fusic.*, Walk.) is unknown to us, but we have examined a drawing of this species made under the superintendence of Mr. Walker, which shows it to be much nearer allied to *H. thysbe* than the present species, since it is slenderer and shows the inner margin of the terminal band of the ♂ primaries to be plainly dentate as in *H. thysbe*, while the absence of the olivaceous lateral shades on the terminal abdominal segments is the only prominent character which distinguishes Mr. Walker's *Sesia fuscicaudis* from Fabricius' species, to judge by the brief diagnosis of the former given in the British Museum Lists.

## Family, ZYGAENIDAE.

### SUB-FAMILY, ZYGAENINAE.

### MELANCHROIA, *Hübner*.

## **Melanchroia regnatrix, n. s.**

(Plate 16, fig. 15, ♂.)

♂ and ♀. Head, moderate, held on a line with the body, larger in the male, in which sex also the eyes are fuller and more prominent. Above, bright metallic blue; beneath, the small labial palpi are fulvous; maxillae, moderate, dull fulvous. Antennae, black, with a sub-cyanous tinge on the stem above; plumose in the male, in which sex the pectinations are twice as long as in the

female. Thorax, as usual, proportionally well developed, the disc globose; above, entirely brilliant metallic greenish blue; tegulae, fringed with longer and duller hairs. The metallic color of the thoracic parts extends over basal abdominal segment above. Beneath, the thoracic parts are entirely fulvous; the rather long and slender, cyaneous-black legs are covered with fulvous scales. Abdomen, rather slender and weak, not exceeding internal margin of secondaries in length, entirely fulvous; beneath, of a more yellow, less orange shade. The abdominal squamation is mealy and characteristic of the genus. The genital claspers, in the male, are fringed with longer hairs; in the female, the abdomen terminates more pointedly.

The wings are rather long and large; anterior wings well produced apically, above of a brilliant metallic greenish blue color with a changeable reflection, without markings. Along external margin, the metallic coloration becomes obsolete, leaving a narrow, even, terminal-space of a dull black hue. The "veins" are absolutely brought into relief by darker scales; fringes, blackish.

Posterior wings, rounded, of a dull black color, shaded medially with deep blue; the median and internal nervules are accompanied by diffuse, bright greenish blue shades extending from the base of the wing and becoming obsolete outwardly.

Under surface of both wings, resembling upper; the primaries are dull blackish along internal margin, and less brilliant than on their upper surface; the secondaries are more largely shaded with bright greenish blue, and are consequently more brilliantly colored than on the upper surface.

*Expanse*, ♂ and ♀, 1.45 inch. *Length of body*, 0.50 inch.

*Habitat*.—Cuba (Gundlach).

*Number 774, Gundlach's MS. Catalogue.*

Although this brilliantly colored species is strongly contrasted with the sombre-hued species of *Melanchroia*, we have not been able to find sufficient characters to justify its generic separation. The typical metallic coloration of the Family is

here associated with one of the lower genera, which, although higher than *Dioptis*, still, by its weak body parts and especially by its slight abdomen and the mealy squamation of the latter, evinces a sensible degradation from the firm body crust and concentrated characters of the more typical genera of the Family. *M. regnatrix*, is the third Cuban species of the genus described; the two formerly known being *M. fumosa*, *Grote*, and *M. geometroides*, *Walker*. The analogies of *Melanchroia* with the *Phalaenidae* would be indicated by the name given to this latter species by Mr. Walker; these are, however, more truly taken from the *Bombycidae*.

Family, PHALAENIDAE.

ENNOMOS, *Treitschke*.

**Ennomos Coloradaria, n. s.**

(Plate 16, fig. 11, ♀.)

*Eugonia coloradaria*, G. & R. *MS.*

♀. Pale yellowish ochreous. Head, thorax, and legs, whitish ochreous; antennae simple, whitish; legs slight, hind tibiae with short spurs.

Anterior wings a little rounded along costal margin at base, depressed sub-apically; apices truncated; external margin broadly produced above the middle. External margin of secondaries broadly produced about the middle. Primaries pale ochre yellow, sparsely and irregularly irrorate with brown scales. A broad, arcuate, brownish black, transverse anterior band. A sub-obsolete discal spot. A very broad, prominent, angulated, blackish brown transverse posterior band, distinctly margined on either side. This is twice bent or angulated: first, immediately at costa; secondly, opposite the disc. A faint, whitish, diffuse, sub-terminal shade. Immediately below the apices, the external margin, which is here excavate, is edged with brownish scales. Secondaries, whitish ochreous, paler and more thinly scaled than primaries, tinged with a more

purely ochreous shade along external margin before anal angle. The whole surface is sparsely irrorate; a faint median line crosses the wings, corresponding to the transverse line of primaries, but much weaker and fainter, composed of aggregated brown scales and becoming more distinct and linear before internal margin. Under surface, whitish ochreous, deeper stained along costal region of primaries and over the secondaries, coarsely and sparsely irrorate with brown scales. The transverse bands of the upper surface are here reflected.

*Expanse*, ♀, 1.50 inches.

*Habitat*.—Colorado Territory (Mr. Jas. Ridings).

Allied to the European *E. tiliaria* and *E. angularia*. Our specimen, though beautifully fresh, has the abdomen broken.

ENDROPIA, *Guenée*.

**Endropia arefactaria, n. s.**

(Plate 15A, fig. 7, ♂.)

♂. Head, dark ochraceous; antennae, finely bipectinate, the stem, above, ochraceous sprinkled with blackish. Thorax, ochraceous, with black dots on the disc. Abdomen, ochraceous, a little longer than internal margin of secondaries. Beneath, the body parts and legs are ochraceous, more or less speckled with black.

Wings, ochraceous, with reddish or ferruginous external shades. Anterior wings with the apices produced and pointed; external margin angulated at above the middle, where it is produced a little beyond the apex. Secondaries twice broadly excavate superiorly: first, at apices, obliquely and shallowly; secondly, immediately below the first excavation, more deeply and prominently. Primaries, yellowish ochreous; median space, paler. Basal space, pale ferruginous ochreous, speckled with black scales, especially at costal base. Median lines, dark reddish ferruginous; transverse anterior, sub arcuate, slightly projected superiorly; transverse posterior, broad, evenly obliquely arcuate. Median space, pale yellowish ochreous, minutely speckled; a distinct, large, discal,

black dot. Terminal and sub-terminal spaces, shaded with reddish or ferruginous, sparsely speckled with black scales. Sub-terminal band, interrupted, broad, irregular, whitish ochreous, speckled with black scales, forming a distinct apical pale and broad mark, becoming obsolete at just before internal angle. Posterior wings resembling anterior; terminal space, outside of the median line, becoming diffusely ochraceous inferiorly and over anal angle, ferruginous or reddish superiorly and along the median line. Median line, dark reddish, ferruginous, strongly marked and straight, resembling the transverse posterior line of primaries in appearance and color, but not strictly corresponding to it, since, when the wings are expanded, it does not match that of the primaries, or run continuous with it, but arises at a point on the costa of secondaries which is removed farther outwardly than the termination of the transverse posterior line of primaries on internal margin. Discal dot black, smaller than on anterior wings. A second, less distinct, inner transverse shade line, corresponding to the transverse anterior line of primaries and accompanied by rather numerous black speckles. The secondaries are almost entirely speckled with black, but more prominently so basally and along external margin, the dark space contiguous and outside of the median line being partially free from speckles. The median line is shortly geminate opposite the discal cell; this is more prominent beneath. Under surface, resembling but brighter than upper, paler, more prominently irrorate and with clusters of black speckles at base of both wings; discal dots distinct; secondaries entirely pale ochreous, except the transverse bands, which are more distinct than above. The transverse posterior line of primaries is followed by a broad reddish shade band, limited externally by the sub-terminal pale ochreous shade and by an undulating sub-obsolete series of black dots.

*Expanse*, ♂, 1.50 inch. *Length of body*, 0.70 inch.

*Habitat*.—Atlantic District. (Penn. to Maryland. !)

We have seen the female of this species, which resembles the male and is larger, but have no longer specimens before us. In size and general appearance this species resembles E.

aniliaria (*H. S.*), from Venezuela, but is at once distinguished by the shape of the external margin of the secondaries. A specimen of *E. arefactaria*, had been forwarded to Mr. Walker for comparison, who regarded it as a distinct species allied to the Floridian *E. astylusaria*, *Walk.*, a species unknown to us.

### ***Endropia vinulentaria*, n. s.**

(Plate 15A, fig. 5, ♂.)

♂. Head, thorax, and abdomen, pale ochreous; antennae, finely bipectinate, the pectinations obsolete at tips. Wings, pale ochreous, evenly and improminently irrorate with darker scales than the ground color; outside of the transverse posterior and median lines, the entire terminal spaces are darker than the wings within them, being of an even purplish dove color. Primaries, pointedly produced at apices; external margin, rounded outwardly to internal angle, being roundedly produced medially without any prominent angulation. Secondaries, obliquely depressed at apices, below which is a wide and shallow excavation. Anterior wings, evenly pale ochreous from base to transverse posterior line, evenly dusted with pale purplish scales, which become obsolete before the t. p. line, leaving a narrow space clearer pale ochreous. A brown, outwardly arcuate, irregular, transverse anterior line, slightly projected on median nervure. All the "veins," on either wing, are obsoletely brought into relief by darker scales. Transverse posterior line, brown, evenly and obliquely arcuated, succeeded by a bright brown coincident shade, this latter color obtaining along costa to apex. An obsolete discal dot on the cross vein. Outside of the transverse posterior line, the wing is darker than elsewhere, evenly washed and shaded with pale purplish dove color. A distinctly defined pale ochreous apical mark. Secondaries, resembling primaries in color and appearance; within the distinct median line pale ochreous, irrorate with darker scales. An inner transverse shade line, composed of aggregated dark atoms; a distinct black discal dot. Median line resembling the t. p. line of primaries in color and conformation, but not corresponding with that line, since,

when the wings are expanded, it is seen to arise from a point on the costa of secondaries further removed outwardly than the point of termination of the latter line on internal margin of primaries. External margin, entirely and evenly darker colored than within the median line, similarly colored with the terminal spaces of primaries, and without any paler maculations or shadings. External edges of both wings dark. Under surface, clear pale ochreous, thickly irrorate with brown scales; the "veins" marked with brownish. Inner common lines composed of aggregated brown atoms, more distinctly marked on primaries. Distinct black discal dots. The transverse posterior line is S-shaped on primaries, dark brown and geminate centrally, since an even oblique narrow line leaves it below costa at its outward inflection, and connects with it again at its inward inflection at a point on the interspace between 3d and 4th m. nervules. Outside of the t. p. line, the external margin is dark colored as on upper surface, leaving a distinct apical mark pale ochreous. Secondaries, clear pale ochreous; a median S-shaped brown line corresponding to the t. p. line of primaries and geminate, since it is crossed at right angles by an even oblique narrow brown line, commencing on costa nearer the apex than the median line, which it crosses and again meets and is fused with below 3d m. nervule. Outside of median line, the wing is clear pale ochreous, not corresponding to the dark terminal space of the upper surface and to both surfaces of primaries. External margin edged with dark brown.

*Expanse*, ♂, 1.20 inch. *Length of body*, 0.50.

*Habitat*.—Atlantic District. (New York State!)

Of the size of *E. amoenaria*, *Guenée*, but differently and paler colored; the apices are less produced than in *Guenée*'s representation of that species; there is no dark subterminal line with inferior pale spots annulated with black. The ornamentation of this species recalls that of *Hyperitis amicaria*, *Guenée*.



**Endropia vinosaria, n. s.**

(Plate 15A, fig. 4, ♂.)

♂. Head, thorax, and abdomen, clear pale ochreous; antennae finely bi-pectinate; pectinations obsolete at tips.

Anterior wings, clear pale ochreous, irrorate with brownish scales. Transverse anterior line, brownish, irregular, inwardly excavate between costal and median nervures, projected superiorly, All the "veins" brought into relief by brownish scales. Discal dot, obsolete. Median space, clear pale ochreous. Transverse posterior line, irregular and geminate, since, opposite the disc, its outward projection is accompanied, within, by a second brown line, which runs more straightly obliquely and at variance with it at this place, leaving a pale ochreous space between the lines; above and below this the lines are fused. Outside of the t. p. line, the wing is washed with purplish brown, leaving a pale ochreous subterminal shade, which is broad and interrupted, being strongly marked at apex and again over the median nervures, and becoming obsolete towards internal margin. Secondaries, wholly pale ochreous; all the "veins" marked with brownish scales; coarsely irrorate with brown scales. An internal transverse line composed of aggregated brown irrorations, and, owing to the inward inflection of the t. p. line of primaries, appearing as if continuous and corresponding to the latter line. A distinct dark discal dot. Median line, distinctly geminate, since it is crossed below costa by a second, similar, but less distinctly marked line, which latter arises on costa contiguous to, but within the median line proper, beyond which it is outwardly projected over the nervures, becoming fused with the median line again before internal margin. Apices, touched with brownish; external margin, distinctly edged with dark brownish. Under surface, more coarsely irrorate, but in color and the course of the transverse lines, resembling upper, so as to render a detailed description unnecessary.

*Expanse*, ♂, 1.30 to 1.50 inch. *Length of body*, 0.50 to 0.60 inch.

*Habitat*.—Atlantic District. (Mass. to Ga.!)

A larger species than *E. vinulentaria*, *nob.*, but resembling that species in general color and style of markings. The clear pale ochreous color of the wings above is not dusted with a faint obscure purplish shade; the subterminal ochreous shade band again appears, below the apices of the primaries, over the median nervules; the transverse lines are more irregular, distinctly geminate on both surfaces; the external border of secondaries is clear pale ochreous on both surfaces. *E. vinosaria* ( $\delta$ ) varies in the extent of the darker shades on external border of primaries.

### ***Endropia textrinaria*, n. s.**

(Plate 15A, fig. 6,  $\delta$ .)

$\delta$ . Head, thorax, and abdomen, pale ochreous, shaded with reddish on thorax above. A broad, dark, frontal line, before the antennal insertion; palpi, dark brownish. Antennae, finely bipectinate; the pectinations becoming obsolete at tips.

Wings, broad; anterior pair, produced at apices, and more prominently so on external margin at extremity of second median nervule. External margin of secondaries, prominently produced and angulated centrally. Primaries, pale ochreous; all the "veins" are prominently marked with reddish scales. Basal space, pale ochreous, but so thickly irrorate with reddish and brownish scale streaks as to leave little of the ground color apparent. The reddish scales are aggregated along costa and form a shade coincident with the dark, slightly irregular and diffuse transverse anterior line. Median space, pale ochreous, coarsely irrorate with reddish and dark scale streaks, narrow, constricted at the sub-median fold by the approximation at this point of the median lines. A distinct, black, discal dot situate on the discal cross vein. Transverse posterior line, brownish, distinct, obliquely arcuate to sub-median fold, thence running straightly to internal margin, succeeded by a coincident reddish shade. Outside of the t. p. line, the external border is stained with reddish brown and washed with purplish; the dark portions are finely irrorate with black scales, leaving the pale ochre-

ous ground color of the wing to spread as an irregular, broad, diffuse, apical shade extending obsoletely downwards over the median nervules. Secondaries, resembling primaries in appearance and coloration—pale ochreous, irrorate with reddish and brownish shade streaks and washed with a purplish shade. A distinct, small, black, discal dot; outside of this is a median, slightly sinuous line, corresponding to the t. p. line of primaries and resembling it in color and conformation; this line is inferiorly succeeded by an obscure, diffuse, reddish brown shade having a faint purplish reflection. An external, sub-obsolete line, regularly lunulate between the nervules and lost inferiorly in the reddish brown shade, which latter is somewhat interrupted centrally, but darkens the wing again very distinctly along external margin between the central angulation and anal angle. A corresponding line to this latter, is seen on the primaries, but it merely appears over the pale ochreous ground color of the wings which obtains, as a diffuse ochreous shade, over the apical portion of the wing. Under surface, resembling upper, pale ochreous; the median lines of the upper surface of primaries are here reproduced. A distinct, black, discal dot. The t. p. line is succeeded by a very distinct, brown, lunulate line, corresponding to its analogue of the upper surface, but here more distinct, becoming entirely obsolete below 4th m. nervule. The external border is much less diffusely shaded with reddish brown than on the upper surface, thus allowing the exterior lunulated line to become obvious. Secondaries, entirely pale ochreous. A very faint median line, preceded by a black discal dot. The exterior lunulated line is again more apparent, becoming obsolete inferiorly. The external margin is narrowly edged with brownish on both wings, and the entire under surface is coarsely irrorate, though less prominently so on secondaries.

*Expanse*, ♂, 1.50 inch. *Length of body*, 0.50 inch.

*Habitat*.—Atlantic District. (Penn. !)

This pretty species is very distinct in the shape of the wings, and is slightly variable in the depth and extent of the reddish brown shades and purplish washings of the upper surface.

The abdomen, owing perhaps to the breadth of the wings, hardly extends as far as anal angle of secondaries.

DREPANODES, *Guenée*.

**Drepanodes puber, n. s.**

(Plate 15A, fig. 1, ♂.)

♂. Wings, pale fawn color, with an olivaceous shade, which latter obtains principally over the median space of the primaries and along the external margins of both pair. Primaries with the apices bluntly sub-falcate, but slightly produced. Immediately below the apex, the external margin is inwardly sinuate, thence rounded outwardly to internal angle, the latter improminent. Base of the wing, pale fawn color, limited externally by the first short transverse line, which latter is slightly arcuate, pale, indistinct, and margined outwardly by an olivaceous shade, most distinctly marked on costa. The median space is tinged with olivaceous. A black discal dot. Faint traces of a median shade. The costal region is sparsely irrorate with dark scales. The outer, long, oblique, transverse line, limiting outwardly the median space, is pale, *whitish*, more distinct than the first line, outwardly projected immediately below costa, thence running inwardly obliquely to internal margin and bordered inwardly by a faint darker olivaceous shade. Outside this line, the wing is pale fawn color and the olivaceous terminal space is limited inwardly by an arcuate faint pale shade, which runs from apex to internal angle, and, being inwardly arcuate, leaves the terminal space widest at about the middle, at which point are two distinct, superposed, dark clouded spots, situate just without the arcuated sub-terminal pale shade band. External margin lined with dark olivaceous; the extremities of the short fringes are whitish. Secondaries, resembling primaries in coloration. A straight, short, median, whitish line, distinctly margined inwardly by a coincident dark olivaceous shade. This line becomes obsolete at the costal region, which latter, from base to apex, is pale, discolorous with the rest of the wing. A minute, black, discal dot, situate on the lower confines of the pale costal space, which

is here straightly limited. A faint, slightly tremulous, pale shade at anal angle, continued obsoletely to apex and analogous to the subterminal pale arcuate shade of the primaries, but not arcuate here, its course being comparatively straight.

Under surface, darker than upper, nearly concolorous on both wings, evenly irrorate with dark scales. The minute black discal dots are distinct on both wings. No markings, except a single very faint pale transverse common line. On the primaries, the region along internal margin is pale, discolorous with the rest of the wing, and analogous to the condition of the costal region of the upper surface of secondaries.

Head, thorax, abdomen, and legs, pale fawn color, concolorous with wings at base; antennae, pectinate; abdomen, very nearly as long as internal margin of secondaries.

*Expanse*, ♂, 1.30 inch. *Length of body*, 0.50 inch.

*Habitat*.—Atlantic District. (Penn.!)

The peculiar soft coloration, closely scaled wings, simple and distinct markings, and, in particular, the *pale* transverse lines, in conjunction with the blunted apices of the primaries, will sufficiently distinguish this pretty species.

### **Drepanodes varus, n. s.**

(Plate 15A, fig. 2, ♀.)

♀. Pale reddish fawn color, sparsely and finely irrorate with dark scales. Anterior wings somewhat elongate; costa slightly arched to apex, which latter is prominently produced and falcated; external margin, oblique, sinuate, inwardly and roundedly excavate immediately below apex, thence evenly outwardly rounded to internal angle. Basal space, pale fawn color, irrorate with dark scales and margined outwardly by the first transverse line, which latter is arcuate, with an inward dentation below median nervure, outwardly diffusely shaded, most strongly marked on costa and disc and of a dark brownish color. A black discal dot. The median space is comparatively free from irrorations and of a some-

what brighter shade than the wing elsewhere, but encroached upon by the dark shades which follow and precede the first and second transverse lines. Outer transverse line, distinct and broad, blackish, preceded by a diffuse brownish shade and followed by a faint linear pale shade, angulated acutely below costa. Apices, dark, washed with pale somewhat pruinose scales. Outside of the outer transverse line, the wing is colored as at base, sparsely irrorate, without nebulosities. External margin lined with reddish ochreous on both pair of wings. Secondaries resembling primaries in coloration and appearance, evenly irrorate. A distinct median line, analogous and corresponding with the transverse posterior line of primaries. A minute black discal dot, situate, as usual, on the lower margin of the pale costal region. The irrorations are somewhat transversely arranged, especially externally, outside of the transverse posterior and median lines. Under surface of both wings, a little darker, but of a similar color with upper surface, coarsely and evenly irrorate with black. Black discal dots, distinct. A narrow, rather faint, common, blackish line, analogous to the transverse posterior and median lines of the upper surface.

*Expanse*, ♀, 1.45 inch. *Length of body*, 0.50 inch.

*Habitat*.—Atlantic District. (Penna. !)

### **Drepanodes aquosus, n. s.**

(Plate 15A, fig. 3, ♀.)

♀. Head and thorax, ochreous brownish; tegulae, obsoletely fringed with purplish hairs. Abdomen, pale ochreous brownish; under surface and legs, ochreous brownish, thickly sprinkled with black scales. Antennae simple. Anterior wings, ochreous brownish, coarsely irrorate and shaded with dark scales arranged in short transverse striate lines. Basal space, ochreous brownish, suffused outwardly by confused linear shadings, limited externally by the arcuate transverse anterior line, which latter is ochreous ferruginous, preceded by a pale shade line and a diffuse pale purplish shade. Median space, bright ochreous brownish, irrorate and frosted with pale scales so as to leave the costa and a central shade

clear ochreous brownish. A small black discal dot, surrounded by a pale purplish shade, situate approximate to the t. a. line. Transverse posterior line, broad, distinct, dark ochreous brown, with an internal, narrow, whitish line, followed by a blackish shade. This internal narrow whitish line might be regarded as the t. p. line itself and described as preceded by a broad, distinct, even, dark ochreous brown shade band and followed by a blackish shade. The t. p. line, as usual, is dentatedly projected below costa, on which the whitish shade is a little diffuse. Apices blackish. Outside of the t. p. line, the external space is thickly irrorate and washed with a pale purplish shade. A whitish, irregular, sub-terminal shade band, very narrow at apices, and everywhere diffuse and indistinct. External margin, below the falcated apices, narrowly lined with bright ochreous ferruginous. The very short fringe is whitish. External margin, shaped much as in *D. varus*; apices falcated, below which the margin is evenly rounded to internal angle. Secondaries, resembling primaries in appearance and coloration. At base, ochreous brownish, transversely irrorate. A median line, corresponding to the t. p. line of anterior wings and similarly colored and constituted, but wanting the exterior blackish shade. Outside of the median line, the wide terminal space is washed with an indistinct purplish shade and confusedly transversely shaded and irrorate. An indistinct, nearly obsolete, pale subterminal shade. External margin, from immediately below apices to just before anal angle, bright ochreous ferruginous, as on primaries. Under surface, resembling upper, washed with purplish and evenly and thickly irrorate with black. A common narrow whitish line crossing both wings and analogous to the t. p. and median lines of the upper surface. Terminal whitish shades; the external margin is edged with bright ochreous ferruginous as on upper surface.

*Expanse*, ♀, 1.35 inch. *Length of body*, 0.45 inch.

*Habitat*.—Atlantic District. (West Virginia!)

This species may be distinguished from *D. varus*, by the darker shaded and mottled wings, and especially by the whitish common line of the under surface.

ELLOPIA, *Treitschke*.**Ellopia bibularia, n. s.**

(Plate 15A, fig. 8, ♂.)

♂. Wings, delicate, thinly scaled, pale testaceous grey, much clouded by darker irrorations which are composed of pale brownish or blackish scales gathered into short transverse streaks. Anterior wings with the external margin rounded, imperceptibly exserted at the extremity of the second median nervule. A transverse anterior line, outwardly arcuate and slightly projected superiorly, preceded by an obsolete pale shade which is nothing but the ground color of the wing partially free from irrorations. A linear transverse discal mark. A transverse posterior line, rounded and slightly outwardly projected at about first median nervule, and succeeded by a narrow pale coincident shade, analogous to that preceding the transverse anterior line. Sub-terminally, the wing is irregularly and partially free from irrorations; thus a pale transverse shade is formed, most prominent over second and third m. nervules. The transverse lines are pale blackish or brownish, and but little darker than the irrorations. Where the lines cross the "veins," these are longitudinally marked with darker scales. Secondaries, resembling primaries; a median dark line, corresponding to the transverse posterior line of the primaries and followed by a similar narrow pale coincident shade. Sub-terminally, as on the primaries, the wing is very partially and irregularly deprived of irrorations. External margin, rounded, with no perceptible angulation. Faint traces of a discal mark; this, like that on the primaries, is merely composed of an aggregation of the irrorations with which the wings are clouded. The short fringes are silky and concolorous with the wings. Under surface, clear greyish testaceous, without irrorations except obsoletely on costa and diffusely along external margins. There are no markings, the delicacy of the wings causing the marblings and lines of the upper surface to be faintly reflected.

Head, ochreous; antennae, finely plumose, antennal stalk, above, clothed partly with ochreous scales. Prothorax, ochreous; thorax,



patagia, and abdomen, concolorous with the wings, but the latter is stained with ochreous laterally and beneath. Legs, testaceous; middle and fore tibiae and tarsi, brownish; hind tibiae with two pairs of rather short sub-equal spurs.

*Expanse*, ♂, 1.60 inch. *Length of body*, 0.60 inch.

♀. Resembles the male, but the ochreous caputal tinges are wanting. The color of the wings is more purely grey, wanting all testaceous tinges; the irrorations are less aggregated along the borders of the wings than in the opposite sex. The external margin of the anterior wings is less rounded and the angulation is more prominent than in the male. The external margins of the secondaries are slightly produced at the extremity of the second median nervule. Antennae, simple.

*Expanse*, ♀, 1.50 inch. *Length of body*, 0.60 inch.

*Habitat*.—Atlantic District. (Penna. !)

Larger than *E. flegitiaria*, *Guenée*, which it resembles rather than the common *E. fiscellaria*, *Guenée*, though of the size of this latter, from which it differs by its different color and less prominently angulated external margins of the wings.

### ***Ellopia pellucidaria*, n. s.**

(Plate 15A, fig. 9, ♀.)

♂. Head, obscure ochreous, more brightly colored behind; antennae, plumose. Thorax and abdomen, obscure greyish, with an ochreous tinge. Anterior and middle legs, darker colored than hind pair, which latter have the tibiae armed with two pairs of rather short sub-equal spurs. Under surface of body, greyish testaceous.

Wings, rather silky, sub-diaphanous, pale brownish grey, with obsolete irrorations which hardly disturb the uniformity of the general color. Anterior wings with the external margin rounded, very slightly produced at the extremity of the 2d m. nervule, and crossed by two transverse ordinary lines which are of a darker

color than the rest of the wing and not sharply defined, rather indistinct. The outer line is but slightly sinuous. An obsolete discal spot on the cross vein, hardly apparent. Secondaries resembling primaries, crossed by a median shade line corresponding to the transverse posterior line of anterior wings. The external margin improminently produced. Under surface resembling upper, and without markings, except that the ornamentation of the upper surface is reflected owing to the thinness of the wings.

*Expanse*, ♂, 1.60 inch. *Length of body*, 0.50 inch.

♀. Resembles the male, but is a little darker; the ordinary lines on the primaries are visibly more approximate; this is caused by the removal of the transverse anterior line nearer to the extremity of the discal cell. The angulations of the external margin are, as usual, more evident than in the opposite sex. The irrorations are rather more apparent along the external margin than in the male. Antennae simple.

*Expanse*, ♀, 1.50 inch. *Length of body*, 0.60 inch.

*Habitat*.—Atlantic District. (Penna. !)

Closely allied to *E. bibularia*, *nob.*, but distinguishable by the less prominent irrorations, the darker color, the more diffuse and improminent transverse lines, the different position of the first transverse line of the ♀ primaries, and by the peculiar pellucid appearance of the wings, which, while it has prompted the specific name, has reminded us of the Bombycid *Anisota pellucida*.

### ***Ellopia endropiaria*, n. s.**

(Plate 15A, fig. 10, ♀.)

♀. Head, thorax, and abdomen, pale whitish ochreous. Above, the thorax a little darker than elsewhere. Antennae, simple, and, with the legs, nearly concolorous with the body.

Wings, whitish ochreous, evenly sprinkled with pale ochreous irrorations. Anterior wings, produced at the apices and promi-

nently projected at external marginal extremity of second median nervule. Three, narrow, faint, sub-parallel, transverse lines cross the wing, of which the outer, crossing the nervules, is the least distinctly defined. The middle line runs slightly obliquely from costa to internal margin, just beyond the discal cell, crossing the median nervule at about the point at which the second and third m. nervules are thrown off together. Posterior wings, resembling anterior, crossed by a distinct median line, the latter corresponding to the middle line of the primaries. An outer line, prominently angulated at the middle of the wing, arising on costa at a point about midway between the apex and the inception of the middle line, and joining internal margin at about the same point with the latter. Fringes, on both pair of wings, pale ochreous, a little darker than the wings. The external margin of the secondaries is prominently medially projected.

Under surface, a little paler than upper surface; the irrorations are obsolete; the two outer lines of the upper surface are here reproduced.

*Expanse*, ♀, 1.55 inch. *Length of body*, 0.50 inch.

*Habitat*.—Atlantic District. (Penna. !)

The palest species of the genus known to us. In the shape of the wings it is allied to *E. fiscellaria*, *Guenée*. The wings are slightly silky, but not so diaphanous as in the other species of the genus. The greater number of transverse lines on the primaries and their nearly straight and sub-parallel course, will distinguish this species from its congeners; the peculiar angulation of the outer line on the secondaries, following the outline of the external margin, though considerably removed, is suggestive of the ornamentation of certain species of *Endropia*. In describing these species of *Ellopia*, the nervule emitted from the discal cross vein, is regarded as the first median nervule. The angulation of the external margin takes place at the extremity of what might be considered the median nervule itself, but which is here assumed as the second median

nervule, and regarded as thrown off at the same point with the third m. nervule from the main nervule. From Mr. Walker's descriptions in this genus, none of the above described species of *Ellopia* can be properly referred as intended by the British Entomologist.

*EUPITHECIA, Curtis.*

*Eupithecia geminata.*

*Larentia geminata*, nobis; Proc. Ent. Soc. Phil., Vol. 6, p. 29,  
Plate 3, fig. 6, ♂ (May, 1866).

***Eupithecia anguilineata, n. s.***

(Plate 16, fig. 12, ♂.)

♂. Head, greenish white; a narrow black frontal line before antennal insertion; antennae, simple, blackish, finely closely and regularly sub-annulate with whitish. Thorax, above, greenish; latterly, the tegulae are distinctly marked with black. Abdomen, cinereous, as long as internal margin of secondaries, with superior blackish segmentary linear marks. Labial palpi, black at the tips, whitish beneath. Under thoracic and abdominal parts, whitish cinereous. Legs, cinereous; tibiae and tarsi, black, constrictedly sub-annulate with whitish.

Anterior wings, whitish, everywhere prominently shaded with green of an olivaceous tinge, and with black and powdery markings. At extreme base, a black nervular mark. A broken, narrow, black, transverse basal line, succeeded by a broad distinct olivaceous green shade, in turn followed by a powdery band of black scales, more distinct on costa and hardly attaining internal margin and which precedes an excavate, narrow, black, transverse anterior line, the latter obsolete before internal margin. Median space with a distinct anterior greenish transverse shade, which fuses, on internal margin, with the first distinct similarly colored transverse shade. A narrow median black line, marked by black dots on the "veins," and apt to become obsolete on the disc and superiorly; below the median nervule this forms a more or less evident  $\Sigma$ .

Transverse posterior line, distinct, black, regularly sinuate or S-shaped, preceded on the disc by a black discal dash, and followed rather broadly inferiorly, by a black powdery shade. Costa dotted with black. Sub-terminally are one or two greenish olivaceous transverse shade bands. Sub-terminal line, geminate, narrow, blackish, powdery, twice very broadly marked opposite the disc. Terminally, the wing is shaded with olivaceous and, inferiorly, with powdery blackish on the interspaces. A very distinct and neat series of black points arranged in pairs at the extremity of the nervules. Fringes, greyish. Under surface, cinereous; "veins" somewhat darker marked; no markings, except a discal dot, and that the thinness of the squamation allows some of the markings of the upper surface to be perceived.

Posterior wings, pale cinereous; a darker terminal shade, within which are traces of two cinereous lines; a slight discal dot on the cross vein. Beneath, clear pale cinereous; a distinct discal dot on the cross vein; outside of disc are traces of two cinereous bands, the outer of which is indicated by darker scales on the nervules; terminally, shaded with darker cinereous.

♀. Resembles the ♂; the secondaries are darker cinereous and nearly unicolorous; a narrow terminal dark line.

*Expanse*, ♂ and ♀, 1.25 inch. *Length of body*, 0.45 inch.

*Habitat*.—Atlantic District. (Mass. ! to Penna. !)

CIDARIA, *Treitschke*.

### **Cidaria cumatilis, n. s.**

(Plate 16, fig. 13, ♀.)

*Chloroclysta cumatilis*, G. & R., *MS.*

♀. Head, whitish; labial palpi, black, marked with white at tips and towards the base. Antennae, simple; above, black, very closely narrowly and neatly sub-annulate with whitish. Thorax, whitish cinereous. Abdomen, above, blackish cinereous; beneath, whitish. Legs, cinereous; tarsi and tibiae, black, constrictedly sub-annulate with whitish.

Anterior wings, whitish, with transverse wavy or dentate bluish green shade bands of unequal width. Base, bluish green, with a basal brownish sinuate line not attaining internal margin. The basal bluish green space is outwardly limited by a narrow sinuate brown line accompanied by ochraceous powdery scales. An ante-median whitish space, traversed medially by a dentate, bluish green, transverse shade. A concise, darker margined, median bluish green shade band, excavate along the edges, produced outwardly below the discal cell and margined inwardly by a transverse deep brown line accompanied by ochreous scales and more distinctly marked on costa. This median band is margined outwardly by an irregular line of a deeper bluish green hue than the band itself and marked with brownish on costa. A distinct black discal mark. A post-median, transverse, whitish band, analogous to its ante-median predecessor, but more distinct and prominent, traversed medially by a narrow dentate bluish green shade band, bent outwardly opposite to the outward projection of the median band, which influences its shape. Outwardly limiting this whitish band, is a deep brown line accompanied by ochreous powdery scales, rather irregular and partially obsolete. Beyond this, the wing is again bluish green with a whitish, narrow, sub-terminal line, prominently zigzag below costa and followed and preceded by brown scales which appear at irregular intervals, and accompanied, as usual, by powdery ochreous scales. A terminal, distinct, black, marginal line, broken into geminate points at the extremity of the nervules, where, also, the fringe, which is elsewhere whitish, is interrupted with blackish. Under surface, testaceous, without prominent markings and suffused with a reddish shade; a discal dot; costal dots; base of the wings, dark, reflecting the bluish green shades of the upper surface; terminally, two outwardly oblique, discontinued, parallel, dark shade lines.

Posterior wings, cinereous, with a faint reddish tinge, immaculate; a broken, narrow, distinct, terminal black line along external margin; fringe, pale cinereous. Under surface, more prominently ruddy; a black discal dot and narrow terminal line; fringes, dotted with black at extremity of nervules, where the black terminal line is interrupted.

*Expanse*, ♀, 1.00 inch. *Length of body*, 0.40 inch.

*Habitat*.—Atlantic District. (Buffalo, N. Y. !)

***Cidaria atricolorata*, n. s.**

(Plate 16, fig. 14, ♂.)

*Lygris atricolorata*, G. & R., MS.

*Eustroma atricolorata*, “ “

*Larentia atricolorata*, “ “

♂ and ♀. Front, black, with pale olivaceous whitish scales margining the eyes. Palpi, pale obscure olivaceous; second joint blackish outwardly. Head, behind, pale, with a black spot on vertex between the antennae. Thoracic disc with a median, very narrow, pale line. Tegulae, black, margined inwardly by pale lines meeting in front. Abdomen, above, black, with a median, longitudinal, very narrow, pale line; segments edged posteriorly with pale scales. Beneath, obscure dirty olivaceous, mixed with blackish; tarsi and tibiae, sub-annulate.

Anterior wings, deep velvety black. Black at base; a narrow pale sub-basal line directed obliquely outwardly, angulated on internal nervure, thence running inwardly to internal margin. Extra-basal space, black. Transverse anterior line, prominent, narrow, pale, preceded by a coincident fainter line of olivaceous atoms, directed outwardly obliquely to the interspace above internal nervure, at which place it stretches entirely across the black median space joining the transverse posterior line, and is here angulated, forming, below this point, a single deep and rounded excavation to internal margin. In some specimens this division of the median space, by the fusion of the two transverse median lines, is very prominently accomplished; the median space being thereby divided into a larger, sub-quadrate, black field, and a smaller, rounded space on internal margin. The transverse posterior line is followed by a linear olivaceous powdery line, prominently scalloped inferiorly on the interspaces. Sub-terminal space, black the; “veins” on extra-basal and sub-terminal spaces are longitudinally marked with olivaceous shades. A white, sub-ter-

minimal line emerges from apex and runs inwardly obliquely until opposite the disc, where it is joined by a white line intersecting the sub-terminal black space superiorly. After this fusion, the sub-terminal line is outwardly lunulate twice between the m. nervules, running straightly over the interspace above internal nervure, where it terminates, accompanied inwardly by double lunules on this last interspace. Terminally, the wing is black; the second to fourth m. nervules are marked and accompanied by olivaceous scales. An even, pale, terminal line, bordered outwardly by a very narrow black line, lies directly on external margin; fringes, olivaceous cinereous, darker at base, obsoletely interrupted with blackish at extremity of nervules.

Posterior wings, blackish cinereous; a median sinuate line, shaded outwardly with pale scales and more distinctly marked towards internal margin; a sub-terminal white line, slightly lunulate on the interspaces inferiorly; the second to fourth m. nervules marked and accompanied by olivaceous scales. A terminal, even, pale line, followed by a narrow black line, as on primaries; fringes, olivaceous cinereous, darker at base, obsoletely interrupted with blackish at extremity of nervules.

Under surface, blackish cinereous; wings, at base, closely powdered with obscure ochreous olivaceous scales. An angulated, dark, post-discal line crosses both wings; this is followed on primaries by a coincident ochreous shade, obsolete inferiorly below the angulation. A distinct, sub-terminal series of interspaceal ochreous spots crosses both wings. Black discal spots, most distinct on secondaries.

*Expanse*, ♂ and ♀, 1.45 inch. *Length of body*, 0.50 inch.

*Habitat*.—Atlantic District. (Mass. ! to Va. !)

This superb species varies, as noted in the body of the description, in the constriction of the black median space, owing to the course of the pale median lines below the median nervure. *C. atricolorata*, *nobis*, is allied to and congeneric with, the European *C. prunata*. Dr. Herrich-Schaeffer, rejecting *Cidaria*, would include the species under *Larentia*. Lede



rer has adopted Hübner's genus *Lygris* for this and congeneric species.

Family, PYRALIDAE.

PANTOGRAPHIA, *Lederer*.

***Pantographa limata*, n. s.**

(Plate 16, figs. 16, ♂, 17, ♀.)

♂ and ♀. Head, yellowish white; labial palpi, twice marked with blackish externally. "Collar," yellowish, with two super-lateral brownish linear marks; tegulae, yellowish, edged with brownish hairs. Abdomen, above, whitish, stained with yellowish; second and pre-anal segments marked across with brownish. In the male, the intervening segments are also shaded with brownish, while the abdomen is more tapering, slenderer, and longer than in the opposite sex. Beneath, the body parts are silvery white; anterior legs marked with blackish on the femora outwardly, while the tarsi and short tibiae are constrictedly annulate with black.

Anterior wings, pale yellowish testaceous, with a slight purplish hyaline reflection, particularly observable in the male, and much stained with dark scales externally. At base stained with yellow; an arcuate, brownish, basal line, followed by a similar, broken, lunulated extra-basal line which lies midway between the basal and ante-median lines; this latter is arcuate, continued, and even. Beyond it, the median space shows three distinct annulate spots: two on the disc, of which the outer, the larger, more irregular and distinct, and the third, situate below the median nervure and superposed by the first spot, is smaller and spherical—both these latter are adjacent to the ante-median line, while the outer, second spot is removed towards the outward extremity of the discal cell. On internal margin, the median space is washed narrowly by the external dark shade which spreads straightly upwards (and is limited internally by an obsolete line apparent on the under surface) over the median nervules and median space externally, and, reaching no higher than opposite the disc, extends evenly outwardly to external margin. A post-median, finely dentate, outwardly

oblique, brown line, is quite distinct from costa to the dark shade in which it becomes lost. A lunulate sub-terminal line arises near the costa and becomes likewise lost inferiorly in the terminal dark shade. A narrow linear dark shade along external margin; fringes, silky, clouded. Posterior wings, yellowish testaceous, largely and evenly washed with a dark shade which is limited by the whitish color of the costal region, fading outwardly, where the wing becomes yellowish. A discal annulate mark, below which a second, whitish and unencircled. A single geminate dentate brown median line crosses the wing, running suddenly inwardly before internal margin. A narrow dark line rests on the external edge; fringes as on primaries.

Under surface, whitish, with a faint hyaline reflection and obsolete dark broken markings, reproducing certain of the lines and spots of the upper surface.

*Expanse*, ♂ and ♀, 1.60. *Length of body*, ♂, 0.70, ♀, 0.60 inch.

*Habitat*.—Atlantic District. (Mass. ! to Va. !)

Represents the Brazilian *Pantographa scripturalis*, *Lederer*, in our fauna. *P. limata*, is much larger, and may be at once distinguished by the different markings of the secondaries, which want the internal lines and are more evenly colored. The external margin of both wings appears to be more evenly rounded and less sinuate in either sex of our species. We are indebted to W. H. Edwards, Esq., for a number of specimens of this species taken in Kanawha Co., West Virginia, in which locality the species is of common occurrence.

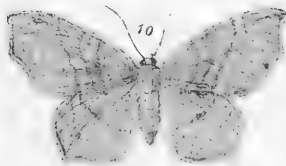
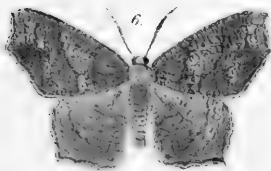
*Explanations of Plates 15A and 16.*

FIG.

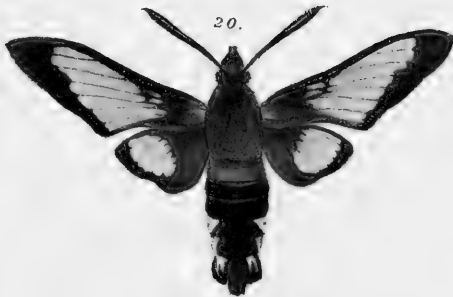
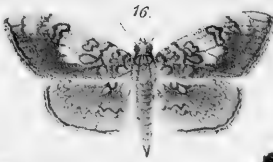
- 1, ♂ *Drepanodes puber*.
- 2, ♀ *Drepanodes varus*.
- 3, ♀ *Drepanodes aquosus*.
- 4, ♂ *Endropia vinosaria*.
- 5, ♂ *Endropia vinulentaria*.

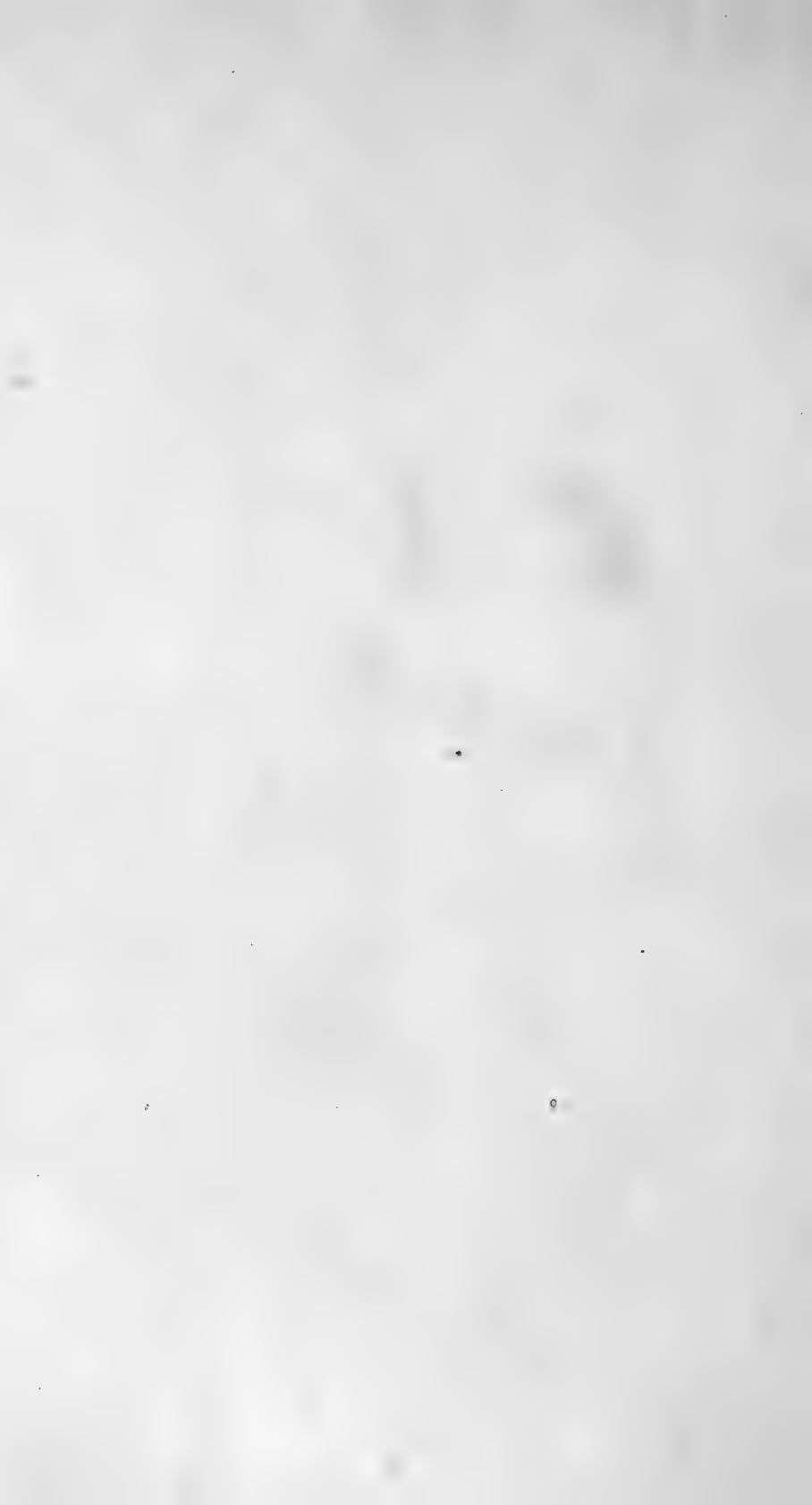
- 6, ♂ *Endropia textrina*.
- 7, ♂ *Endropia arefactaria*.
- 8, ♂ *Ellopiæ bibularia*.
- 9, ♀ *Ellopiæ pellucidaria*.
- 10, ♀ *Ellopiæ endropiaria*.
- 11, ♀ *Ennomos coloradaria*.
- 12, ♂ *Eupithecia anguilineata*.
- 13, ♀ *Cidaria cumatilis*.
- 14, ♂ *Cidaria atricolorata*.
- 15, ♂ *Melanchroia regnatrix*.
- 16, ♂ *Pantographa limata*.
- 17, ♀ *Pantographa limata*.
- 18, ♂ *Haemorrhagia buffaloensis*.
- 19, ♀ *Haemorrhagia buffaloensis*.
- 20, ♂ *Haemorrhagia floridensis*.













2  
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1873.

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## V. Descriptions of New Species of Fungi

BY CHAS. H. PECK.

[Read before this Society June 6th, 1873.]

### HYMENOMYCETES.

#### *Agaricus (Amanita) russuloides*, Peck.

Pileus at first ovate, then expanded or convex, rough with a few superficial warts or entirely smooth, viscid when moist, widely striate-tuberculate on the margin, pale yellow or straw color; lamellae close, free, narrowed toward the stem, white; stem firm, smooth, stuffed, annulate, equal or slightly tapering upward, bulbous; annulus thin, soon vanishing; volva fragile, subappressed; spores broadly elliptical, .0004\* long, .0003' broad.

Plant 2'-3' high, pileus 1.5'-2' broad, stem 3"†-5" thick.

Grassy ground in open woods. Greenbush, June. This species is remarkable for the thin striate-tuberculate margin of the pileus which causes it to resemble some species of *Russula*.

#### *Agaricus (Lepiota) fuscousquameus*, Peck.

Pileus hemispherical or convex, rough with numerous erect pointed blackish-brown scales; lamellae close, white, free; stem equal, thickened at the base, hollow or stuffed with a cottony pith, floccose, brown; spores .0003' × .00014'.

Plant 2'-3' high, pileus 1.5'-2' broad, stem 3" thick.

Ground in woods. Croghan. September.

#### *Agaricus (Lepiota) oblitus*, Peck.

Pileus convex or expanded, subumbonate, smooth or obscurely squamose from the breaking up of the veil, viscid, alutaceous inclining to tawny, the umbo generally darker; lamellae crowded, free, whitish or yellowish, some of

\*One accent (') = inch or inches.

†Two accents (") = line or lines.

them forked; stem equal or slightly tapering upward, floccose, viscid, smooth at the top, hollow or containing a cottony pith; annulus obsolete; spores .00016' × .00012'.

Plant 2'-3' high, pileus 2'-3' broad, stem 3" thick.

Ground in frondose woods. Lowville. September.

**Agaricus (Armillaria) ponderosus, Peck.**

Pileus thick, compact, convex or subcampanulate, smooth, white or yellowish, the naked margin strongly involute beneath the slightly viscid persistent veil; lamellae crowded, narrow, slightly emarginate, white inclining to cream color; stem stout, subequal, firm, solid, coated by the veil, colored like the pileus, white and furfuraceous above the annulus; flesh white; spores nearly globose, .00016' in diameter.

Plant 4'-6' high, pileus 4'-6' broad, stem about 1' thick.

Ground in woods. Copake. October.

The veil for a long time conceals the lamellae and finally becomes lacerated and adheres in shreds or fragments to the stem and margin of the pileus.

**Agaricus (Tricholoma) rubicundus, Peck.**

Pileus convex, then expanded or centrally depressed, viscid, slightly tomentose on the margin when young, smooth, or sometimes with a few scales either on the disk or on the margin, red; lamellae close, white, becoming spotted with red, some of them forked; stem firm, equal, solid, slightly pruinose, white, often stained with red; spores .00028' × .00016'.

Plant 3'-5' high, pileus 3'-5' broad, stem 6"-8" thick.

Ground in woods. New Scotland. October.

**Agaricus (Tricholoma) flavescens, Peck.**

Pileus firm, convex, often irregular, dry, smooth, sometimes cracking on the disk into minute scales, white or pale yellow, minutely tomentose on the margin when young; lamellae close, floccose on the edge, white or pale yellow; stem firm, solid, often unequal, central or eccentric, colored like the pileus; spores subglobose, .0002' in diameter.

Plant caespitose, 2'-3' high, pileus 2'-3' broad, stem 4"-6" thick.

Old pine stumps. Bethlehem and North Greenbush. October.

**Agaricus (Tricholoma) decorosus, Peck.**

Pileus firm, at first hemispherical, then convex or expanded, coated with numerous brownish subsquarrose tomentose scales, dull ochraceous or tawny; lamellae close, rounded and slightly emarginate at the inner extremity, the

edge subcrenulate; stem solid, equal or slightly tapering upward, white and smooth at the top, elsewhere tomentose, scaly and colored like the pileus; spores broadly elliptical,  $.0002' \times .00015'$ .

Plant subcaespitose, 2'-4' high, pileus 1'-2' broad, stem 2"-4" thick.

Rotten logs in woods. Catskill Mountains and Rock City. September and October.

**Agaricus (Tricholoma) multipunctus, Peck.**

Pileus brittle, broadly convex, sometimes centrally depressed or subumbilicate, densely dotted with minute brown or blackish scales, yellowish-brown, the disk often darker; lamellae close, slightly emarginate, yellow, sometimes with a darker edge; stem subequal, squamulose-punctate, hollow, colored like the pileus; spores suborbicular,  $.00016'$  in diameter.

Plant subcaespitose, 1'-2' high, pileus 1'-2' broad, stem 2"-4" thick.

Rotten logs in woods. Sandlake and Adirondack Mountains. July and August.

This species is related to *Ag. rutilans*.

**Agaricus (Tricholoma) lacunosus, Peck.**

Pileus convex or expanded, dry, lacunose, densely furfuraceous, bright golden yellow; lamellae subdistant, white, the interspaces sometimes veiny; stem firm, solid, equal or slightly tapering downwards, scaly or furfuraceous, colored like the pileus.

Plant 1'-2' high, pileus 1' broad, stem 1" thick.

Fallen branches and decaying wood. Savannah. August.

The colors are well retained in the dried specimens. The lacunae of the pileus give it a somewhat reticulated appearance.

**Agaricus (Tricholoma) laterarius, Peck.**

Pileus convex or expanded, sometimes slightly depressed in the center, pruinose, whitish, the disk often tinged with red or brown, the thin margin marked with slight subdistant short radiating ridges; lamellae narrow, crowded, white, prolonged in little decurrent lines on the stem; stem nearly equal, solid, white; spores globose,  $.00018'$  in diameter.

Plant 3'-4' high, pileus 2'-4' broad, stem 3"-5" thick.

Ground in woods. Worcester. July.

**Agaricus (Tricholoma) Limonium, Peck.**

Pileus thin, smooth, yellowish; lamellae crowded, narrow, not forming decurrent lines on the stem, lemon-yellow; stem tapering downwards, smooth, striate, rooting.

Plant 3'-4' high, pileus 2'-3' broad, stem 3"-4" thick

Ground in woods. Worcester and Croghan. July and September.

The lemon color of the lamellae and the root-like prolongation of the stem characterize this species.

**Agaricus (*Tricholoma*) *virescens*, Peck.**

Pileus convex or expanded, sometimes depressed centrally, moist, smooth, dingy-green, the margin sometimes wavy or lobed; lamellae close, gradually narrowed toward the outer extremity, rounded or slightly emarginate at the inner, white; stem subequal, stuffed or hollow, thick but brittle, whitish, sometimes tinged with green; spores broadly elliptical,  $.0002' \times .00015'$ .

Plant 3'-5' high, pileus 3'-5' broad, stem 6"-12" thick.

Mossy ground in open woods. North Elba. July.

**Agaricus (*Tricholoma*) *fumidellus*, Peck.**

Pileus subumbonate, smooth, moist, dingy-white or clay colored, clouded with brown; lamellae close, subventricose, whitish; stem equal, smooth, solid, whitish; spores,  $.00018' \times .00015'$ .

Plant 2'-3' high, pileus 1'-2' broad, stem 2"-3" thick.

Ground in woods. New Scotland. October.

The disk is generally darker than the margin. The pileus becomes paler in drying. The stem splits easily.

**Agaricus (*Tricholoma*) *fallax*, Peck.**

Pileus firm, convex or expanded, rarely depressed in the center, moist, smooth, dull saffron color; lamellae crowded, narrow, tapering toward the outer extremity, rounded at the inner, yellow; stem short, smooth, stuffed or hollow, usually tapering toward the base, colored like the pileus; spores minute, subelliptical,  $.00012'$  long.

Plant gregarious, 1'-1.5' high, pileus 6"-15" broad, stem 1" thick.

Ground under spruce and balsam trees. North Elba. July.

**Agaricus (*Tricholoma*) *thujinus*, Peck.**

Pileus convex or centrally depressed, smooth, hygrophanous, pale alutaceous, the margin generally irregular, wavy or lobed; lamellae crowded, thin, abruptly emarginate, alutaceous; stem slightly thickened at the top, smooth, hollow, concolorous, whitish-villous at the base.

Plant 2' high, pileus 2' broad, stem 2"-3" thick.

Swampy ground under *Thuja occidentalis*. Memphis. August.

**Agaricus (Tricholoma) Hebeloma, Peck.**

Pileus broadly conical or subcampanulate, obtuse, thin, hygrophanous, striatulate brown and dark on the disk when moist, grayish when dry; lamellae broad, rounded behind and deeply emarginate, yellowish; stem equal, hollow, smooth, pallid; spores .00028' × .00016'.

Plant 1' high, pileus 6" broad, stem scarcely 1" thick.

Ground in woods. Worcester. July.

This plant closely resembles some species of the subgenus *Hebeloma*, but the color of its spores forbid its reference to that subgenus.

**Agaricus (Clitocybe) connexus, Peck.**

Pileus thin, subumbonate, clothed with a minute appressed silkiness, white, the margin sometimes faintly tinged with blue; lamellae crowded, narrow, white inclining to yellowish; stem equal or tapering downwards, solid, whitish.

Plant 2'-3' high, pileus 2'-3' broad, stem 2" thick.

Ground in woods. Croghan. September.

The lamellae are not strongly decurrent and sometimes terminate abruptly, hence it might easily be mistaken for a *Tricholoma*. The margin of the pileus is sometimes marked with slight ridges as in *Ag. laterarius*. The odor is weak but aromatic and agreeable.

**Agaricus (Clitocybe) albissimus, Peck.**

Pileus convex or expanded, dry, smooth, soft, pure white; lamellae crowded, short-decurrent, white, some of them forked at the base; stem equal, smooth, solid, white.

Plant growing in rings, 2'-3' high, pileus 2'-3' broad, stem 2"-3" thick.

Ground in woods. Croghan. September.

The pure white color and soft texture is retained in the dried specimens.

**Agaricus (Clitocybe) maculosus, Peck.**

Pileus centrally depressed, smooth, marked with numerous watery spots when moist, having slight short radiating ridges on the margin; lamellae crowded, narrow, long-decurrent, pallid or yellowish, some of them forked; stem slightly thickened at the base, smooth, stuffed or hollow, colored like the pileus.

Plant 2'-3' high, pileus 1.5'-2' broad, stem 2'-3" thick.

Ground in woods. Croghan. September.

The spots of the pileus resemble those of *Ag. marmoreus*. They generally disappear as the plant becomes dry.

**Agaricus (Clitocybe) Truncicola, Peck.**

Pileus thin, firm, expanded or centrally depressed, smooth, dry, white; lamellae narrow, thin, crowded, adnate-decurrent; stem equal, stuffed, smooth, often eccentric and curved, whitish.

Plant 1' high, pileus 1' broad, stem 1" thick.

Trunks of frondose trees, especially maples. Croghan. September.

**Agaricus (Clitocybe) subzonalis, Peck.**

Pileus thin, centrally depressed or subinfundibuliform, marked with two or three obscure zones, with a slight appressed silkiness, pale yellow; lamellae close, narrow, equally decurrent, some of them forked, pallid or yellowish; stem equal, slightly fibrillose, stuffed, pale yellow.

Plant 2' high, pileus 2'-3' broad, stem 2"-4" thick.

Ground in woods. Croghan. September.

**Agaricus (Clitocybe) Gerardianus, Peck.**

Pileus thin, funnel-form, hygrophanous, striatulate when moist, brown, rough with scattered blackish points; lamellae decurrent, close, a little paler than the pileus, some of them forked; stem rather long, flexuous, smooth, stuffed, concolorous, white at the base.

Plant 2'-3' high, pileus 8"-12" broad, stem .5"-1" thick.

Sphagnous marshes. Sandlake and New Paltz. June.

**Agaricus (Collybia) coloreus, Peck.**

Pileus convex, subumblicate, slightly fibrillose, hygrophanous, yellow, sometimes tinged with red, the margin exceeding the lamellae; lamellae moderately close, emarginate, yellow; stem equal, smooth, hollow, sometimes eccentric, yellow.

Plant 1'-2' high, pileus 8"-12" broad, stem 1" thick.

Decaying wood. Croghan. September.

**Agaricus (Collybia) succosus, Peck.**

Pileus firm, convex or campanulate, minutely tomentose, cinereous or brownish-gray, the margin generally exceeding the lamellae; lamellae thin, close, emarginate and slightly decurrent-toothed, tapering toward the outer extremity, whitish; stem firm, equal or slightly tapering upward, minutely tomentose, containing a whitish pith; spores minute, subglobose, .00015' in diameter; flesh subcartilaginous, abounding in a thin watery or serum-like juice, changing to purplish or black when cut.

Plant 1'-3' high, pileus 6"-12" broad, stem 1' thick.



Decaying prostrate trunks of trees in woods. Portville and Croghan. September.

This is a very remarkable and somewhat aberrant species. In color it resembles dark forms of *Heydnium gelatinosum*. The stem is sometimes eccentric. The juice exudes from wounds as in species of *Lactarius*.

**Agaricus (Collybia) myriadophyllus, Peck.**

Pileus very thin, broadly convex, then expanded, sometimes umbilicate, hygroyhanous, watery-brown when moist, pale ochraceous or alutaceous when dry; lamellae very numerous, crowded, narrow, rounded at the stem and slightly emarginate, brownish-lilac; stem equal, smooth, stuffed, reddish-brown; spores subelliptical, minute, .00012' long.

Plant subcaespitose, 1'-1.5' high, pileus 8''-12'' broad, stem .5'' thick.

Decaying wood and fallen branches in woods. Portville. September.

The color of the lamellae is remarkable.

**Agaricus (Mycena) subcaeruleus, Peck.**

Pileus very thin, convex or campanulate, obtuse, smooth, striate, pale bluish-green; lamellae narrow, close, tapering outwardly, white; stem slender, equal, pinkish-white, slightly pruinose; spores subglobose, .00025' in diameter.

Plant caespitose, 2' high, pileus 4''-8'' broad.

Trunks of beech trees in woods. Adirondack Mountains. July.

The disk is more highly colored than the margin and the pileus has a separable cuticle.

**Agaricus (Mycena) minutulus, Peck.**

Pileus convex or campanulate, smooth, striatulate, papillate; lamellae broad, subdistant, with a slight decurrent tooth; interspaces reticulated by transverse veinlets which descend on the lamellae; stem short, slender, firm, smooth or sprinkled with minute mealy particles.

Plant gregarious, white throughout, 8''-12'' high, pileus 2''-4'' broad.

Bark of prostrate trunks in woods. Portville. September.

**Agaricus (Mycena) roseocandidus, Peck.**

Pileus convex or broadly campanulate, subpapillate, striate nearly to the apex, white or rosy-red; lamellae close, uncinat, colored like the pileus; stem slender, smooth, white.

Plant 2' high, pileus 4''-6'' broad.

Among mosses in woods. Adirondaek Mountains. July.

Usually the whole plant is pure white, but sometimes the pileus has a delicate rosy hue except on the apex and the margin. The striations of the pileus remain in the dried specimens. The papilla is sometimes very prominent, sometimes wanting.

**Agaricus (*Mycena*) *miratus*, Peck.**

Pileus thin, campanulate, umbilicate, smooth, striate, cinereous; lamellae narrow, slightly uncinuate, whitish; stem long, filiform, smooth, whitish, radicating, villous at the base.

Plant 1.5'-2' high, pileus 3''-4'' broad.

Among fallen leaves in copses. Center. October.

This species may be known by the umbilicate pileus and the long striae which extend to the umbilicus.

**Agaricus (*Omphalia*) *olivarius*, Peck.**

Pileus convex, umbilicate, smooth, yellowish-olive; lamellae arcuate, decurrent, subdistant, pale yellow; stem equal, short, smooth, hollow, colored like the pileus; spores subglobose or broadly elliptical, .00026' long.

Plant 1'-1.5' high, pileus 1' broad, stem 1'' thick.

Burnt ground under balsam trees. North Elba. July.

**Agaricus (*Omphalia*) *rugosodiscus*, Peck.**

Pileus thin, convex, then expanded, smooth, hygrophanous, striatulate when moist, brown, rugose-wrinkled on the disk, the thin margin often wavy; lamellae narrow, close, arcuate, decurrent, white; stem equal, short, smooth, hollow, often curved, whitish.

Plant 1'-1.5' high, pileus 6''-12'' broad, stem .5'' thick.

Decaying prostrate trunks of trees in woods. Croghan and Worcester. July and September.

**Agaricus (*Pluteus*) *sterilomarginatus*, Peck.**

Pileus broadly convex or expanded, with a slight appressed tomentum, white faintly tinged with pink, the thin margin exceeding the lamellae; lamellae close, subventricose, free, minutely eroded on the edge, pale flesh color; stem short, equal, solid, smooth, whitish; spores subglobose, angular, with a central nucleus, .00025' in diameter.

Plant 1' high, pileus 6''-12'' broad, stem .5'' thick.

Decaying woods and sticks in woods. Portville. September. The pileus is sometimes cracked and then has the appearance of being coated with a thin scaly paste.

**Agaricus (Pluteus) granularis, Peck.**

Pileus convex or expanded, subumbonate, rugose-wrinkled, sprinkled with minute blackish granules, varying in color from yellow to brown; lamellae rather broad, close, ventricose, free, whitish, then flesh-colored; stem equal, solid, pallid or brown, usually paler at the top, velvety, with a short close plush; spores subglobose, about .0002' in diameter.

Plant 2'-3' high, pileus 1'-2' broad, stem 1"-2" thick.

Old logs in woods. Pine Hill and Worcester. July.

The granules form a sort of plush which is more dense on the disk of the pileus and its wrinkles than on the margin.

**Agaricus (Entoloma) cyaneus, Peck.**

Pileus convex, dry, minutely scaly, brown or brownish-violaceous; lamellae whitish, then tinged with flesh color; stem subequal, hollow, scaly and violaceous toward the top; spores angular, .00033' × 00025'.

Plant 2' high, pileus 1'-1.5' broad, stem 1" thick.

Decaying wood and old mossy trunks in woods. Pine Hill and Worcester. June and July.

**Agaricus (Leptonia) foliomarginatus, Peck.**

Pileus convex, umbilicate, scabrous on the disk, bluish-brown, the disk a little darker; lamellae broad, subdistant, plane, whitish, then flesh-colored, the edge entire and colored like the pileus; stem smooth, equal, solid below, with a small cavity above, concolorous.

Plant 1'-2' high, pileus 6"-10" broad, stem .5" thick.

Ground and decaying wood in groves. Maryland. July.

**Agaricus (Nolanea) fuscifolius, Peck.**

Pileus thin, conical or campanulate, papillate, smooth, hygrophanous, dark brown and striatulate when moist, grayish-brown and shining when dry; lamellae ascending, narrowed toward each end, brown; stem equal, stuffed, smooth, concolorous, with a white mycelium at the base; spores irregular, nucleate, .00033' × .00025'.

Plant 1' high, pileus 3"-6" broad, stem 5" thick.

In woods on old logs. Maryland. July.

**Agaricus (Pholiota) albocrenulatus, Peck.**

Pileus fleshy, firm, convex or campanulate, subumbonate, viscid, rough with dark-brown or blackish floccose scales, yellowish-brown; lamellae broad, subdistant, emarginate, white crenulate on the edge, grayish, then ferruginous;

stem firm, equal or slightly tapering upward, stuffed or hollow, squamose and pallid below the evanescent ring, white and slightly furfuraceous above; spores subelliptical,  $.00045' \times .00025'$ .

Plant 3'-5' high, pileus 2'-3' broad, stem 3"-5" thick.

Mossy base of maple trees in woods. Adirondack Mountains. July and August.

Under a lens the lamellae appear to be beaded on the edge with minute milky globules.

**Agaricus (Pholiota) Acericola, Peck.**

Pileus broadly convex, glabrous, rugose-reticulated or corrugated, hygrophanous, yellow; lamellae close, emarginate, grayish, then ferruginous-brown; stem equal or thickened at the base, hollow, fibrillose-striate, white; annulus large; spores elliptical,  $.00035' \times .00025'$ .

Plant 3'-4' high, pileus 2'-3' broad, stem 3"-5" thick.

Mossy trunks of maple trees in woods. North Elba. August.

**Agaricus (Pholiota) discolor, Peck.**

Pileus thin, convex, then expanded or slightly depressed, smooth, viscid hygrophanous, watery-cinnamon and striatulate on the margin when moist, bright ochraceous yellow when dry; lamellae close, narrow, pallid, then pale ferruginous; stem equal, hollow, fibrillose-striate, pallid; annulus distinct, persistent; spores elliptical,  $.00028' \times .0002'$ .

Plant subcaespitose, 2'-3' high, pileus 8"-16" broad, stem 1" thick.

Old logs in woods. Greig. September.

The change in color when passing from the moist to the dry state is very marked.

**Agaricus (Pholiota) cerasinus, Peck.**

Pileus broadly convex, smooth, hygrophanous, watery-cinnamon when moist, yellow when dry; lamellae close, emarginate, yellow, then cinnamon color; stem solid, equal, often curved, furfuraceous at the top; annulus slight, fugacious; flesh yellow; spores elliptical, rough,  $.0003' \times .0002'$ .

Plant caespitose, 2'-4' high, pileus 2'-4' broad, stem 2'-4' thick.

Old prostrate trunks of trees in woods. Sterling. August.

When fresh it has a strong cherry-like or amygdaline odor.

**Agaricus (Hebeloma) pallidomarginatus, Peck.**

Pileus brittle, broadly convex, sometimes irregular, smooth, hygrophanous, brown with a pale margin when moist, ochraceous and subatomaceous when dry; lamellae close, thin, rounded and slightly emarginate at the stem, taper-

ing outwardly, ochraceous-brown; stem usually long and flexuous; equal or tapering upward, hollow, a little paler than the pileus, white-floccose at the base; spores subelliptical,  $.0004' \times .0002'$ .

Plant gregarious 1'-3' high, pileus 6"-12" broad, stem 1" thick.

Ground in swamps and wet places. Sandlake. September.

**Agaricus (Hebeloma) stellatosporus, Peck.**

Pileus convex, dry, rough with numerous squarrose or erect scales, brown; lamellae pallid becoming brown; stem equal, scaly, concolorous; spores subglobose, rough with little nodules,  $.0003'$  in diameter.

Plant 2' high, pileus 1' broad, stem 1" thick.

Ground in woods. Croghan. September.

This plant bears a close resemblance to *Ag. mutatus*, but the persistent scales and rough spores distinguish it.

**Agaricus (Hebeloma) griseoscabrosus, Peck.**

Pileus hemispherical or convex, dry, rough with scales and appressed fibres, cinereous, the margin whitish when young; lamellae close, broad, whitish, then ochraceous-brown; stem firm, solid, fibrillose or slightly scaly, subconcolorous; spores smooth,  $.00035' \times .0002'$ .

Plant gregarious, 1.5'-2' high, pileus 6"-10" broad, stem 1"-1.5" thick.

Ground in open pine woods. Bethlehem. October.

**Agaricus (Naucoria) bellulus, Peck.**

Pileus thin, convex, moist, smooth, bright watery-cinnamon; lamellae crowded, narrow, emarginate, yellow, becoming darker with age; stem equal, hollow, often curved, smooth, reddish-brown; spores,  $.0002' \times .00014'$ .

Plant 1' high, pileus 6"-12" broad.

Decaying hemlock trunks in woods. Lowville and Sandlake. September.

It is sometimes caespitose. It is difficult to find a mature specimen of this plant in which the lamellae have not a stained or spotted appearance as if bitten by some small insect.

**Agaricus (Naucoria) geminellus, Peck.**

Pileus convex, even, firm, dry, yellowish-red, the margin paler; lamellae crowded, emarginate, pale yellow; stem equal, smooth, containing a white pith or a small cavity, colored like the pileus; flesh white; spores  $.00033' \times .0002'$ .

Rotten wood. Croghan. September.

The dimensions and habit are the same as in the last species, to which this is clearly related. Its lamellae also have the same peculiar appearance.

**Agaricus (Naucoria) discomorbidus, Peck.**

Pileus thin, convex or expanded, smooth, slightly viscid, reddish-brown or dull chestnut; lamellae narrow, crowded, minutely serrulate, white or pallid, then brownish; stem equal, stuffed, smooth, slightly mealy at the top, white; flesh white; spores nucleate,  $.0004' \times .00025'$ .

Plant 2'-3' high, pileus 1'-1.5' broad, stem 1''-2'' thick.

Ground in woods. Croghan and Copake. September and October.

In the dried specimens the disk has a dark discolored appearance as if beginning to decay.

**Agaricus (Galera) expansus, Peck.**

Pileus submembranaceous, expanded or depressed, viscid, plicate striate on the margin, brownish-ochre, sometimes tinged with yellow and pink hues; lamellae close, ferruginous; stem long, equal, hollow, slightly pruinose, faintly striate, yellow; spores  $.00045' \times .00028'$ .

Plant 3'-4' high, pileus 1' broad, stem 1'' thick.

Decaying wood. Sandlake and Memphis. August.

**Agaricus (Galera) callistus, Peck.**

Pileus thin, expanded, subumbonate, smooth, viscid, striatulate on the margin, olivaceous or ochraceous, the umbo or disk bright chestnut color; lamellae thin, close, ventricose, easily separating from the stem, yellowish, becoming bright ferruginous; stem equal, hollow, pruinose, yellow, spores  $.00035' \times .0002'$ .

Plant 1'-1.5' high, pileus 6''-10'' broad, stem .5'' thick.

Exsiccated water-holes in wooded swamps. Croghan. September.

In the dried specimens the lamellae are white on the edge and the pileus has assumed a dull metallic green color.

**Agaricus (Galera) Coprinoides, Peck.**

Pileus membranaceous, soon expanded, often split on the margin, plicate-sulcate to the small even disk, yellowish inclining to ochre; lamellae close, slightly rounded behind, concolorous; stem equal, short, hollow, minutely hairy-pruinose, white; spores  $.00028' \times .0002'$ .

Plant 1' high, pileus 6'' broad, stem .5'' thick.

Grassy ground. Sterling. August.

The appearance of the pileus is suggestive of some of the smaller Coprini.

**Agaricus (Crepidotus) Herbarum, Peck.**

Pileus thin, at first resupinate, with the margin incurved, clothed with white down, at length somewhat reflexed, less downy, the margin spreading; lamellae narrow, not crowded, diverging from a naked lateral or eccentric point, white, then tawny; spores slightly curved,  $.00028' \times .00014'$ .

Pileus 2'-4" broad.

Dead stems of herbs. North Greenbush. October.

**Agaricus (Psalliota) diminutivus, Peck.**

Pileus expanded or centrally depressed, sometimes with a slight umbo, dry, alutaceous, the disk rosy-brown and spotted with small appressed silky scales; lamellae close, thin, free, ventricose, brownish-pink, becoming black; stem equal or slightly tapering upward, hollow or stuffed with a whitish pith, smooth, pallid; annulus thin, persistent, white; spores  $.0002' \times .00015'$ .

Plant 1.5'-2' high, pileus 1'-1.5' broad, stem 1"-2" thick.

Ground in woods. Croghan. September.

Sometimes the whole pileus is reddish-brown. The flesh is quite brittle.

**Agaricus (Stropharia) Howeanus, Peck.**

Pileus convex, then expanded, fragile, smooth, subumbonate, yellowish; lamellae close, thin, rounded behind, eroded on the edge, whitish becoming ferruginous-brown; stem smooth, hollow, slightly thickened at the base; annulus thin, fugacious, sometimes adhering to the margin of the pileus; flesh white; spores  $.00033' \times .0002'$ .

Plant 3'-4' high, pileus 2'-3' broad, stem 2"-4" thick.

Center. June.

The surface of the pileus sometimes cracks into areas. The taste is bitter. The color of the spores is not a decided brown, and the plant might with almost equal propriety be referred to the subgenus *Pholiota*.

**Agaricus (Hypholoma) hirtosquamulosus, Peck.**

Pileus hairy-squamulose, hygrophanous, grayish-brown when moist, gray when dry; lamellae narrow, rounded at the stem, gray, then brown; stem short, firm, equal, hollow, slightly hairy-squamulose and colored like the pileus; spores subelliptical, nucleate,  $.00025'$  long.

Plant 1' high, pileus 6"-10" broad, stem .5" thick.

Prostrate trunks of maple trees in woods. Portville. September.

**Agaricus (Hypholoma) phyllogenus, Peck.**

Pileus firm, convex, sometimes slightly umbonate, hygrophanus, reddish-brown when moist, alutaceous when dry; lamellae plane, broad, close, brown, white on the edge; stem equal, fibrillose, stuffed or hollow, expanded at the base into a thin flat disk; spores pale-brown, subglobose, .0002' in diameter.

Plant 8"-12" high, pileus 2"-4" broad, stem .5" thick.

Fallen leaves in woods. Worcester. July.

This is a very small but distinct species, remarkable for the disk-like base of the stem by which it is attached to the leaves on which it grows.

**Coprinus variegatus, Peck.**

Pileus fleshy, fragile, oblong-ovate, then campanulate, obtuse, hygrophanous, pale watery-brown when moist, whitish or cream colored when dry, variegated by scales and patches of a superficial ochraceous tomentum, the margin finely striate; lamellae lanceolate, crowded, ascending, free, white, then rosy-brown, finally black; stem equal, brittle, hollow, white, at first peronate-annulate, then floccose-pruinose, with white branching root-like threads at the base; spores .00033' long.

Plant densely caespitose, 3'-5' high, pileus 1'-1.5' broad, stem 2"-4" thick.

Thin soil and decaying leaves covering rocks. Slope of Crows' Nest near West Point. June.

Allied to *C. atramentarius*. When young the whole plant is coated by an abundant superficial tomentum. This soon breaks up into loose scales or patches which peel off in flakes, revealing the smooth pileus beneath. The slight abrupt annulus soon vanishes.

**Coprinus insignis, Peck.**

Pileus campanulate, thin, sulcate-striate to the disk, grayish fawn-color, the smooth disk sometimes cracking into small areas or scales; lamellae ascending, crowded; stem hollow, slightly fibrillose, striate, white; spores rough, .0004' × .00028'.

Plant 4'-5' high, pileus 2'-3' broad, stem 3" thick.

About the roots of trees in woods. Worcester. July.

**Coprinus angulatus, Peck.**

Pileus thin, hemispherical or convex, plicate-sulcate, the disk smooth; lamellae subdistant, whitish, then black; stem equal, smooth, whitish; spores compressed, angular, subovate, .0004' × .00033'.

Plant 1'-2' high, pileus 6"-12" broad, stem .5" thick.

Woods. Croghan. September.

The specific name has reference to the angular character of the spores.



**Cortinarius (Myxaciium) sphaerosporus, Peck.**

Pileus convex, smooth, very viscid, pale ochraceous; lamellae close, nearly plane, slightly emarginate, whitish, then cinnamon; stem tapering upward, solid, floccose, viscid, subconcolorous, white at the top; flesh white; spores nearly globose, about .0003' in diameter.

Plant 2'-4' high, pileus 2'-3' broad, stem 3"-5" thick.

Ground in woods. Croghan. September.

**Cortinarius (Phlegmacium) longipes, Peck.**

Pileus convex or expanded, slightly fibrillose, viscid, yellowish or pale ochraceous; lamellae close, plane, brownish-olivaceous, then cinnamon; stem long, slightly fibrillose, tapering upwards, whitish.

Plant 6' high, pileus 2'-3' broad, stem 4" thick.

Ground in woods. Croghan. September.

**Cortinarius (Inoloma) lilacinus, Peck.**

Pileus firm, hemispherical, then convex, minutely silky, lilac; lamellae close, lilac, then cinnamon; stem stout, bulbous, silky fibrillose, solid, whitish tinged with lilac; spores nucleate, .0004' x .00025'.

Plant 4'-5' high, pileus 3' broad, stem 4"-6" thick.

Low mossy ground in woods. Croghan. September.

**Cortinarius (Inoloma) Clintonianus, Peck.**

Pileus convex or expanded, with a few appressed silky fibrils, reddish-brown tinged with gray; lamellae close, dull violaceous, then cinnamon; stem solid, silky-fibrillose, tapering upwards, violaceous at the top; spores .0003' x .00025'.

Plant 2'-3' high, pileus 1'-2' broad, stem 2"-3" thick.

Ground in woods. Croghan and New Scotland. September.

**Cortinarius (Inoloma) modestus, Peck.**

Pileus convex or expanded, subfibrillose, even or slightly rugose-wrinkled, alutaceous; lamellae close, nearly plane, pallid, then cinnamon; stem bulbous, subfibrillose, hollow or with a white pith, concolorous; flesh white; spores .00033' x .00025'.

Plant 2' high, pileus 1'-1.5' broad, stem 2" thick.

Ground in woods. Croghan. September.

It is distinguished from the preceding species by its paler color, more bulbous stem, and the entire absence of violaceous hues in the lamellae.

**Cortinarius (Telamonia) lignarius, Peck.**

Pileus smooth, hygrophanous, dark watery cinnamon when moist, paler when dry; lamellae close, thin, concolorous, when young concealed by the copious white webby veil; stem equal, silky-fibrillose, hollow or with a whitish pith, subannulate, with a dense white mycelium at the base; spores .00028'  $\times$  .0002'

Plant subcaespitose, 1'-2' high, pileus 8''-12'' broad, stem 1'' thick.

Rotten wood. Catskill mountains. June.

**Cortinarius (Telamonia) nigrellus, Peck.**

Pileus at first conical, then convex or expanded, obtuse or subumbonate, minutely silky, hygrophanous, blackish chestnut when moist, paler when dry; lamellae close, narrow, emarginate, brownish-ochre, then cinnamon; stem subequal, silky fibrillose, pallid, often flexuous; annulus slight, evanescent; spores .00028'  $\times$  .00016'.

Plant 2'-3' high, pileus 1'-2' broad, stem 2''-3'' thick.

Mossy ground in woods. New Scotland. October.

When moist the pileus has the color of boiled chestnuts, when dry, of fresh ones. The incurved margin of the young pileus is whitened by the veil. The lamellae are darkest when young.

**Cortinarius (Heygrocybe) pulcher, Peck.**

Pileus conical, then broadly convex, umbonate, often irregular, hygrophanous, ochraceous, shining and sometimes striatulate when moist, pale ochraceous when dry; lamellae subdistant, broad, emarginate, uneven on the edge, ochraceous, stem equal, solid, subflexuous, silky-fibrillose, whitish or pale ochraceous; spores .00033'  $\times$  .0002'.

Plant gregarious, 2' high, pileus 1'-1.5' broad, stem 1''-2'' thick.

Ground in woods. New Scotland. October.

**Paxillus strigosus, Peck.**

Pileus dry, convex or expanded, brittle, strigose with scattered stiff hairs, whitish; lamellae close, narrow, subdecurrent, whitish, then pale cinnamon color, some of them forked; stem equal, solid, pruinose, concolorous; spores brownish-ochre, subglobose, .00018' in diameter.

Plant 2' high, pileus 1'-1.5' broad, stem 1''-1.5'' thick.

Ground among fallen leaves in woods. Caraghan. September.

The young plant might readily be mistaken for a species of Clitocybe. Owing to the very brittle character of the pileus, the lamellae are not easily separated from it. The hairs of the pileus are either erect or appressed.

**Lactarius regalis, Peck.**

Pileus convex, deeply depressed in the center, viscid when moist, often corrugated on the margin, white tinged with yellow; lamellae close, decurrent, whitish, some of them forked at the base; stem stout, short, equal, hollow, smooth; taste acrid; milk sparse, white quickly changing to sulphur-yellow; spores .0003'.

Plant 4'-6' high, pileus, 4'-6' broad, stem 1' thick.

Ground in woods. Croghan. September.

This interesting plant rivals *L. piperatus* in size and closely resembles it in general appearance, but the viscid pileus and sparse milk quickly changing to yellow, as in *L. chrysorrheus*, clearly distinguish it.

**Lactarius Geradii, Peck.**

Pileus expanded or centrally depressed, dry, rugose-wrinkled, often with a minute umbo or papilla, sooty-brown, the thin spreading margin sometimes wavy or irregular; lamellae broad, distant, decurrent, white, the interspaces uneven; stem equal, solid, colored like the pileus; flesh and spores white; taste mild; milk white and unchangeable.

Plant 3'-5' high, pileus 2'-4' broad, stem 4"-6" thick.

Ground in woods and groves. Poughkeepsie, *W. R. Gerard*, Albany and Croghan. September.

In the color of the pileus and stem, this species is like the large variety of *L. fuliginosus*, but its real relationship is with *L. distans*, from which it is separated by its color and its longer equal stem, characters which may prove to be only varietal.

**Russula sordida, Peck.**

Pileus firm, convex, centrally depressed, dry, sordid white, sometimes clouded with brown; lamellae white, some of them forked; stem equal, solid, concolorous; spores globose, .0003'; taste acrid; flesh changing color when wounded, becoming black or bluish-black.

Plant 4'-5' high, pileus 3'-5' broad, stem 6"-12" thick.

Ground under hemlock trees. Worcester. July.

The whole plant turns black in drying.

**Marasmius semihirtipes, Peck.**

Pileus thin, tough, nearly plane or depressed, smooth, sometimes striate on the margin, hygrophanous, reddish-brown when moist, alutaceous when dry, the disk sometimes darker; lamellae subdistant, reaching the stem, slightly

venose-connected, subcrenulate on the edge, white; stem equal, hollow, smooth above, velvety-tomentose toward the base, reddish-brown.

Plant gregarious, 1'-2' high, pileus 6"-9" broad, stem .5" thick.

On and among fallen twigs and leaves. West Point. June.

**Marasmius umbonatus, Peck.**

Pileus thin, tough, expanded, umbonate, smooth, even or substriate, alutaceous, the margin at first incurved; lamellae narrow, subdistant, reaching the stem, venose-connected, sometimes branched toward the outer extremity, white; stem equal, solid, velvety-tomentose, tawny below, paler above.

Plant gregarious, 1'-1.5' high, pileus 6"-9"-broad, stem .5" thick.

Ground under balsam trees. North Elba. July.

**Marasmius caespitosus, Peck.**

Pileus fleshy, convex, even, brown, with a lilac tint, the thin margin exceeding the lamellae; lamellae close, free, somewhat united with each other at the stem, narrowed outwardly, white; stem sometimes compressed at the top, stuffed or hollow, pruinose.

Plant caespitose, 1'-2' high, pileus 6"-10" broad.

Birch stumps in woods. Richmondville, June.

**Marasmius longipes, Peck.**

Pileus thin, convex, smooth, finely striate on the margin, tawny-red; lamellae white; stem tall, straight, equal, hollow, pruinose-tomentose, radicating, brown or fawn color, white at the top.

Plant 2'-5' high, pileus 4"-6" broad, stem .5" thick.

Among fallen leaves in woods. Savannah and Bethlehem. August and October.

The long straight slender stem is a characteristic feature of this plant.

**Marasmius glabellus, Peck.**

Pileus membranaceous, convex, then expanded, distantly striate, often uneven on the disk, dingy-ochraceous; lamellae broad, distant, unequal free, ventricose, whitish, the upper margin and the interspaces venose; stem corneous, equal, smooth, shining, hollow, reddish-brown or chestnut, whitish at the top, with a thick mycelium at the base.

Plant 1'-2' high, pileus 6"-10" broad, stem .5" thick.

Fallen leaves in woods. Worcester and Croghan. July and September.

**Marasmius straminipes, Peck.**

Pileus membranaceous, hemispherical or convex, smooth, striate, whitish; lamellae distant, unequal, white; stem corneous, smooth, shining, filiform, inserted, pale straw color.

Plant 1'-2' high, pileus 1"-3" broad.

Fallen leaves of the pitch pine, *Pinus rigida*. Center. October.

**Lenzites vialis, Peck.**

Pileus coriaceous, sessile, dimidiate or elongated, sometimes confluent, obscurely zoned, subtomentose, brown or grayish-brown, the margin cinereous; lamellae thin, anastomosing abundantly, pallid, cinereous-pruinose on the edge when fresh.

Pileus 6"-12" long.

Old railroad ties. North Greenbush and Center. October.

**Boletus separans, Peck.**

Pileus thick, convex, smooth, shining, sometimes deeply lacunose, brownish-lilac; tubes plane or slightly depressed around the stem, at first quite closed and attached to the stem, then by the expansion of the pileus usually torn from it, small, subrotund, yellow or brownish-yellow; stem solid, nearly equal, distinctly reticulated, dull lilac; spores .00055'  $\times$  .00022'; flesh white, unchangeable.

Plant 3'-4' high, pileus 3' broad, stem 6"-10" thick.

Grassy ground in open woods. Greenbush. August.

In dry weather the separation of the tubes from the stem does not always take place.

**Boletus affinis, Peck.**

Pileus dry, minutely tomentulose, even or slightly rugose, chestnut colored, soon fading to tawny or ochraceous, the cuticle sometimes cracking into areas; tubes plane or convex, attached to the stem and sometimes depressed around it, at first white and closed, then yellow, small, unequal, angular or subrotund; stem solid, unequal, smooth, rarely reticulated at the top, pallid or tinged with dull red; spores .00035'  $\times$  .00016'; flesh white, unchangeable.

Plant 2'-3' high, pileus 2'-3' broad, stem 6"-10" thick.

Grassy ground in open woods. Greenbush. July.

**Boletus modestus, Peck.**

Pileus firm, often irregular, dry, yellowish-brown; tubes nearly plane, attached and subdecurrent, pale ochraceous, angular and compound; stem

equal, brown, reticulated with darker lines; spores  $.0004' \times .0002'$ ; flesh gray or pinkish gray.

Plant 2' high, pileus 2' broad, stem 2"-4" thick.

Grassy ground in open woods. Greenbush. August.

**Boletus pallidus, Frost.**

Pileus soft, viscid when moist, smooth, pale alutaceous; tubes plane, attached to or sometimes slightly depressed around the stem, small, subangular, pale yellow, slightly changing color when wounded; stem subequal, smooth, solid, pallid; spores  $.00045' \times .00022'$ .

Plant 2'-5' high, pileus 2'-4' broad, stem 4"-6" thick.

Ground in woods. North Greenbush. August.

**Boletus ampliporus, Peck.**

Pileus broadly convex or expanded, sometimes slightly umbonate, dry, squamulose-tomentose, pinkish-brown; tubes convex, attached or slightly decurrent, very large, angular, compound, yellow; stem equal, solid, yellowish-brown, paler at the top, and marked by the decurrent walls of the tubes; flesh whitish tinged with yellow, unchangeable; spores pale ochraceous, with a greenish tinge,  $00035' \times .00016'$ .

Plant 3'-5' high, pileus 3'-4' broad, stem, 3"-6" thick.

Low mossy ground in woods. North Elba and Sandlake. August and September.

**Polyporus caeruleoporus, Peck.**

Pileus fleshy, broadly convex, subtomentose, moist or hygrophanous, brown; pores short, angular, decurrent, grayish-blue; stem central or eccentric, solid, colored like the pileus, sometimes tinged with the color of the pores; flesh white.

Plant gregarious or subcaespitose, 2' high, pileus 1'-2' broad, stem 2"-3" thick.

Shaded banks. Copake. October.

This and the three following species belong to the section *Mesopus*.

**Polyporus griseus, Peck.**

Pileus fleshy, firm, convex, often irregular, smooth or with a minute appressed silkiness, dry, gray; pores small, short, unequal, subangular, pallid, the mouths white; stem central, thick, short, concolorous; flesh pinkish-gray.

Plant 2'-3' high, pileus 3'-5' broad, stem 6"-10" thick.

Shaded banks. Copake. October.

**Polyporus flavidus, Peck.**

Pileus fleshy, tough, depressed or funnel-form, smooth, rarely a little villous on the disk, zonate, yellow with darker bands, the margin sometimes lobed or wavy; pores short, minute, angular, yellow; stem central, solid, slightly tapering downwards, smooth, subconcolorous.

Plant 3'-5' high, pileus 2'-4' broad, stem 3''-4'' thick.

Ground in woods. Worcester. July.

**Polyporus splendens, Peck.**

Pileus thin, coriaceous, expanded, subumbilicate, slightly zonate, silky, shining, dark ferruginous when moist, tawny ferruginous when dry, the margin deeply fimbriate; pores small, angular, short, subconcolorous; stem slender, equal, tomentose, concolorous.

Plant 1' high, pileus 6''-10'' broad, stem .5''-1'' thick.

Much decayed stumps. Center. August.

**Polyporus attenuatus, Peck.**

Resupinate, effused, very thin, separable from the matrix, pinkish-ochre, the margin whitish; pores minute, subrotund, with thin acute dissepiments.

Prostrate trunks of deciduous trees. Croghan. September.

The pores are scarcely visible to the naked eye.

**Craterellus caespitosus, Peck.**

Pileus fleshy, tough, irregular, expanded, centrally depressed or funnel-form, smooth, moist, variable in color, greenish-yellow, pinkish-brown, or blackish; the margin sometimes decurved and lobed; hymenium at first smooth, then rugose-wrinkled, the folds decurrent on the short, solid, tough stem which is either central or eccentric; spores oblong, obtuse, sometimes slightly curved, .00035'-.00045' long.

Plant caespitose, 6''-12'' high, pileus 6''-10'' broad.

Decaying wood in swamps. Portville. September.

The pilei sometimes grow together, forming an intricate irregular tuft.

**Grandinia coriaria, Peck.**

Effused, membranaceous-tomentose, separable from the matrix, under side and margin tawny-yellow, upper side and minute crowded granules greenish or dingy olivaceous; spores globose, rough, .0003' in diameter.

Forming patches 1'-3' in diameter on old scraps of leather in damp places. Greenbush. August.

**Thelephora Willeyi**, *Clinton*.

Pileus funnel-formed, thin, smooth, obscurely zoned, white, the margin entire or laciniately toothed and lobed; hymenium smooth, concolorous; stem central, equal, solid, white.

Plant 1'-1.5' high, pileus 6"-12" broad, stem .5"-1" thick.

Ground in woods. Buffalo, *G. W. Clinton*. Lowville. September. Sometimes the pileus is split on one side down to the stem.

**Stereum radiatum**, *Peck*.

Resupinate or slightly reflexed, suborbicular, blackish-brown; hymenium uneven, marked with thick corrugations or ridges radiating from the center, cinnamon color.

Old hemlock logs. Catskill Mountains. June.

**Corticium bicolor**, *Peck*.

Thin, membranaceous, resupinate, flaccid, smooth, separable from the matrix, under surface greenish-yellow, upper surface white.

Rotten wood. Center. October.

**Clavaria pusilla**, *Peck*.

Stem slender, solid, rather tough, much and irregularly branched; branches unequal, divergent, tips acute.

Plant scarcely 1' high, yellowish.

Ground under spruce and balsam trees. North Elba. September.

**Clavaria clavata**, *Peck*.

Simple, straight, clavate, obtuse, smooth, not hollow, yellow when fresh, rugose-wrinkled and orange colored when dry.

Plant 4"-6" high.

Damp shaded banks by roadsides. Sandlake. June.

The surface of the ground where it grows is covered by a stratum of green confervoid filaments. The species is related to *C. mucida*.

**Tremella colorata**, *Peck*.

Plant gregarious, swollen subglobose or irregular soft pulpy and raisin-colored when moist, externally black and internally brownish-pink when dry; filaments colored in the mass; spores globose, colored like the hymenium when mature, .0005'-.0007' in diameter.

Bark of dead ash trees. Tyre. September.



**Exobasidium Azaleae, Peck.**

Gall subglobose, often lobed or irregular, succulent, fleshy, solid, smooth pale green or glaucous becoming pruinose; spores oblong, straight or curved, obscurely uniseptate, white, .0006'-.0008' long.

Terminal on living twigs of the pinxter plant, *Azalea nudiflora*, transforming the flower buds.

North Greenbush and New Scotland. May and June.

**Exobasidium Andromedae, Peck.**

Gall flattened or somewhat cup shaped, more or less lobed, smooth, pale green or green varied with red, becoming paler and pruinose with age, hollow, the cavity containing shreds of loose soft cottony filaments; spores narrow, oblong, simple, often curved near one end, white, .0007'-.0009' long.

Lateral on living branches of *Andromeda ligustrina*, transforming the leaf buds.

Center. May and June.

**GASTEROMYCETES.****Lycoperdon pedicellatum, Peck.**

Subpyriform, whitish, the outer peridium persistent, forming dense angular spinose processes which are smaller toward the base of the plant; capillitium and spores greenish ochre or dingy olivaceous; spores smooth, pedicellate, globose, .00016'-.00018' in diameter, the pedicel three to five times as long.

Ground and rotten wood. Croghan and Center. September and October.

The spores resemble those of species of *Bovista*.

**Diderma crustaceum, Peck.**

Effused or circumambient, crowded, sessile, subglobose, smooth, white, outer peridium crustaceous, resembling the shell of some small egg, the inner delicate, appearing cinereous to the naked eye, iridescent under the microscope; columella none; spores globose, black, .0005' in diameter.

**Diderma farinaceum, Peck.**

Effused or circumambient, crowded, sessile, subglobose, plumbeous when moist or young, white rugulose and farinaceous when dry; spores globose, brown, black in the mass, .0004' in diameter.

Incrusting mosses and fern stems in low woods. Croghan. September.

**Diderma Mariae-Wilsoni**, *Clinton*.

Scattered or crowded, sessile, subglobose, smooth, white or pinkish-white, outer peridium crustaceous, within at the base brownish-pink, inner peridium delicate; columella subglobose, rugulose, slightly colored; spores globose, blackish-brown, .0004' in diameter.

Fallen leaves, sticks, moss, etc. Buffalo, *Clinton*. Memphis, Center and Sandlake. August and October.

**Didymium connatum**, *Peck*.

Peridium depressed or subglobose, cinereous, furfuraceous, stipitate; stems mostly connate at the base, tapering upward, longitudinally wrinkled, whitish or cream color; spores subglobose, black, .0004' in diameter.

Decaying fungi. Portville. September.

The subfasciculate mode of growth is a marked feature in this species.

**Physarum pulcherripes**, *Peck*.

Peridium globose, variable in color, ochraceous, gray, brown or black; stem slender, equal or slightly tapering upwards, vermilion; spores globose, brown, .00033' in diameter.

Rotten wood. Richmondville and Worcester. July.

The bright color of the stem is quite conspicuous, notwithstanding the small size of the plant.

**Physarum caespitosum**, *Peck*.

Peridia aggregated in tufts or clusters, crowded, sessile, smooth, brown or blackish-brown; spores dingy ochre, smooth, globose, .00025' in diameter.

Decaying wood. Greenbush. August.

**Craterium obovatum**, *Peck*.

Peridium obovate, rugose-wrinkled, glabrous, lilac-brown; flocci whitish; stem colored like the peridium; spores smooth, globose, black, .0005'-.0006' in diameter.

Decaying wood and fallen leaves. Center, Sandlake and Croghan. August and September.

The operculum is not always distinct, the peridium appearing frequently to be irregularly ruptured at the apex.

**Stemonitis herbatica**, *Peck*.

Densely fasciculate; capillitium slender, cylindrical, brown when moist, ferruginous-brown when dry; stem black, arising from a membranaceous

hypothallus, penetrating to the apex of the capillitium; spores globose, .0003'-.00035' in diameter.

Plant 2"-3" high, growing on living leaves of grass and herbs. Albany. June.

The color of this plant is almost the same as that of *S. ferruginea*, but the spores are much larger, surpassing even those of *S. fusca*.

**Trichia reniformis, Peck.**

Peridia gregarious or clustered, sessile, subglobose or reniform, small, brown; flocci few, short, sparingly branched; spores globose, minutely echinulate, yellow-ochre, sometimes tinged with green, .0005' in diameter.

Dead bark of striped maple, *Acer Pennsylvanicum*. Portville. September.

The branches and apices of the flocci are sometimes without spiral markings and slightly nodulose.

**Perichaena flavida, Peck.**

Yellow throughout; peridia crowded, clustered, sessile, variable in size and shape, shining; flocci few, short, subnodulose, obtuse, sparingly branched; spores globose, echinulate, .00045' in diameter.

Mosses. Sandlake. August.

The bright golden yellow color renders the clusters conspicuous.

## CONIOMYCETES.

**Dinemasporium Robiniae, Gerard.**

Perithecia cup-shaped, bristly, black; spores hyaline, .0002' long, the terminal bristles about as long as the spore.

Dead wood of locust trees. Poughkeepsie, Gerard.

**Dinemasporium acerinum, Peck.**

Perithecia small, pezizoid, black, hispid with short straight scattered black hairs; spores unequally elliptical, .0003' long, the terminal bristles scarcely one-third the length of the spore.

Dry maple wood. Buffalo, Clinton. April.

***Puccinia pulchella*, Peck.**

Spots yellow or greenish-yellow, orbicular, rarely confluent; sori small, circinating, sometimes confluent, blackish-brown; spores .001'–.0013' long, .0006' broad.

Upper surface of leaves of *Ribes prostratum*. North Elba. July.

***Puccinia Cryptotaeniae*, Peck.**

Spots small, pallid or yellowish, sometimes tinged with purple, dotted by the sori, occasionally confluent; sori minute, clustered, at first covered by the epidermis, then surrounded by its pale ruptured remains which continue in the form of a small pustule with a contracted subcircular opening at the apex, reddish-brown; spores subelliptical, scarcely constricted, crowned with a hyaline pustule, .0011'–.0016' long, .0006' broad.

Under surface of leaves of *Cryptotaenia Canadensis*. North Greenbush. June.

***Puccinia Mariae-Wilsoni*, Clinton.**

Amphigenous; spots none; sori scattered or clustered, unequal, reddish-brown; spores subelliptical, scarcely constricted, crowned with a pustule, .0013'–.0018' long, .0007'–.0008' broad.

Leaves and stems of *Claytonia Caroliniana*. Buffalo, Clinton. Knowersville. May.

***Puccinia Lobeliae*, Gerard.**

Sori minute, scattered or confluent, tawny-brown; spores oblong-elliptical, slightly constricted at the septum and easily separating into two parts, pale, .0013'–.0016' long; pedicel short or obsolete.

Under surface of leaves of *Lobelia syphilitica*. Poughkeepsie, Gerard. The fragile spores are peculiar.

***Puccinia obtecta*, Peck.**

Cauline; sori unequal, often very large, angular or orbicular, scattered or confluent, slightly elevated, long covered by the epidermis, black; spores oblong or oblong-clavate, sometimes curved, constricted, obtuse or obtusely pointed, .0018'–.0024' long, .0008' broad; pedicel colored, seldom half as long as the spore.

Stems of *Scirpus validus* and *S. pungens*. Watkins, Montezuma Marshes and Albany. September and October.

***Puccinia linearis*, Peck.**

Amphigenous; sori very narrow, deep seated, oblong or linear, parallel, crowded, long covered by the epidermis, black; spores oblong, slightly tapering toward the base, not constricted, very obtuse or truncate, .0018'–.0024' long, .0006' broad; pedicel colored, very short.

Leaves and sheaths of grasses. Watkins. September.

This is related to *Puccinia coronata*, but it is without the apical teeth of the spore.

***Puccinia angustata*, Peck.**

Hypogenous; spots pallid or none; sori oblong or linear, sometimes regularly arranged at equal intervals in long parallel lines, narrow, black; spores narrow, oblong-clavate or elongated, septate above the middle, strongly constricted, having the lower cell more narrow than the upper, and cylindrical or slightly tapering downwards, .00018'–.0024' long, .0006' broad; pedicel colored, thick, very short.

Leaves of *Scirpus sylvaticum* and *S. Eriophorum*. West Albany and Watkins. September.

***Protomyces Erythronii*, Peck.**

Spots stained with red or purple; spores growing in the tissues of the leaf, scattered or crowded, most often arranged in short series and erumpent through narrow chinks in the epidermis, large, globose, at length black, .002'–.0026' in diameter.

Leaves and petioles of *Erythronium Americanum*. Greenbush. May.

The leaf is most frequently affected at the base of the lamina or blade.

***Ustilago Erythronii*, Clinton.**

Produced on the leaves in oblong or irregular vesicular patches, half an inch or more in length; spores globose, rough, rather large, .0006'–.00075' in diameter, black in the mass.

Leaves of *Erythronium Americanum*. Goat Island, Clinton.

***Uredo Ledicola*, Peck.**

Spots small, definite, rarely confluent, suborbicular, reddish-brown, sometimes with a darker border; sori subrotund or irregular, surrounded by the ruptured epidermis; spores subglobose, rough, .0012' in diameter, orange, with a thick hyaline epispore.

Upper surface of leaves of *Ledum latifolium*. Mt. Marcy. July. Apparently quite distinct from *U. Ledi* A. & S.

**Peridermium Cerebrum, Peck.**

Peridia large, convex, erumpent, irregularly confluent, forming brain-like convolutions, white, rupturing irregularly, the cells radiate-striate on the margin; spores ovate-elliptical or subglobose, rough, yellow, .0008'-.0011' long.

Trunks and branches of young pine trees, *Pinus rigida*, forming excrescences half an inch to two inches in diameter. Center, J. A. Lintner.

**Roestelia aurantiaca, Peck.**

Peridia cylindrical, fragile, soon lacerated, fugacious, white; spores subglobose, bright orange, about .001' in diameter, with a thick hyaline epispore.

Unripe fruit of *Amelanchier Canadensis*. New Baltimore, J. L. Zabriskie. Keene. July. Also on the unripe fruit of *Crataegus*. Buffalo, Clinton.

The color of the spores will enable this species to be easily recognized.

**Accidium Gerardiae, Peck.**

Spots small, suborbicular, scattered, yellowish-green, peridia usually few, small, short, the mouth fringed with spreading or recurved teeth; spores orange, .0008' in diameter.

Leaves of *Gerardia quercifolia*. Highlands near Cold Spring. June.

**Accidium album, Clinton.**

Spots none; peridia scattered, short, white, the margin subentire; spores subglobose, white, about .0008' in diameter.

Under surface of leaves of *Vicia Americana*. Buffalo, Clinton.

**Accidium Lycopi, Gerard.**

Spots yellow; subiculum more or less thickened; peridia short, scattered or crowded, margin crenate; spores pale yellow.

Leaves, stems and petioles of *Lycopus Europaeus*. Poughkeepsie, Gerard. Buffalo, Clinton. June.

**Accidium Hydrophylli, Peck.**

Spots small, few, yellow, with a pale greenish border; subiculum thickened whitish; peridia few, generally crowded, short, the margin subcrenate; spores bright yellow or orange; spermogonia central, on the opposite side.

Under surface of leaves of *Hydrophyllum Canadense*. Catskill Mountains. June.

## HYPHOMYCETES.

### *Stilbum ramosum*, Peck.

Head subglobose, whitish or pale yellow; stem thick, smooth, branched, white above, pallid or brownish below, sometimes creeping and sending up branches at intervals; spores minute, oblong.

Dead larvae of insects buried in rotten wood. Sterling. September.

### *Periconia Azaleae*, Peck.

Plant small, .03'-.04' high, black; stem slightly tapering upward; head globose; spores subglobose or elliptical, colored, .0002'-.0003' long.

Twigs, capsules and old galls of *Azalea nudiflora*. New Scotland. June.

### *Macrosporium Chartarum*, Peck.

Flocci long, jointed, flexuous, branched, colored; branches widely spreading, somewhat nodulose; spores variable, subglobose, elliptical, obovate or pyriform, black, shining, one to three septate, with one or two longitudinal septa, .0006'-.001' long.

Damp paste board. Albany. November. It forms indefinite black spots or patches.

### *Clasterisporium pedunculatum*, Peck.

Flocci erect, opaque, septate; spores terminal, nearly straight, multiseptate, colored, mostly subfusiform or lanceolate, about .003' long, the terminal cell hyaline.

Cut surface of wood. Savannah. October.

### *Streptothrix abietina*, Peck.

Tufts pulvinate, scattered or crowded, blackish-brown; flocci branched, pale, echinulate; spores globose, minutely rough, .00025'-.0003' in diameter.

Bark of prostrate trunks of spruce trees. Sandlake. September.

The larger rough spores and echinulate threads separate this species from *S. atra*.

### *Aspergillus fuliginosus*, Peck.

Creeping flocci white, septate; fertile flocci erect, not septate, crowned with a globose head which is rough with projecting processes; spores globose, sooty-black, smooth, .00016' in diameter.

Rice paste and apple. Albany.

## ASCOMYCETES.

### **Microsphaera Russellii**, *Clinton*.

Amphigenous; mycelium arachnoid, evanescent; appendages 8-18, very long, flexuous, colored, paler toward the tips which are simple or one to three times divided; sporangia ovate, 4-8; spores 4, elliptical, .0007'-.0008' long.

Leaves and petioles of *Oxalis stricta*. Buffalo, *Clinton*. Poughkeepsie, *Gerard*. North Greenbush. October.

This might with almost equal propriety be referred to the genus *Erysiphe*.

### **Erysiphe Euphorbiae**, *Peck*.

Mycelium thin; conceptacles small, .0035' in diameter; appendages few, long, flexuous, colored; sporangia broadly ovate, 3-4; spores 3-4, large, .001' x .00065'.

Leaves of *Euphorbia hypericifolia*. Greenbush. October.

### **Geoglossum simile**, *Peck*.

Plant 1'-2' high, black, minutely hairy; club obtuse, generally compressed, sometimes with a broad shallow groove on one side, tapering into the stem; asci broad; spores fasciculate, elongate, slightly curved, seven-septate, colored, .003'-.0004' long; paraphyses slightly thickened at the tips, septate, sometimes branched.

Damp mossy ground in swamps and in peat bogs. Ft. Edward, *Howe*. Sandlake. September.

It is scarcely possible to separate this species from *G. hirsutum* without microscopical examination.

### **Vibrissca lutea**, *Peck*.

Plant 6"-12" high, yellow, receptacle subglobose, smooth, the margin slightly lobed, inflexed, free; stem nearly equal, solid, a little more highly colored than the receptacle, longitudinally wrinkled when dry; asci clavate or cylindrical; spores long, filiform.

Prostrate mossy trunks of trees and among fallen leaves in woods. North Elba. August.

### **Peziza Solenia**, *Peck*.

Cups minute, nearly cylindrical, hairy, brown, opening by a contracted, white-margined mouth; spores oblong, crowded or biseriate, uniseptate usually with four nuclei, subhyaline, .0005' long; paraphyses filiform.



Dead stems of *Eupatorium ageratoïdes* in damp shaded places. Watkins Glen. September.

The cups are a little longer than broad, and appear like some minute solenia.

**Rhytisma linearis, Peck.**

Linear, here and there interrupted or constricted, black; asci broad, clavate, eight-spored; spores very long, obtuse, strongly narrowed in the middle, involved in mucus, .002'-.003' long.

Under surface of leaves of pine trees, *Pinus Strobus*. Guilderland, Greenbush and Sandlake. June.

It forms a thick black line on the under surface of the leaf, often extending the entire length. The spores appear to consist of two oblong parts connected by a narrow neck.

**Hypomyces polyporinus, Peck.**

Perithecia minute, ovate or subconical, seated on a pallid subiculum, smooth, yellowish, or pale amber; asci narrow, linear; spores fusiform, acuminate at each end, nucleate, .0006'-.0007' long.

On *Polyporus versicolor*. Worcester and Croghan. July and September.

**Nectria Apocyni, Peck.**

*Conidia*. Subhemispherical or irregular, small, pale red; spores fusiform, straight, .0005'-.0006' long.

*Ascophore*. Caespitose or scattered, dull red, perithecia minute, pale ochraceous, and subglobose when moist, dull red collapsed or laterally compressed and rough with minute whitish scales when dry; spores biseriate, uniseptate, fusiform, nucleate, .00065'-.0008' long.

Base of dead stems of *Apocynum cannabinum*. North Greenbush. October.

**Nectria mycetophila, Peck.**

Perithecia crowded or scattered, minute, smooth, subglobose, pale yellow when young, then pinkish-ochre; ostiole minute, papillate, distinct, darker colored; asci subclavate; spores oblong, simple, .0005' x .00016'.

Decaying fungi. New Scotland. October.

**Sphaeria Staphylina, Peck.**

Perithecia minute, black, covered by the epidermis, which at length ruptures in a stellate manner or irregularly; spores biseriata, colorless, constricted in the middle, three to five septate, .0009'-.001' long, the two parts formed by the central septum unequal in diameter.

Dead twigs of *Staphylea trifolia*. Helderberg Mountains. May.

**Sphaeria Desmodii, Peck.**

Perithecia scattered or seriatly placed, minute, covered by the epidermis, which is pierced by the acute ostiole, black; asci clavate; spores biseriata, fusiform, colorless, four nucleate, .00035'-.0004' long.

Dead stems of *Desmodium*. Garrisons. June.

## VI. Contributions to a Knowledge of North American Moths

BY AUG. R. GROTE.

[*Read before this Society, June 6th, 1873.*]

DUMERIL, in 1823, and afterwards Boisduval, in 1836, availed themselves of the structural feature offered by the different antennal forms in the Lepidoptera to establish ideal divisions, higher than Families, in the sub-order. Although not so strongly insisted upon, other considerations may have suggested themselves, apparently justifying a separation of the Butterflies from the rest of the Lepidoptera. But, as we become acquainted with the sub-order, the peculiarities of the Butterflies lessen by comparison. And since the form of the antennae is nowhere absolute, and even in reality will not always separate the Butterflies from many Moths, and since the divisions proposed by Dr. Boisduval are evidently of unequal value, and the character on which they rest of little systematic weight, the terms cannot be retained. Boisduval's terms are in part synchronous with Duméril's, which, in case of acceptance of the values intended, should be preferred. The comparatively persistent character of the clavate antennae in the Butterflies is noticed by Hübner in 1816. But it is evident that the Hesperidae, for instance, present a modification of the form of the antennis as we find it in the higher Butterflies, and are accordingly not to be indifferently classed with them. It would seem as though the succession of Family groups in the Lepidoptera is not to be disturbed by higher exact division, nor need we employ other terms than our common ones for general purposes of designation.

Professor Agassiz, in 1849, records a character which had been before unnoticed by the classifiers of the sub-order. Agassiz calls attention to the fact, that there is a common position of the

wing in all the Lepidoptera in the pupa state. The wings are then bent downwards, and the upper wings cover the lower ones, the upper surface of the latter turned sidewise. In the Papilionidae, or true Butterflies, in their adult state, the wings are raised above the body, their upper surface turned upwards and inwards, never turning outwards. In the mature Hesperian the position of the wings is different; the anterior pair only are raised, while the lower ones are stretched horizontally. In the perfect state of the lowest Moths, the wings are stretched backwards close to the body, which they more or less surround. In the varying attitude of the wings we evidently have a manifestation of the cephalic principle, and accordingly a safe basis upon which to found our systematic arrangements.

It is with diffidence that I suggest that, in the position of the wings, we have a character which might be interpreted as assigning a higher position to the Geometridae. In most of these moths there is a more frequent common ornamentation of the upper surface of the wings, perhaps predicated by the exposure of the hind pair in a state of rest to the light.

With regard to the position of the Deltoids, Lederer says:

“Ich konnte, wie gesagt, ebenfalls keine [Verschiedenheit] auffinden und trage um so weniger Bedenken, die nun aufzuführenden Arten [Deltoiden] zu den Eulen zu rechnen, als sie selbst dann, wenn noch ein sie von diesen trennendes, ausschliessliches Merkmal aufgefunden werden sollte dennoch hier und nicht bei den *Pyraliden* unterzubringen wären und der Totaleindruck sie gewiss von diesen noch weit mehr, als von den *Noctuinen* unterscheidet, überhaupt weniger in Wirklichkeit als in der Gewohnheit diese Arten als *Pyraliden* zu betrachten, besteht.”

While I am not agreed with the separation of the Cymatophorina, *Herrich-Schaeffer*, as a group equivalent to the Noctuidae, nor as having more than analogies with the Bombycidae, I think we shall be justified in considering the Deltoids as belonging to the Noctuidae; and this rather than allow an interpolation of the Family Geometridae between groups so nearly allied, that certain of our first authorities, Zeller, Lederer and Herrich-Schaeffer, cannot separate them by any tangible character.

An idea that the affinities in the Lepidoptera are net-like and not, as they seem to me, branch-like, has excused the classification, especially of the Bombycidae, adopted by v. Heineman and Staudinger, by which Subfamily groups are accorded Family rank, and so incongruous a sequence is adopted, that this would seem the end sought, rather than a natural arrangement of the Moths. No or little allowance is made for comparative characters, and the severity of the generic classification has permitted no adequate comprehension of these softer zoölogical forms. We miss any reference to American genera (without which perhaps no true limitation can be decided upon), either as illustrated by American writers or by the pens of European authors who have investigated so largely the Lepidopterous Faunae of other continents. v. Heineman establishes the European genus *Scodra*, without reference to Guenée's *Leptina*, from America, which it seems should have been compared.<sup>1</sup> On the other hand Packard, in 1864, has indicated in several cases the comparative generic position of European Bombycidae, and, in 1865, we have drawn attention to relationships between the Sphingidae of either continent, and in particular to the position which the European *Macrosila convolvuli* and *Sphinx ligustri* occupy with regard to the American species of the two genera.

I give here a catalogue of our North American species referable to Herrich-Schaeffer's Family *Cymatophorina*, for which I prefer Boisduval's earlier term, and regard them as forming a sub-family of the Noctuidae. Alone of any of the divisions of the family heretofore proposed, they possess a distinctive structural feature, found in the course of the costal nervure of the secondaries.

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<sup>1</sup> Auf Seite 17, v. Heineman's Schmetterlinge Deutschlands und der Schweiz, steht, Z. 9, v. unten, "bei der Hesperiangattung *Cyclopaedes* die Hinterschienen auch mit Mittelspornen." Schlägt man, Seite 115, d. Gattung auf, so findet sich gerade des Gegentheil angegeben: "Hinterschienen nur mit Endspornen."

## Family, NOCTUIDAE.

Subfamily, **NOCTUO-BOMBYCINI**, *Boisduval* (1829).Tribe, **VERAE**, *Grote* (1863).**CYMATOPHORA**, *Treitschke* (1824).Type: *Noctua flavicornis*, *Linnaeus*.**caniplaga**, *Walker*.<sup>2</sup> —  
Canada (Auth. Walker).**LEPTINA**, *Guenée* (1852).Type: *Leptina dormitans*, *Guenée*.**dormitans**, *Guenée*.  
New York; Pennsylvania.**latebricola**, *Grote*.  
New Jersey.**ophthalmica**, *Guenée*.  
New York; Pennsylvania; Alabama.**Doubledayi**, *Guenée*.  
Massachusetts; New York; Pennsylvania.**formosa**, *Grote*.  
Massachusetts.Tribe, **FALSAE**, *Grote* (1863).**PSEUDOTHYATIRA**, *Grote* (1864).Type: *Thyatira cymatophoroides*, *Guenée*.**cymatophoroides**, *Grote*.  
*♂ Thyatira cymatophoroides*, *Guenée*.

New York; New Jersey; Pennsylvania.

**expultrix**, *Grote*.  
*♀ Thyatira cymatophoroides*, *Guenée*.

Canada; New York; Pennsylvania.

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<sup>2</sup> Mr. Walker's *Cymatophora viridescens* is erroneously determined generically, and I retain the present species with hesitation on the list.

**HABROSYNE**, Hübner (1816).Type: *Noctua derasa*, *Linnaeus*.**scripta**.*Thyatira scripta*, Gosse.*Thyatira abrasa*, Guenée.

Canada; New York; Pennsylvania; Virginia.

**THYATIRA**, Ochsenheimer (1816).Type: *Noctua Batis*, *Linnaeus*.**pudens**, *Guenée*.

New York; Pennsylvania.

The tribes I have adopted in the Moths are founded upon a more intimate resemblance among groups of genera; they may possibly assist us in placing the different forms into a natural position.

Dr. Packard has shown the existence of two Subfamily types in the Noctuidae, corresponding in the main with M. Guenée's Trifidae and Quadrifidae, but based on other and comparative characters. Lederer had previously shown that M. Guenée's definitions are inexact, and had contended that the Noctuidae are not susceptible of any Subfamily division.

The species thrown together under *Acronycta* appear susceptible of generic division, while our knowledge of the difficult forms is as yet extremely defective. The early stages must be studied, since we find the statements of authors that these differ widely in otherwise closely allied species. I here indicate, I fear imperfectly, the different groups into which it seems our species may be divided, not changing the general generic designation, and leaving many questions for the moment unsolved.

In 1868 we recorded our opinion of Mr. Walker's description of American Moths, based upon our personal examination of the British Museum collections. So many authorities concur in an unfavorable opinion of Mr. Walker's labors, that we need no excuse for omitting here any reference to the British Museum Catalogue, except where we have identified Mr. Walker's descriptions.

Subfamily **NOCTUINAE**, *Packard*.Tribe, **BOMBYCOIDES** (*Hübner*).**ACRONYCTA**, *Ochsenheimer* (1816).

§

**vinnula**, *Grote*.

New York; New Jersey; Pennsylvania.

§ *Triaena*, *Hübner* (1816).Type: *Noctua psi*, *Linnaeus*.**grisea**, *Walker*.<sup>3</sup>*Noctua grisea*, Barnston MS.

Hudson's Bay Territory.

**Tritona**, *Guenée*.*Triaena Tritona*, *Hübner*.

Canada; New York; Pennsylvania.

**occidentalis**, *Grote and Robinson*.*Acronycta psi*, † *Guenée* (in part, B).

Canada; Massachusetts; New York; Pennsylvania.

**telum**, *Guenée*.

New York.

**morula**, *Grote and Robinson*.

Canada, New York.

**Lobeliae**, *Guenée*.

Canada; New York; Pennsylvania.

**fureifera**, *Guenée*. —Amérique Septentrionale (auth. *Guenée*).**hasta**, *Guenée*. —Amérique Septentrionale (auth. *Guenée*).**interrupta**, *Guenée*.<sup>4</sup> —Georgia (described from *Abbot's* drawings).

<sup>3</sup> This species differs from *Tritona* in the whitish secondaries, but otherwise closely resembles *Hübner's* species. I have examined the types in the British Museum.

<sup>4</sup> From the manner of remark on page 121 of the Second Report on the Insects of Missouri, it would be inferred this species had been identified. I do not think it can be readily known from the existing description.



**spinigera**, *Guenée*.

New York; Pennsylvania.

**connecta**, *Grote*.<sup>5</sup>

New York.

§

**funeralis**, *Grote and Robinson*.

Canada; Ohio.

§

**innotata**, *Guenée*.*Diphthera Graefi*, *Grote*.

New York; Pennsylvania.

§ *Acronycta*, *Hübner*, restr. (1816).Type: *Noctua leporina*, *Linnaeus*.**Lupini**,<sup>6</sup> *Behr*.

California.

**lepusculina**, *Guenée*.*Acronycta populi*, 2d Missouri Report.

Pennsylvania; Missouri.

**insita**, *Walker*.New York. *Spec. distinct?*§ *Megacronycta*,<sup>7</sup> *Grote* (1873).Type: *Acronycta hastulifera*, *Guenée*.**hastulifera**, *Guenée*.*Phalaena hastulifera*, *Abbot and Smith*.*Apatela americana*, *Harris*.

Canada; Pennsylvania; Massachusetts; Southern States.

<sup>5</sup> *Acronycta connecta*, n. s., ♂, is the narrowest winged species known to me. The body is rather long and stout. Hoary gray, with a testaceous tinge, the markings indistinct. The wing is darker clouded centrally and above internal margin between the basal and internal black dashes. The costal marks are very faint. The orbicular is a void, rather small annulet, and its more whitish hue contrasts. The reniform is also rather small, distinctly ringed inwardly where it is stained, incompletely margined outwardly where it is whitish. The t. p. line is well removed to the external margin superiorly. A dark shade, not a streak, opposite the cell. Terminal elongate interspaceal black streaks. Hind wings whitish with darker clouded borders. Beneath dusted, with faint dot and line.

*Expanse*, 1.25 inch. Sharon Springs, from O. Meske.

<sup>6</sup> I have a single specimen of this species that I refer to this section. Compact, stout-bodied, and thickly scaled; primaries narrow without saggitate marks, median shade distinct, t. p. line continuous with succeeding gray shade, fringes minutely black dotted; secondaries with immaculate fringes. The specimen is obscurely colored, perhaps stained; size of *leporina*.

<sup>7</sup> Gr.: μέγας et *Acronycta*. In this section vein 5, is hardly weaker, and the cell is in part closed by a veinlet as strong as vein 5. The fore tibiae are somewhat thickened. I do not think the species belongs to Stephens' genus *Apatela*, of which we appear to have a wrong idea

§ *Apatela*, *Ochsenheimer* (1816).

Type: *Noctua aceris*, *Linnaeus*.

**acericola**, *Guenée*. —

*Phalaena aceris* † *Abbott and Smith*, *non alior.*

“Georgia.” *An. spec. sequent.?*

**rubricoma**, *Guenée*.

New York; Pennsylvania.

**luteicoma**, *Grote and Robinson*

New York; Pennsylvania.

§

**brumosa**, *Guenée*. —

Amérique Septentrionale (auth. *Guenée*).

**Verrilli**, *Grote and Robinson*.

Massachusetts; New York.

**noctivaga**, *Grote*.

New York; Pennsylvania.

**superans**, *Guenée*.

Canada; New York.

**afflicta**, *Grote*.

Texas; Pennsylvania.

**longa**, *Guenée*. —

Amérique du Nord (auth. *Guenée*).

§

**clarescens**, *Guenée*.

New York.

§ *Lepitoreuma*,<sup>8</sup> *Grote*.

Type: *Acronycta ovata*, *Grote*.

**ovata**,<sup>9</sup> *Grote*.

Pennsylvania.

from Harris' determination. Harris seems to have confused the two illustrations of Abbot, and while he describes our largest species, which is most probably *hastulifera* of the *Insects of Georgia*, he states it to be figured by Abbot and Smith as *aceris*, which it certainly is not. Harris may have been led to this by larval observations, which perhaps cannot always be considered as correctly made by Abbot. In two instances—*Phalaena angulosa*, Plate 83, and *Phalaena amasia*, Plate 90—I have shown that Abbot has represented two distinct species on one plate as from the same larva.

<sup>8</sup> Gr.: *λέπις* et *τόρευμα*. This section is characterized by the ovate primaries, which broaden outwardly; the costal edge is produced at the shoulder, depressed centrally and is again full toward the apices. The scales are strongly raised in ridges along the transverse lines.

<sup>9</sup> *Acronycta ovata*, *n. s.*, Plate 2, fig. 14 ♂, is of the general shape of *Hamamelis*, but very different in color and with distinct sagittate marks. Gray with a bright tinge, shaded with

**Hamamelis**, *Guenée*.

New York; Pennsylvania.

**dissecta**, *Grote and Robinson*.

Massachusetts; New York.

§

**sperata**,<sup>10</sup> *Grote*.

New York; Pennsylvania.

§

**xylinoides**,<sup>11</sup> *Guenée*.

New York; Pennsylvania; Missouri.

§ Eulonche,<sup>12</sup> *Grote* (1873).Type: *Acronycta obliquata*, *Guenée*.**oblinita**, *Guenée*.*Phalaena obliquata*, Abbot and Smith.

Canada; New York; Pennsylvania; Southern States.

testaceous. A black basal dash extends to the twice strongly angulated t. a. line, which is geminate, the inner more distinct line composed of raised scales. Above the basal dash the humeral space is pale beyond the geminate basal half-line. Median space wide superiorly, owing to the superior wide projection of the distinct and regularly denticulated t. p. line. Orbicular rather large, pale and vague, with clouded center. Costal black marks evident. Median shade apparent by raised darker scales. Reniform vague, bisannulate, stained with deep testaceous. A very narrow black distinct dash at internal angle, broken at the pale continued s. t. line. A third black dash, indicated within s. t. line, opposite the disc. Secondaries fuscous, with the distinct black discal spot and dentate line of the paler under-surface reflected.

*Expanse*, 1.45 inch. Coll. Am. Ent. Soc.

<sup>10</sup> *Acronycta sperata*, n. s., Plate 2, fig. 1 ♂, belongs apparently to the section of *A. myricae*, *Guenée*. Clear blue-gray, the usual markings of the primaries distinct and erect. T. a. line geminate, waved, component lines divaricate. Orbicular small, very distinct, a blackish void annulet. Reniform well sized, also distinctly but less completely black ringed, crossed by the median shade. T. p. line regularly dentate, nearly straight, as usual inflected below median nervure. No sagittate marks; s. t. line pale, vague; a series of minute terminal black marks. Hind wings white, dusted costally; beneath white, a little dusted, no lines or spots perceivable.

*Expanse*, 1.35 inch. Coll. B. S., N. S. and Am. Ent. Soc.

<sup>11</sup> This species resembles *oblinita* in general appearance, but is easily distinguished by the shape of the primaries, the apices being less produced, the external margin a little straighter. The t. p. line is more distinct and removed further towards the external margin, and there is a more or less obvious streak at internal angle. Perhaps the two are confounded in the Third Annual Missouri Report, p. 71. In this same Report, the re-description of *Laphygma frugiperda*, *Guenée*, the corn-bud-worm moth of Abbot and Smith, as *Prodenia autumnalis*, will at least prevent, it is hoped, "in this country," the appearance of scientific descriptions of this variable species "based upon the simple examination of solitary specimens of the perfect insect, without the fact being mentioned." The italics are mine, and the quotations from page 56 of the Third Report. The species alluded to in this Report as "*Prodenia compeinae*," can certainly not be Abbot and Smith's *Commelinae*, as this is so large as not to be possibly confounded with *Laphygma frugiperda*.

<sup>12</sup> Gr.: "Ἐν ἐτ Δόγγη. This section is characterized by the long pointed primaries and sunken head. Vein 5 of the hind wings is a mere fold, and the cell open.

*insolita*,<sup>13</sup> Grote.

Pennsylvania:

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***Agrotis pitychrous*, Grote, Plate 2, fig. 11, ♂.**

Allied to *Agrotis quadridentata* and *Agrotis cicatricosa* G. & R., from Colorado Territory and to the Russian *A. acuminifera* *Höversmann*, as figured by Herrich-Schaeffer.

Pale grayish white from the base along costal region to the transverse posterior line which is indicated by dark dots. The costal edge is marked, showing the inception of the transverse lines which are not perceptible. The orbicular and reniform are rather large, grayish white, with more or less complete black annuli, lying on the dusky discal field that, in the male, shows a testaceous tint. The claviform mark is black and perceivable in its usual place without the transverse anterior line, the latter fragmentary. The extra basal line is geminate, even, and only discontinued at the whitish costal shade. Median vein whitish and the whitish scales extend along veins three and four to the subterminal line which is exerted at this place. Subterminal space whitish, showing black, more or less evident, cuneiform marks before the line. Terminal space dusky, constricted medially owing to the exerted portion of the subterminal line. Interspaceal blackish cuneiform marks take the place of the terminal line. Fringes stained with testaceous. The hind wings are whitish with diffuse dusky borders in the male, while in the opposite sex they are nearly wholly blackish, contrasting with the white fringes and offering a distinctional character when compared with allied species; a faint discal lituro in both sexes. Beneath whitish, with dusky shadings; no transverse lines in either sex; a series of interrupted interspaceal terminal dusky marks. Corporal pubescence whitish; collar with distinct dark lines which define also the tegulae. Abdomen whitish, stained with testaceous at the extremity; ovipositor exerted in the female in which the antennae are simple, while these are finely pectinate in the male.

*Expanse*, 30 m. m. *Habitat*, Long Island, N. Y. (coll. J. A. Lintner).

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<sup>13</sup> *Acronycta insolita*, n. s., ♂, resembles *A. oblinita*, in the lanceolate primary wings, which are even longer and more produced apically. Blackish; orbits of the eyes white. Primaries uniformly blackish, the dark tone obscuring all ornamentation except the t. p. and s. t. lines, which are oblique and appear as rather broad interspaceal lunulated or squared gray marks, which, in the as usual flexed t. p. line, are marked by black outward points, the fragments of the t. p. line itself, the gray marks being the precoding shade. Hind wings white beneath, with the costal region dusted with blackish scales. Palpi with the second joint outwardly black; fore tibiae with blackish longer hair. Abdomen whitish above, darker beneath, rather long. The unusually dark color and pointed wings, together with the peculiar appearance of the transverse lines, should make this species very recognizable. This last section of the genus reminds us of *Leucania*. My specimen of *A. insolita*, expands 1.60 inch. Coll. Am. Ent. Soc.

**Cloantha ramosula**, Guenée, Plate 2, fig. 16, primary wing.

Guenée's figure of this species is not recognisable. In the description this species is compared with the type of the genus, the European *C. perspicillaris*. I believe I describe and illustrate here Guenée's *ramosula*, although the description in the *Spécies Général* is not full and appears to me contradictory in slight points. Cinereous, shaded with ochrey brown. Costal edge cinereous. Below the s. c. nervure the wing is whitish ashen from the base over the cell and, beyond the reniform, this paler shade extends, outwardly obliquely margined, to apex. Orbicular extremely indistinct, indicated by a fragmentary obliquely placed black ringlet. Reniform prominent, large, indistinctly closed outwardly, with an interior brown shade and with its annulus very distinct and black inwardly and inferiorly where it descends below vein 3 and is here surrounded by the diffuse brown shade which extends largely over the median nervules. This black marginal line of the reniform does not enclose the spot but, followed by an inner pale shade, runs upwardly to vein 5, beyond the cell, and is continued straightly outwardly, giving the spot an uncinat appearance or that of a mark of interrogation. T. p. line nearly lost, indicated by little points, visible against the cinereous costal shading. A black streak below m. nervure at the base of the wing. A series of black interspaceal subterminal dashes and whitish dentated shades border the veins terminally, becoming pointed at the fringes which they interrupt with pale dots. Beneath, pale, powdered with carneous, with faint discal dots and diffuse but little darker borders in the male, hardly expressed on the paler hind wing. *No distinct common subterminal line.* Hind wings above testaceous fuscous, with broad diffuse darker borders and reduced dot. Thorax cinereous, with an attenuate median and an upper marginal line on the collar. Guenée says: "Une seule ligne noire, fine, sur le collier."

*Expanse*, 32 to 35 m. m. *Habitat*, New York; Pennsylvania.

The sexes do not, perhaps, differ, but there is a variation in the distinctness of the marginal shades on the fore wings.

The species described below are to be distinguished at once from our only one hitherto noticed, by the shape of the reniform spot which is, so to speak, reversed in appearance, has not the outward inferior prolongation but an upward and inward V-shaped extension. Beneath there is less carneous shading, no or little trace of bordering bands, but a single continued finely undulate subterminal line crosses both pair of wings and is emphasized on the veins by darker dots.

**Cloantha evicta**, Grote, Plate 2, fig. 18, primary wing.

♂.—Color of the preceding but without the brown shading over m. nervules or the paler subcostal shade. More uniformly gray, shaded with pale testaceous brownish, with all the transverse markings more distinct. The geminate transverse posterior line is well expressed by a subcontinuous inner dark line and a succeeding pale shade. The veins are picked out by dark scales. A basal whitish subcostal fleck and black submedian streak. Ordinary lines marked on costal edge. T. a. line discernible, outwardly oblique, approximating to t. p. line toward internal margin. Reniform testaceous with faint marginal line, with an upward and inward extension which may be the fusion of the orbicular but which gives the appearance of a large compound spot notched superiorly. Terminal space testaceous brownish, interrupted by longitudinal pale dashes on either side of vein 3. A terminal dark line forming interspaceal cuneiform marks. Secondaries much as in *ramosula*; the veins are marked with darker scales and the common line of the under-surface is here reflected. Beneath whitish gray of a warm tint, powdered sparsely with dark scales; no borders but distinct discal dots and finely dentate continued subterminal line on both wings. Collar whitish gray, without middle line, but with an upper marginal distinct black line which separates the darker discoloured tegulae.

*Expanse*, 32 m. m. *Habitat*, New York State.

In both this and the succeeding species the head is larger, the eyes more prominent, and the palpi longer than in *C. ramosula*.

**Cloantha vomerina**, Grote, Plate 2, fig. 17, primary wing.

♂.—This is best described comparatively. There are no traces, or these are but extremely illegible, of the transverse lines; their absence gives the fore wings a resemblance to those of *C. ramosula*. The reniform spot is shaped as in *C. evicta*, but very distinct, owing to its being distinctly black margined. The whitish sub-costal fleck of *C. evicta* is here more diffuse and extended and touches the shoulder of the thorax. A heavy diffuse brown black shade extends over all the inferior portion of the wing, outwardly running obliquely upwardly to apex and covering terminal space. White linear shadings along veins 3 and 4 on terminal space, and thus a tendency to have these pale shadings accompany all the nervules is exposed, but in both the new species these shadings run *parallel* with the veins. Collar pale without median line but with an upper marginal line against the blackish tegulae. On the front, before the antennal insertion, I notice a gathering of the scales into two slight lateral black tufts, not apparent in *C. evicta*. Beneath much as in *C. evicta*; the palpi outwardly are blackish.

*Expanse*, 36 m. m. *Habitat*, New York State.

Appears to be a larger species than the others, and at first sight to differ strongly. It is, however, very nearly allied to *C. evicta*, but I know of no parallel in the genus that would excuse the reference of both under one name.

**Litognatha**,<sup>14</sup> n. g.

Ocelli. Head with the scales extended tuftedly forwards on the vertex between the antennae. Male antennae with strongly setose pectinations as well as bristles on either side of the antennal stem; along the basal third the pectinations are reduced, and subobsolete on the inside, somewhat gradually becoming more apparent towards a point about one third from the base, where they seem to be massed, giving the stem a tufted or thickened appearance at this point; thus the antennae differ from the simply bristled structure presented in *Pityolita*. Labial pulpi very long and compressed with appressed squamation. Second joint nearly as long as in *Philometra*, but more bent; third joint very long, about half as long as the second. Male fore legs with slender curved tibiae and a sparse brush of long hair. [The appearance of the fore legs reminds me of the representation by Poey of *Mastigophora*.] Abdomen linear, notably long, exceeding the hind wings by about a fourth of its length. Female antennae simple, the setal hairs obsolete over the basal portion of the stem, impectinate, without nodosity; palpi a little shorter and more curved than in the opposite sex.

One of the genera allied to *Zanclognatha*. In the type, *L. nubilifascia*, the form of the transverse posterior line is unusual. Both the species I here include are slight and *L. litophora* reminds me strongly of *Pityolita* in ornamentation, but may be readily separated on structural characters. As yet I have been unable to make neuronal examinations.

**Litognatha nubilifascia**, *Grote*, Plate 2, Fig. 3 ♂, ♀ 2.

Gray dusted with olivaceous, paler than *Pityolita pedipillalis*, Transverse anterior line indistinct. Reniform indicated by dots at extremity of cell. Transverse posterior line oblique, a little uneven, not projected opposite the cell as usual, but very slightly outwardly inflected at costa and preceded by a distinct, diffuse olivaceous shade and marked outwardly by a pale line. Subterminal line equally, and thus unusually distinct, similar to the t. p. line in appearance, less oblique. A narrow, distinct, continued marginal line. Secondaries a little paler than primaries with the outer lines of the primaries

<sup>14</sup> Gr.: λιτος et γνάθος.

here continued. Beneath, with the lines repeated, on secondaries a discal dot. A ♂ primary wing measures 12 m. m. along costa.

*Habitat*, Philadelphia; Buffalo, Olean, Albany, N. Y. (3629, coll. Lintner).

The imago flies in June and July in company with *Philometra* on low grounds in herbage. Fresh specimens are deeper colored, as the active moth readily loses its scales by attrition.

### ***Litognatha litophora*, Grote.**

♂ ♀.—Of the usual pale gray color, but powdered with brown scales, not olivaceous, as in *Pityolita* or ochraceous as is more usual in *Zanclognatha*. The transverse posterior line has the same shape as in *Pityolita*, but it is *dark brown*, and is continued with nearly the same distinctness across the secondaries which are concolorous. Subterminal shade faint on both wings. Terminal line very distinct, dark brown, fine and subcontinuous. Fringes soiled with brownish. Beneath, the wings are darker than above. The t. p. line is reproduced with great distinctness across both wings. A primary wing measures 12 m. m. along the costal edge.

*Habitat*, Philadelphia; Albany (♂, 2535, Lintner legit).

### ***Meghypena*, n. g.**

Ocelli. Labial palpi very long, as long as the thorax; third joint small, porrected, second very long, a little excavate beneath, projected straightly forwards. Primaries wide, swelled at the shoulder, depressed medially, rising to the acute apices below which the external margin recedes, rising again opposite the median nervules; internal margin straight.

This genus differs from *Macrhypena* in the much longer palpi and acute apices of the primaries. The wings are unusually ample yet proportionate, hence differing from *Plathypena* with its wide secondaries and narrow primaries. The propinquity of the median lines is noticeable. The species are recognisable from the irrorate character of the ornamentation. Beneath, on the secondaries, this is quite noticeable, the discontinued darker streaklets reminding us of some *Geometridae* quite strongly. My material is limited to single specimens of either species.



**Meghypena vellifera**, Grote, plate 2, fig 7 ♀.

The ground color, which obtains over the basal and terminal fields of the fore wings, is pale ochrey, covered with dark strigae as in the Geometrid genus *Endropia*. These marks are visible all along the costá. On the internal margin at extreme base the wing shows a dark shade. The first of the median lines is outwardly acutely projected on the median nervure, below which it runs evenly inwardly to internal margin. Above that point it runs inversely to costa, being inwardly dentate below costal nervure. The median space is purple blackish with the ordinary spots black and distinct. The median lines show accompanying deep brownish shades on the median space that meet centrally below the median nervure. Outer median line even, like the inner line in appearance, bent at median nervure and running inwardly below it to internal margin. Subterminal line consisting of an undulating series of clouded blackish spots tipped outwardly by white scales. A large diffuse brown shade lies on external margin below the apices, obliquely margined superiorly. Terminal line dark, interrupted. Hind wings fuscous, without markings, with a dark subcontinuous terminal line, and with the discal mark and strigae of the under-surface reflected; fringes stained with ochreous. A primary wing measures 20 m. m. along the costa.

*Habitat*, Sharon Springs, N. Y. (O. Meske coll.)

**Meghypena lentiginosa**, Grote.

♂.—Resembles the preceding species strongly in ornamentation but not in color. The primaries are fuscous, but little darker than the secondaries. The median space does not contrast, but dark brown shades line the median lines and extend centrally below the median nervure as in *M. vellifera*. The ordinary spots have the same representation. None of the usual markings contrast on the primaries in this duller-hued species which seems to exceed *M. vellifera* in size, while agreeing with it in the details of the ornamentation, and especially that, on the fore wings beneath, the simple more prominent black dot followed by whitish scales, below the costa, and which inaugurates the obsolete subterminal line, is quite evident. Bearing in mind the variability of *Zanclognatha laevigata*, Grote, and *Renia discoloralis*, Guenée, the union of the two species I here declare seems probable, and yet the effect produced on my mind by the specimens I have now under consideration, is that of having to do with two distinct species. It seems unlikely that the bright-hued *M. vellifera* with the pale ochrey ground color of the primaries should be specifically identical with the sombre-hued *M. lentiginosa*, which recalls in appearance the species of *Macrhyphena*. A primary wing of *M. lentiginosa* measures 22 m. m. along the costal region.

*Habitat*, Albany, N. Y. (2339, coll. Lintner).

Family **GEOMETRIDAE.****Fidonia fimetaria**, Grote and Robinson.

*Fidonia fimetaria*, G. & R., Trans. Am. Ent., Soc. Vol. 3, p. 181,  
Plate 2, figs. 84-85 ♂, 86 ♀, 1870.

*Fidonia halesaria*, Zeller, Beitr. z. Kennt. nordam. Nachtf., erste  
Abth. p. 42 (488) 1872.

This species is from Texas, and represents, as we stated, the European *Fidonia fasciolaria* in our Fauna. Our comparative remarks are so accurately repeated in the course of Professor Zeller's full description, that it is to be regretted the Professor had evidently not seen our illustration of the North American species.

I am indebted to Professor Hagen, of Cambridge, for a copy of the first part of Professor Zeller's writings on North American Moths, received by me while engaged on the present article.

Family **PYRALIDAE.****Botis unimacula.**

*Asopia unimacula*, G. & R., Trans. Am. Ent. Soc., Vol. 1, p. 14,  
Plate 2, fig. 8.

*Habitat*, Brewsters, N. Y. (coll. C. T. Robinson). I am inclined to refer this species to the present genus, and to place it near *Botis plectilis*, *Grote and Robinson*. I accept Professor Zeller's corrected writing of the generic name.

**Botis badipennis**, *Grote*, Plate 2, fig. 12 ♀.

♂ ♀.—Palpi rather long and narrow, projected, a little dependent, not porrected. Chestnut brown, varying in depth of tint. Ornamentation simple. On the primaries there is a continued blackish slightly arcuate transverse anterior line, distinct, slightly notched before internal margin, and more deeply inwardly on costa where the line is narrower. A large diffuse blackish stain suffuses the discal reniform spot, extending downwards below median nervure.

Transverse posterior line blackish, well removed towards external margin leaving the middle field of the wing wide. It differs by running nearly straightly downwards from its inception which takes place nearer the apices than usual. It is minutely undulate or subdentate to vein 2, below which it is inwardly arcuate, and nearly even to internal margin. A very fine continuous line margins the wing. Fringes concolorous. Secondaries paler, somewhat testaceous, clouded faintly centrally with blackish. A single continued narrow blackish line, continuous with the transverse posterior line of the primaries, crosses the wing. It is minutely undulate and becomes irregularly rivulous inferiorly. The external margin and fringes are more or less stained with light brown, and colored like the fore wings. A similar fine marginal line borders the wing. Body parts concolorous with primaries. Beneath a little paler and duller tinted. A faint discal streak on primaries, none apparent on the hind wings. A common exterior distinct blackish transverse line, which, on the hind wings, is better marked, and not so irregularly rivulous inferiorly as its analogue on the upper surface.

*Expanse*, 22 to 24 m. m. *Habitat*, Maine; White Mountains, New Hampshire (coll. Prof. A. S. Packard, Jr.).

**Eurycreon chortalis**, *Grote*, Plate 5, fig. 13 ♂.

♂ ♀.—Head with a frontal projection. Palpi short. Fore wings with the costal edge somewhat convex and with the apices depressedly acuminate. Pale testaceous much shaded with gray, varying in depth of tint and distinctness of markings. Fore wings testaceous, dusted with gray. The veins marked with dusky scales colored like the lines. Discal dots and two inner transverse lines difficult to make out. Transverse posterior line evident, acutely dentate on interspaces, continued. Subterminal line similar but more even and equally apparent, becoming a little diffuse at apices. A narrow terminal line. Fringes concolorous, with dark lines, of which the inner is sometimes interrupted. Hind wings white, with a more or less continued and expressed blackish transverse line running at variance with the more distinct diffuse black serrulate subterminal band which widens to apices and becomes narrow and obliterate toward anal angle. The narrow terminal space between this band and the margin is stained with testaceous; a continued terminal line. Fringes whitish outwardly, dark near the wing, with the inner line apparent. Both the apices of the fore and hind wings are, in one specimen, touched with ochreous. Beneath more dusky, but like upper surface, all the markings are repeated, veins dusky; on hind wings there is a discal liture, and the inner transverse line is seen to run inwardly opposite the discal streak. The wings are subopalescent and diaphanous.

Body concolorous; apparently the caputal squamation is subochreous; abdomen whitish above, more dusky beneath; legs dusky inwardly.

*Expanse* 24 to 26, m. m. *Habitat*, Albany, N. Y. (coll. J. A. Lintner); Mass. in May (coll. Prof. A. S. Packard, Jr.); Alabama (Grote legit.).

## Family **TORTRICIDAE.**

### **Phaecessiophora,**<sup>15</sup> n. g.

Differs from any known Tortricidian genus by the structure of the male hind tibiae. In *Penthina* the tibiae have a tuft of hairs lying in a depression on the surface of the joint. In *Phaecessiophora* the joint is covered with long and coarse scales standing out from it and, in *mutabilana*, from their white color, giving the tibiae the appearance of being wrapped in wool or cotton (Plate 2, fig. 6). The form is robust, the abdomen notably long. The palpi are porrect, coarsely scaled, with small third joint. The primaries are rather broad with parallel margins, 12-veined, all the veins separate (Plate 2, fig. 5a). Hind wings 8-veined, cell closed by an aborted veinlet, 3 and 4 from one point, 5 immediately approximate (Plate 2, fig. 5b).

**Phaecessiophora mutabilana.** Plate 2, fig. 4 ♀, 5 neuration, 6 ♂ hind leg.

*Sericoris mutabilana*, Clemens, Proc. E. S. Phil., Vol. 5, p. 135 (1865).

♂ ♀.—Variable in color, either wood-brown or of an ochrey reddish tint. Primaries crossed by three darker, broad, bent, sinuously edged bands not attaining internal margin, with paler interspaces medially traversed by darker shade lines. On the middle band at its outer edge, about the extremity of the cell, is an ill defined whitish spot. Between the middle and outer dark bands

<sup>15</sup> Gr.: φακιάσιον et φέρρα. Kräftig gebaut mit verhältnissmässig langem starkem Hinterleib. Von allen mir bekannten Gattungen dieser Zunft durch die im männlichen Geschlechte grob, lang and herauf beschuppten Hinterschienen verschieden (Tafel 2, fig. 6). Durch die weisse Farbe erscheinen die Hinterschienen bei *mutabilana* ♂ wie mit Wolle unhüllt. Vorderflügel breit mit kaum hervortretender Spitze und Penthinen-artigen Zeichnung, auf dem Mittelfelde ein weislicher Punkt; 12 Rippen, alle gesondert, 3 und 4 nicht aus einem Punkte entspringend, Theilungs Rippe unvollkommen (Tafel 2, fig. 5a). Hinterflügel mit gleich mässig langen Fransen; 8 Rippen, 3 und 4 aus einem Punkte, 5 gleich dahinter; Theilungs Rippe fadenförmig, aber fortgesetzt (Tafel 2, fig. 5b).

the narrower interspace is Y-shaped towards internal angle, enclosing by the inverted limbs a dark spot. A series of costal ante-apical dark dots. The oblique outer band encloses a paler ill defined space on external margin above the angle. Hind wings dark fuscous with pale fringes. Beneath paler, with the central portion of the fore wings fuscous.

*Habitat*, New York; Pennsylvania; Virginia.

**Phaecasiophora? niveiguttana**, *Grote*. Plate 2, fig. 15 ♀ primary wing.

Although I only know the female of this species, there seems but little doubt that it belongs here, since it agrees in all apparent characters with *mutabilana* ♀. The ornamentation is so similar that it is best described comparatively. Bright ochreous, the darker markings reddish brown. The darker bands are more attenuate, sinuous, defined by blackish scales, distinct. Two blackish streaks at the base of the wing are quite evident, whereas in *mutabilana* there are but faint indications of their presence. The shape of the external margin of the first transverse band is different; it is acutely projected about the subcostal nervure, lunulate beneath. The white discal spot on the middle band is clear, distinct and defined; there is a black dot (on the succeeding pale interspace) which, owing to the outward angulation of the middle band where it encloses the white discal spot, appears above this latter on the costal region. The outer band is like an inverted Y, owing to its narrower shape, and the limbs being more distinctly expressed by the greater extent of the pale spot on external margin above the angle which they enclose. Costal pale and dark dots distinct and evident. Differs notably from *mutabilana* by the presence of two white apical streaks, the one, shorter, before the apex, the other longer, below it and attaining the extremity of the upper limb of the Y-shaped outer band on external margin. Hind wings fuscous. Beneath both pair are pale fuscous, darker than in *mutabilana*, with distinct costal striations.

*Habitat*, Pennsylvania.

**Penthina Blakeana**, *Robinson*, Plate 2, fig. 8, primary wing.

Head and thorax brownish; primaries with a large brown basal patch, much as in *fasciatana* (*Clemens*), from which this species differs by the twice broader whitish succeeding interspace which has a faint pink hue, and by its width narrows the median dark brown *oblique* continuous band of the wing which is toothed outwardly at the center. Costal points distinct; the apical darker shading is reduced and limited by a curved shade line. Hind wings fuscous with pale fringes. Fore wings with the fringes tipped with dark scales to about the middle of external margin.

*Habitat*, Pennsylvania (C. A. Blake).

***Penthina matutina*, Grote, Plate 2, fig. 9, primary wing.**

White. Head and thorax whitish. Primaries whitish with scattered dark scales; basal patch incomplete superiorly about the middle of the wing, with scattered dark costal scales. Middle brownish band continued with distinct edges marked by blackish scales. The succeeding whitish underspace is contracted medially by the more diffuse apical clouding which extends beyond the curved line. Costal marks minute. Beneath fuscous with whitish costal edge and more distinct regularly divaricate dark streaks.

*Habitat*, Texas (*Belfrage*, <sup>22</sup>/<sub>5</sub>).

I have only a single specimen in which the secondaries are defective, but the species is quite distinct from *Blakeana*, which it resembles.

***Penthina torouta*, Grote, Plate 2, fig. 10, ♂.**

I refer this very distinctly marked and easily distinguished species with some hesitation to the present genus. Uniformly dark silky wood brown. The primaries are crossed centrally by two parallel slightly arcuate livid raised metallic lines. Three costo-apical pale dots supported by metallic drops, the third surmounting the narrower metallic terminal line which is interrupted on submedian interspace; fringes burnished. Under the glass the squamation is seen to consist of dark scales with paler overlying tips. Hind wings fuscous with pale fringes. Beneath paler, silky; fore wings with an ochreous stain, pale costal streaks and a faint even pale terminal shade on the margin followed by a dark hair line.

*Habitat*, Pennsylvania.

***Grapholitha distema*, Grote.**

A tiny blackish silky species resembling the European *compositella*, but with only two white lines on the internal margin of the primaries. Eight white costal marks disposed in pairs, crowded towards the black apices and becoming straighter and shorter; the first pair more oblique and divaricate. A silvery subterminal streak runs from opposite the cell over the median nervules tapering to internal angle. Secondaries fuscous with pale fringes. Beneath iridescent, greenish in certain lights, with minute white costal dots over the outer half of the wing. Body scales beneath whitish.

*Habitat*, New York; Pennsylvania.

Family **TINEIDAE.****Oeta gemmata**, *Grote.*

Among a collection of Lepidoptera received by the American Entomological Society from Professor Poey, of Havana, and which collection has been the subject of several papers<sup>16</sup> in the Proceedings of that Society, is a specimen in excellent conservation, bearing the number 821, and belonging to the genus *Oeta*, *Grote*. This little moth is of a most brilliant golden orange, and the markings of the fore wings are similar to those of our United States *Oeta compta* *Clemens* sp. (= *Deiopeia aurea* *Fitch*, as suggested, probably correctly, by Mr. Stretch). It is one-third smaller than our species. There are, as usual, four bands composed of white dots on a blackish ground, but here the dots are smaller and linear, appearing as interrupted streaks and allowing the darker ground color of the bands to obtain. But the bands themselves are narrower in *O. gemmata*, so that the golden appearance of the wings is much less interrupted than in *O. compta*. The third band is furcate before costa, while the fourth, covering internal angle, is not connected with the outer limb of the apical furcation, as in *O. compta*. The hind wings are smoky hyaline, becoming darker exteriorly. The smoky abdomen has a bluish reflection. The legs, palpi and face are dark with white points. The basal joint of the fore legs is golden outwardly. Altogether, this is a narrower insect than *O. compta*, and very evidently a smaller species. The Cuban specimen expands 23 m. m., while the fore wings at their greatest breadth near the external margin measure 3 millimètres.

Professor Zeller characterizes *Oeta punctella* (*Cramer*) comparatively with *O. compta*, in the *Stettiner Entomologische Zeitung*, p. 178, 1871. *Cramer* describes his species from Surinam, while Professor Zeller seems to hesitate to regard his So. American specimens as belonging to a distinct species from our United States *O. compta*.

<sup>16</sup> *Grote*—Notes on the Sphingidae of Cuba, *Proc. E. S. Phil.*, Vol. 5, pp. 33-84, 1865; Notes on the Bombycidae of Cuba, *id.*, pp. 227-255; Notes on the Zygaenidae of Cuba, *id.*, Vol. 6, pp. 173-189, and pp. 297-334, 1866-7; List of the Sphingidae, Aegeriidae, Zygaenidae and Bombycidae of Cuba, *Trans. Am. Ent. Soc.*, Vol. 3, pp. 183-188, October, 1870.

The Professor has not compared Cramer's figure, which seems to me to bear out the Professor's description in having much less yellow and being blacker on the primaries. While Cramer's figure but indifferently recalls *O. compta*, it cannot possibly represent *O. gemmata*. Had Cramer drawn our new Cuban species we might expect a splash of gold color to have represented the fore wings instead of the dark dotted appearance of these in the figure of *O. punctella*, judging from his known rough manner of illustration. But we probably have to do with three species, whereof *O. compta* from North, is a near ally of *O. punctella* from South America, while our insular *O. gemmata* is far prettier, smaller and brighter than either.



## VII. A Study of North American Noctuidae

BY AUG. R. GROTE.

[*Read before this Society, July 2d, 1873.*]

IN the present Paper I have continued my observations on the North American Noctuidae, preliminary to the publication of a List of the species upon which I have been for some time at work. The species, referred by M. Guenée to *Hadena* and *Mamestra*, I have now examined for the first time, with a view of testing the generic determinations of the celebrated French entomologist. I have found on a near study, that these species are not generically separable on the characters laid down in the *Spécies Général*, and why certain of the species are in that work referred to *Mamestra* instead of *Hadena*, or the reverse, I have been unable to understand.

I have then changed a number of M. Guenée's generic determinations and have suppressed certain genera where I have become satisfied that the distinctions are not valid. It is difficult for the American student at first to study this Group without the prejudices he involuntarily entertains from the works of those English and French authors, in which alone he finds our species described. It is impossible to arrive at any critical views on the subject without a study of certain German authorities, with whose generic conceptions, but more especially with whose manner of zoölogical thought, we have not been sufficiently familiar. It will be of no use to attempt to write upon our Moths, without a study of the writings of Lederer, Zeller and Herrich-Schaeffer. To the latter we owe an appreciation of the characters offered by the venation and its correct terminology; to the former the most conscientious and strict classification that has yet been offered to the student.<sup>1</sup>

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<sup>1</sup> The student is also referred to the *Annales de la Société Entomologique Belge*, for a number of praiseworthy observations on the Moths, as well as to Dr. Speyer's work on the geographical distribution of the Lepidoptera of Germany and Switzerland. The former Society had the honor of printing Lederer's last communication, "*Contributions à la Faune des Lépidoptères de la Transcaucasie.*" I need not say that the *Wiener Entomologische Monatschrift* is to the student of to-day what the *Wiener Verzeichniss* was to the student of the last century, nor that every word written by Lederer will make itself remembered.

I take the present occasion of thanking Mr. Theo. L. Mead, of New York, who has sent me a collection of Noctuidae for study; in the present Paper I describe several new species he has taken in Colorado. To Mr. J. A. Lintner, of the State Museum, I am under renewed obligations for the loan of material.

**Agrotis auxiliaris, Grote.**

♂.—Abdomen flattened; fore tibiae spinose; form elongate; habitus recalling the European yellow-winged species. Fore wings with distinct ornamentation. Cinereous along the costal region and subterminal space; blackish, shaded with carneous on the median and basal spaces. Basal half-line followed and preceded by determinate black shades; t. a. line distinctly geminate, outer line marked with black; a faint carneous shade over basal space inferiorly; claviform wide, distinctly margined inferiorly, from its extremity to subterminal line a rigid carneous shade borders vein 2 superiorly; orbicular cinereous, decumbent, irregularly oval; reniform large, of the usual shape, touching the gray costal region above; with an attenuated inner darker annulus, followed by a faint carneous streak; t. p. line regular, even, formed by slight black lunulate marks; subterminal line irregular, marked within by two black cuneiform spots opposite the cell and others precede the line inferiorly; terminal space dark, narrow; terminal line continuous, black, slightly interspaceally lunulate; fringes fuscous, with an internal pale line. Hind wings smoky, deepening in tint to external margin, without marks, subiridescent; fringes whitish, fuscous at base with a darker line. Beneath, a tuft of testaceous hair at base on median vein of primaries; both pair pale, subirrorate, with a rather distinct common darker shaded line and discal dots. Body ashen, collar lined, abdomen, with the anal and lateral hairs stained subcarneously.

*Expanse*, 45 m. m. *Habitat*, Colorado Territory (coll. Theo. L. Mead, No. 57).

**Agrotis repentis, Grote and Robinson.**

The transverse posterior line is regular, formed by little black lunulate marks, which extend outwardly along the veins to the outer component line which is sometimes wanting, but occasionally appears as an even distinct shade. Median shade sometimes distinct and diffuse, again, as in the Colorado specimen, improminent. Fore tibiae spinose.

*Habitat*, Atlantic District; Colorado Territory (coll. Theo. L. Mead, No. 33).

**Agrotis balanitis**, Grote, Plate 3, fig. 14, ♀.

♀.—Resembles *repentis* in general appearance, color, and size; fore wings a little darker with a pale costal reflection; ordinary lines blackish, perpendicular; t. a. with the outer component line black, dentate; orbicular, moderate, a little pointed outwardly; reniform incomplete, both spots concolorous, with narrow black annuli and pale gray inner edging. Median shade apparent on the median space below the nervure. T. p. line irregular, incompletely geminate, unevenly dentate, running inwardly below median nervure, and hence differing from *repentis*, where it is even, nearly perpendicular, and does not run in inferiorly. Subterminal line much as in *repentis*, preceded by a dark shade. Terminal line broken into dots; fringes concolorous; hind wings pale smoky, without marks or border; fringes whitish, with a faint interior line. Beneath, pale, with discal dots, and a common transverse line broken into nervular marks on the hind wings.

*Expanse*, 40 m. m. *Habitat*, Colorado Territory (coll. Theo. L. Mead, No. 34).

This species offers a resemblance to *Lycarum* H.-S., fig. 122. Beneath, the abdomen, in *A. balanitis*, is laterally marked by a stigmal black line.

**Agrotis atrifrons**, Grote.

♀.—Antennae simple, scaled, ciliate, with scattered hairs, not bristled beneath; ocelli; eyes naked; spurs short on middle and hind tibiae; fore tibiae spinose. Head with pale supra-caputal vestiture projected between the antennae; the clypeal scales are black and contrasting. Collar with a black line. Thorax above ashen. Fore wings ashen shaded with reddish brown; ornamentation simple. Transverse lines narrow, black, single, continued, t. p. line narrowly lunulate. Nervules marked terminally with dark scales. No trace of the ordinary spots. Median vein at base marked with blackish scales. The wing is shaded at base, above and below the m. nervure, with reddish; again diffusely over the discal cell, and less obviously on the median space below the median nervure. Subterminal space dark, shaded with reddish brown, and bringing the subterminal line into relief by its contrast with the purely pale ashen terminal space. Hind wings white, smoky along the hind border, and the veins are also marked; fringes white, with a faint smoky interior line. Beneath whitish, costal region of hind wings irrorate, no discal dots on either surface; the primaries show a faint discal dot, and there is a common blackish exterior line distinctly marked on costal

region, discontinued below the dusty margin of the hind wings. Labial palpi dark, third joint concealed.

*Expanse*, 35 m. m. *Habitat*, Colorado Territory (coll. Theo. L. Mead, No. 32).

***Agrotis mimallonis*, Grote.**

♂.—Ocelli; antennae long, bristled beneath (borstenformig), tapering; eyes naked; head and thorax thickly haired, caputal squamation directed forwards between the antennae; all the tibiae spinose; middle and hind tibiae spurred. Head, thorax and fore wings dull purple red. Primaries with simple ornamentation. Transverse lines obsoletely geminate, blackish. T. a. line twice slightly waved to vein 1, below which it is outwardly projected to the margin. Orbicular with a blackish central dot alone apparent. Reniform with a luniform blackish central shade which is alone noticeable. The transverse lines are marked by black scales on costal region. T. p. line with its inner line alone distinct, this is narrow, continued, equally distinct throughout its length, but little projected, regularly lunulate, blackish. Subterminal line pale, indistinct, near the margin. Ante-apical pale costal dots. Blackish scales about the veins on the terminal space; terminal line subobsolete; fringes concolorous. Hind wings pure white, dusted a little apically with ashen scales and a faint ashen terminal line; fringes white with a faint middle line more apparent apically. Beneath, the hind wings are white, with a discal dot, and determinately powdered with purple and ashen scales over costal region. Fore wings fuscous centrally, with the costal region and terminal margin purplish; a faint discal dot and two exterior darker shade lines. Feet and tibiae fuscous, dotted with pale marks; femora and thorax beneath thickly haired, purple-red. Thorax above without crests. Abdomen pale, somewhat ochreous, stained laterally and at the anus with purplish, somewhat flattened, untufted.

*Expanse*, 38 m. m. *Habitat*, New York (coll. Theo. L. Mead, No. 117).

***Agrotis fumalis*, Grote.**

♂.—Ocelli; eyes naked; antennae long, bristled beneath, tapering; middle and hind tibiae spurred; all the tibiae spinose. Habit and ornamentation of *violaris*. Dusky ashen; ornamentation simple. Fore wings with the blackish t. a. line nearly perpendicular, very slightly lunated and notched on the cell. Median shade and orbicular obsolete. Reniform a lunated blackish stain. T. p. line even, continued, a little roundedly exerted opposite the cell, resembling that of *repentis* in appearance, formed of regular small lunulations with the black-

ish scales running outwardly to where the outer component line would be if it were present. Subterminal line faint, merely indicated by the paler terminal space, preceded by a darker shading which forms a determinate blackish costal shade before the line. A pale line at base of the dusky fringes. Hind wings dusky, a little paler and semi-hyaline at base, nearly like the primaries in tint, with no determinate border or discal mark save by reflection from the under-surface. Fringes with a pale basal line. Beneath paler, more whitish; luniform discal mark on hind wings distinct, black, fainter on fore wings. A common exterior darker shade line with faint traces of a subterminal shade. Head and thorax dusky ashen; abdomen concolorous with hind wing. Feet and tibiae blackish, pale dotted.

*Expanse*, 40 m. m. *Habitat*, New York (coll. Theo. L. Mead, No. 130).

***Agrotis 4-dentata*, Grote and Robinson.**

*Habitat*, Colorado Territory (coll. Theo. L. Mead, No. 63 ♂).

***Agrotis subgothica*, Haworth.**

*Agrotis jaculifera*, Guenée, p. 262, Plate 5, fig. 4.

*Habitat*, Atlantic District; Colorado Territory (coll. Theo. L. Mead, No. 62).

***Agrotis herilis*, Grote.**

*Agrotis jaculifera*, Guenée vars. A. & B. p. 262.

♂ ♀.—Resembles the foregoing so that a comparative description will best distinguish it. Larger than *subgothica*, of a purplish black color, and hence much darker than *subgothica*, with which it coincides in the ornamentation of the primaries above. The t. a. line below the median nervure is more outwardly rounded, less perpendicular; the prominent claviform is shorter. The ordinary spots are similar in the two species, but the reniform is discolorous in *subgothica*, stained with ochreous, with a distinct internal ring, whereas the internal ring is feebly marked and the spot is simply pale carneous, like the orbicular and the pale nervular squamation, in *herilis*. The t. p. line is more distinct and black in the new species. Hind wings smoky blackish, deepening in color terminally, not pale with a hind border as in *subgothica*. On the fore wings above there is a notable contrast between the paler subterminal space and the extended paler marginings to veins 3 and 4 in *subgothica*, and the obscurely carneous coloration of the same parts in the new species, which latter wants the decided prolongation of pale scales along the inferior veins.

*Expanse*, 38 to 43 m. m. *Habitat*, Atlantic District; of common occurrence. I have taken this species in Central Alabama.

This is the *Agrotis subgothica* of American Agricultural Publications, such as the 1st Missouri Report, page 82, fig. 29. It is not the *Agrotis subgothica* of English writers, which is *A. jaculifera* *Guenée*. Stephen's figure of *Agrotis subgothica*, Plate 22, fig. 3, and description, page 126, Haust. II, is decisive. The peculiar discoloration of the reniform spot distinguishes *A. jaculifera*, and the paler hind wings, greater extent of pallid shades on the fore wings and smaller size are characteristic and are all well rendered by Stephen's illustration. When I was in France, M. Guenée stated to me that he had discovered the fact, that his *Agrotis jaculifera* was the same as the *Agrotis subgothica* of English writers, and also that he believed that the form now described as *Agrotis herilis* was a distinct species; the latter contrary to the statement made in the *Spécies Général*. *Agrotis subgothica* is figured on Plate 1, fig. 11, in the 1st Missouri Report correctly, but under its synonym of *Agrotis jaculifera*, which latter name I retained for the species in determining the Noctuidae of the collection of the American Entomological Society, whence Mr. Riley received his determination. I was not then able to examine the English authors, who first noticed our species from specimens accidentally introduced into their country. Mr. Riley's figures of *A. herilis*, above cited, have been copied, with the erroneous determination, by Eastern writers.

### *Agrotis sexatilis*, Grote.

♂ ♀.—Ocelli; eyes naked; all the tibiae spinose; middle tibiae with one, hind tibiae with two pair of spurs; ♂ antennae bristled, ♀ simple, oviduct slightly produced. Ornamentation typical, in color like *A. plecta*, than which this is a larger species. Costal edge broadly whitish in ♂, ashen in ♀, ordinary spots very large, separated, preceded and followed by black scales, variable in tint. Median lines black, tolerably distinct. Internal margin, from the base of the wing to transverse posterior line, broadly and diffusely shaded with blackish. Subterminal space broadly shaded with dull purple reddish, smooth; this tint spreads inwardly below vein 2 over the median space to the prominent black-edged claviform spot. Subterminal line improminent. A narrow terminal black line interspaceally accentuated. Hind wings dark fuscous, without border or spot in ♀; whitish with smoky posterior shading in ♂. Beneath dusky, with very faint traces of a common line and discal spots. Fringes of the hind wings above whitish with an interior dusky line.

*Expanse*, 36 to 38, m. m. *Habitat*, New York; Colorado Territory (coll. Theo. L. Mead, No. 66).

Differs from Guenée's description of *N. ochrogaster* by the blackish collar and the median nervure not being white; the terminal line on the primaries is succeeded by an even pale line, the base of the dark fringes. The hind wings have no terminal series of rounded dots. It is, I think, nearer allied to *A. herilis* and *A. subgothica*.

### **Ufeus, n. g.**

Ocelli. Eyes very small, naked, with lashes. Head comparatively small and sunken. Maxillae weak and comparatively short. Labial palpi short, apical joint undistinguishable by reason of the long and coarse hairy vestiture. Middle and hind tibiae spinose; fore tibiae unarmed, with a slight tuft at the middle of the joint; tarsi thickly spined. ♂ Antennae simple, under the glass showing two pair of fine short bristles on each joint. Head and thorax thickly clothed with long hairs, recalling *Euthisanotia*, but here the thoracic vestiture is silky, longer and more appressed. Body flattened, recalling *Orthosia*; sides of the abdomen with long hairs, and the anal segment is densely pilose. Armature of the legs weak and short; hind tibiae with two pair, and middle tibiae with one terminal pair of aborted spurs. Legs coarsely fringed with long hair like that on the body beneath. The vestiture is unlike that of the ♂ *Leucania pseudargyria*, not surrounding the joints. The genus appears related to *Agrotis*, and the type, *U. satyricus*, has a peculiar *Blatta*-like appearance from its flattened form, simple antennae, dark color, want of ornamentation, rather coarse and thin alar squamation, and rounded external margin of primaries with blunted apices.<sup>2</sup>

### **Ufeus satyricus, Grote, Plate 3, fig. 4, ♀.**

♀.—Dark dull wood brown, unicolorous. Tongue bright testaceous. Fore wings with a faint tracing of an irregular, diffuse, darker-shaded transverse anterior line. An undefined blackish mark takes the place of the reniform. Transverse posterior line a little more distinct than the t. a. line, nearly even, not much projected, perpendicular and slightly indented opposite the cell. The transverse lines have the effect of darker shadows thrown across the wing. No subterminal line. A series of interspaceal blackish terminal streaks of variable distinctness and length. Hind wings pale, somewhat dirty testaceous in hue, subhyaline, allowing the veins to be distinctly seen, without

<sup>2</sup> In using Lederer's analytical table, the untoothed antennae will separate the present genus from *Ammonoconia*.

marks; internal margin clothed with coarse hair. Beneath, the hind wings show a discal ovate blackish spot about the cross vein, and a very faint tracing of a subterminal band.

*Expanse*, 45 m. m. *Habitat*, Canada (coll. Wm. Saunders, February); Albany, N. Y. (coll. J. A. Lintner, <sup>2</sup>/<sub>14</sub>).

***Ufeus plicatus*, Grote.**

♂.—Smaller than *U. satyricus*. Body of the same flattened shape and color but the fore wings show a uniform, warm, faintly reddish tinge. T. a. line broken. Along the cell, above the median vein, is an interrupted black streak. Transverse posterior line black, comparatively very distinct, running outwardly and downwardly obliquely from costa, much and roundedly exerted opposite the cell and offering a distinguishing character by its course as compared with that of *U. satyricus*. It appears interspaceally lunulate from a short extension of the black scales upon the veins beyond the line. A series of fainter blackish interspaceal terminal streaks. All the markings are determinate, not reflected. Hind wings dull testaceous above, and, with the upper wings, beneath, absolutely without marks or lines of any kind.

*Expanse* 40 m. m. *Habitat*, Philadelphia.

I cannot regard these as sexes of the same species owing to the difference in the course and appearance of the transverse posterior line. These two species cannot be referred to *Mythimna*, which is restricted by Lederer to the European *M. imbecilla*. Apparently Mr. Walker's extension of the term to include Guenée's *Leucania pseudargyria*, etc., should not be followed.

***Mamestra imbrifera*.**

*Aplecta imbrifera*, Guenée.

*Habitat*, Atlantic District. The eyes are hairy.

***Mamestra purpurissata*.**

*Eurois purpurissata*, Grote.

*Habitat*, Atlantic District. Represents the European *M. tincta* in our fauna.

***Mamestra nimbose*.**

*Aplecta nimbose*, Guenée.

*Habitat*, Atlantic District.



**Mamestra latex.***Aplecta latex*, Guenée.*Habitat*, Atlantic District.**Mamestra grandis**, Lederer.*Hadena grandis*, Guenée.*Habitat*, Atlantic District.**Mamestra Farnhami**, Grote, Plate 3, fig. 2, ♂.

♂ ♀.—Eyes hairy; fore tibiae unarmed; antennae simple, very shortly ciliate beneath in ♂; palpi porrect, with small projecting third article; abdomen with moderate basal tufts. A little smaller than *Mamestra grandis*; remarkable for the unusually sharply defined W-mark, the varied tints and the pale oblique streaked shade on median nervure below the ordinary spots, in which character it simulates *Prodenia commelinae*. The ground color of the fore wings is blackish with a dark green cast, and obtains over the median and terminal spaces. Subterminal space, median space along internal margin, and basal space before the t. a. line, pale reddish brown with a purple reflection. T. a. line thrice waved, geminate, with pale internal shade; basal half-line similar. Orbicular outwardly oblique, moderate, pale, with a dark shaded center, finely ringed with black. Reniform elongate, incompletely ringed, with an inner shaded annulus. T. p. line forming a single inward arcuation opposite the cell; below vein 5 it runs straightly, interspaceally lunate, to internal margin. Subterminal line very distinct, pale, commencing with a pale yellowish apical patch and forming the usual W-shaped mark, the points closing on the extremities of veins 3 and 4, preceded on the subterminal space by interspaceal dark dashes before which are pale scale points. Terminal line black; fringes with a pale basal line and interrupted at the extremity of the nervules with pale scales. Hind wings pale with blackish borders and discal mark; veins marked with dark scales; terminal line forming broken black interspaceal marks; fringes pale subtestaceous. Beneath pale, faintly reddish, powdered with dark scales and with a continued common extra discal line and partly annulate discal marks; on primaries the pale subterminal line feebly reflected.

*Expanse*, 42 m. m. *Habitat*, Colorado Territory (♀ Mr. Jas. Ridings; ♂ Mr. Theo. L. Mead, No. 45).

*Named in memory of Charles Severance Farnham, who died, May, 1862, at Yorktown, in the service of his country, and was one of the early Curators in this Society.*

**Mamestra brassicae** (*Linn.*).

*Habitat*, New York. Our species does not seem to differ from the European.

**Mamestra albifusa.**

*Hadena albifusa*, Walker, p. 753.

*Habitat*, New York ; Nova Scotia.

**Mamestra chenopodii** (*W. V.*).

*Hadena chenopodii*, Guenée.

*Habitat*, United States and Europe.

**Dianthoecia meditata**, *Grote.*

♂ ♀.—Size moderate; form compact; ♂ antennae with the edges of the joints relieved and furnished with short cilia tufts; ♀ abdomen pointed with extruded oviduct; eyes hairy. Dark colored, fore wings uniformly dark with faded ornamentation. Fuscous with pearly mottlings caused by a sparse admixture of white scales over the thorax and primaries. Transverse lines perceivable by pale centerings. Basal half-line twice waved. T. a. line perpendicular, thrice waved. The wing is more or less tinged with rufous over the median space on which the ordinary spots are with difficulty to be perceived; they are dark-circled, picked out by pale scales, concolorous. Above the reniform the t. p. line is incepted on costa by pale scales. The line is of the usual shape, slightly inwardly arcuate below median nervure, slightly lunulate. Three pale ante-apical costal dots. Terminal space narrow, paler than the rest of the wing; fringes silky, dark. Hind wing unicolorously dark fuscous; fringes whitish with a dark line. Body parts concolorous. Beneath a little paler, especially the hind wings, mottled with white scale points, with a common exterior line and discal dots.

*Expanse*, 30 m. m. *Habitat*, New York State (coll. B. S. N. S.; J. A. Lintner; Theo. L. Mead, No. 129).

This is an obscurely colored species very different from *Dianthoecia capsularis* (*Raphia propulsa*, Walker), but sharing the structural features that separate the genus from *Mamestra*. It is the third described N. Am. species, unless others are described, under some other generic title, by Mr. Walker in the British Museum Lists. It may be remarked here that a condemnation of Mr. Walker for an occasional erroneous determination in the

moths, or a vague and useless diagnosis, would be without sufficient point. But the fact has become apparent that the whole 35 Parts of the British Museum Lists, when compared with the collections, contain such a mass of error, that in their present shape they are unavailable to the student. I have ever expressed myself as desirous of retaining all Mr. Walker's tenable names, but from the vague descriptions it will require independent testimony to identify his types, even those in the British Museum collection. It is inconceivable that the Authorities of the British Museum should have permitted the publication of these Lists, which could not be desired by science, since they are, for the most part, based upon M. Guenée's work, and merely add a large number of inferior descriptions to what we had before us in a useful shape.

**Oncocnemis Dayi**, *Grote*, Plate 3, fig. 8.

♂.—Eyes naked, strongly lashed; tibiae all unarmed but with a stout claw at the extremity of the shorter anterior pair; all the *tarsi* spinose; head not retracted; clypeus without prominence; abdomen smooth, not tufted; ornamentation *Hadena*-like; antennae simple; size moderate; corporal vestiture hairy. Fore wings and thorax mixed white and brown, brightly contrasted. T. a. line not very distinct, black, thrice waved, the last time sharply below vein 1 on the margin. Ordinary spots distinct; claviform pale; orbicular round, black ringed, pale with deep brown rounded center; median shade apparent edging the reniform on the inside, approximate to t. p. line; reniform large, with brown center, followed by a whitish shade which fills up the space left by the superior exsertion of the t. p. line, and is characteristic of the species. T. p. line even, black, followed by a whitish shade; subterminal space deep brownish, with a series of broad black interspaceal dashes which are very distinctive and precede the inward indentations of the whitish, irregular subterminal line; terminal space dark at apices and faintly so centrally, but below the apices this is mixed with pale scales which form a narrow whitish edging before the black terminal line, the latter interspaceally sublunulate and interrupted on the veins; fringes with a central dark line and interrupted with pale scales opposite the extremity of the veins. Hind wings rather bright clear yellow, dusky at base, with a distinct broad marginal black band; fringes yellowish at base, with a dark line beyond which they are whitish. Beneath pale yellow; the costae irrorate with dusky scales; a terminal black band which, on the fore wings, is superiorly a little removed from the margin and has its outer edge

a little irregular; a terminal black line and fringes as on upper surface; minute and faint discal dots.

*Expanse*, 32 m. m. *Habitat*, Colorado Territory (coll. Theo. L. Mead, No. 17).

The occurrence of this genus in America is not noticed before. The hitherto described species are from the Ural Mountains, and have been taken in the evening on flowers according to Lederer. At first sight our species might be taken for *Anartas* allied to *A. luteola*, *Grote*, and the European *A. cordigera*, but the naked eyes, *Hadena*-like ornamentation, and the claw on the fore tibiae quickly distinguishes them. This claw in *On. Dayi*, is shorter, stouter and blunter compared with a second species, which I describe here, and which equals *On. Dayi* in expanse, but in which the colors of the primaries above are less distinctly contrasted, while in general appearance the two species resemble each other strongly from the similarity in color of the hind wings. From the yellow-winged European species of *Agrotis*, sometimes referred under a distinct name to *Triphaena*, and which the present species casually resemble in the appearance of the hind wings, *Oncocnemis* differs structurally, among other characters, by the non-spinose middle and hind tibiae.

It is with great pleasure that I name this species after David F. Day, Esq., of this Society, a scientist whose reading is exhaustive, and a friend whose kindness is enduring.

***Oncocnemis Hayesii*, *Grote*, Plate 3, fig. 13.**

♂.—Eyes naked, strongly lashed; tibiae all unarmed but with a strong and rather long claw at the extremity of the anterior pair (vide *Lederer*, Plate 4, fig. 2); all the *tarsi* spinose. In all its structural characters this species agrees with *On. Dayi*, except that the claw is longer and the eyes and head a little smaller and less prominent. The primaries are dull pulverulent yellowish ashen with distinct lines, but not contrasted in their shading. The t. p. line is distinctly continuous, shortly dentate. The ordinary spots are large and rather vague; the orbicular larger than in *On. Dayi*. The subterminal line is whitish, powdery, contrasting; fringes improminently chequered. Hind wings, light, bright yellow, dusky at the base and along the veins; the dusky scales form an incomplete line crossing the cell over the cross-vein and running to internal margin; a wide terminal black

band broader than in *On. Dayi*; fringes yellowish, with a dusky line, whitish at tips. Beneath yellowish, with terminal black bands which, on the fore wings, are not removed superiorly from the margin as in *On. Dayi*; minute discal dots.

*Expanse*, 32 m. m. *Habitat*, Colorado Territory (No. 18, coll. Theo. L. Mead).

This beautiful species is very distinct from *Oncocnemis Dayi* in the ornamentation of the primaries, which latter have more the appearance of those of the European *O. diffusa* (H.-S. figs. 44-45). Our species at once differ by their distinctly yellow hind wings. The geographical distribution of the genus is very interesting, since it increases the zoölogical homogeneity of the present Arctogaean province. The ocelli are present in all our species, and the maxillae long, stout, black and corneous.

I respectfully dedicate our second species of the genus to Doctor George E. Hayes, Vice-President of this Society, whose observations on the Geology of Buffalo, have materially increased our knowledge of our locality.

***Oncocnemis Chandleri***, *Grote*, Plate 3, fig. 9.

♂.—Eyes naked, strongly lashed; all the tibiae without, all the tarsi with spines; fore tibiae with a strong claw. Fore wings gray, mixed black and white, distinctly contrasted and with longitudinal black streaks, resembling in this respect *On. Dayi*. A distinct black dash runs from the base of the primaries to the long, black-margined claviform. Transverse lines indicated on costal region, else obsolete. The appearance of the gray ordinary spots is very peculiar; they are fused by a common black edge and distinct shaded fillings. The compound spot assumes a decumbent funnel-shape. Very evident longitudinal black dashes precede the white dentate subterminal line interspaceally. Fringes alternately paler and darker. In the ornamentation of the primaries this species remind us of *Cloantha*. The terminal space is dark and concolorous in *On. Chandleri*, whereas it is paler than the subterminal in *On. Dayi*. Hind wings pale fuscous or smoky, with a diffusely margined, wide, blackish hind border, which, in one specimen, does not contrast greatly with the rest of the wing. Beneath paler than above, with terminal blackish borders and minute discal points.

*Expanse*, 32 m. m. *Habitat*, Colorado Territory (coll. Theo. L. Mead, No. 27).

Quite distinct from the species with yellow hind wings, this resembles *On. Dayi*, rather than *On. Hayesii*, in the ornamenta-

tion of the fore wings, while in the appearance of the hind wings it comes nearer to the European species.

I respectfully dedicate this species to Mr. Henry Chandler, Vice-President of this Society, and a distinguished Patron of the Natural Sciences.

**Hadena arctica**, *Boisduval*.

*Hadena amputatrix*, Fitch.

*Habitat*, Atlantic District.

**Hadena Bridghami**.

*Mamestra Bridghamii*, Grote and Robinson.

*Habitat*, Rhode Island.

**Hadena adjuncta**.

*Mamestra adjuncta*, Guenée.

*Habitat*, Atlantic District. The eyes are naked.

**Hadena devastator**.

*Phalaena devastator*, Brace.

*Mamestra ordinaria*, Walker.

*Habitat*, Atlantic District.

**Hadena dubitans**.

*Apamea? insignata*, Walker, p. 729.

*Mamestra dubitans*, Walker, p. 232.

*Habitat*, Atlantic District.

I have compared Mr. Walker's types in the collection of the British Museum. The species varies in depth of ground color; the eyes are naked. (Number 90, Chas. A. Blake, Phila.; Number 95, Theo. L. Mead, New York.)

**Hadena impulsa**.

*Mamestra impulsa*, Guenée.

*Habitat*, Atlantic District.

I have not been able to identify *Mamestra passer*, Guenée. It is impossible to say to which genus it really belongs.

**Hadena apamiformis.***Xylophasia apamiformis*, Guenée.*Habitat*, New York State.**Hadena rurea** (*Fabr.*).*Habitat*, New York State.

Not distinguished from European specimens.

**Hadena lignicolor.***Xylophasia lignicolora*, Guenée.*Habitat*, New York State; Pennsylvania.**Hadena auranticolor**, *Grote.*

♂. Nearest, perhaps, to *lignicolor*, much brighter and more distinctly marked. Eyes naked. Fore wings yellow ferruginous, deeper shaded below median nervure. Reniform pale. Transverse anterior line dark ferruginous, thrice waved. Transverse posterior line much projected, not distinct, marked by black dots on the veins on the narrow succeeding paler shade. Subterminal line pale, quite irregular, leaving the terminal space blackish above and below the incomplete W-shaped mark. A deep ferruginous dash connects the median lines, as in *sectilis*, on the submedian fold, shaded with blackish scales at t. p. line. Fringes blackish, cut with ferruginous at extremity of the veins. Hind wings pale fuscous with faint line and spot, apparently reflected from under-surface, and terminally darker shaded; fringes of a warm hue. Thorax bright colored; labial palpi rather prominent.

*Expanse*, 40 m. m.

Two specimens taken July 10th at Twin Lakes, Upper Arkansas Valley, Colorado Territory, at about 8000 feet elevation (coll. Theo. L. Mead, No. 41).

**Hadena verbascoides.***Xylophasia verbascoides*, Guenée, p. 141.*Habitat*, New York State.**Hadena sectilis.***Xylophasia sectilis*, Guenée, p. 141.*Habitat*, New York State.

**Hadena mucens** (Hübner).—

*Habitat*, Pennsylvania; Florida (auth. Guenée). Hübner compares this species with *rurea*.

**Hadena vulgaris.**

*Xylophasia vulgaris*, G. & R.

*Habitat*, Pennsylvania.

**Hadena confusa.**

*Auchmis confusa*, Hübner Zutraege, 248.

*Habitat*, New York State; Pennsylvania.

*Hadena miselioides*, *subjuncta*, *distincta*, have been already correctly referred to this genus.

**Hyppa xylinoides**, Guenée.

*Xylina contraria*, Walker.

*Habitat*, New York, Pennsylvania.

**Brotolomia Iris.**

*Phlogophora iris*, Guenée.

*Habitat*, New York, Pennsylvania.

**Hydroecia inquaesita.**

*Gortyna inquaesita*, G. & R.

*Habitat*, New York State.

**Hydroecia purpurifascia.**

*Gortyna purpurifascia*, G. & R.

*Habitat*, New York State.

**Hydroecia limpida.** —

*Gortyna limpida*, Guenée.

*Habitat*, Illinois (Guenée).

**Hydroecia cerussata.**

*Gortyna cerussata*, Grote.

*Habitat*, Pennsylvania. An spec. præc.?



**Hydroecia marginidens.** —*Gortyna marginidens*, Guenée.*Habitat*, Illinois (Guenée).**Hydroecia rutila.***Gortyna rutila*, Guenée.*Habitat*, New York State.**Hydroecia speciosissima.***Gortyna speciosissima*, G. & R.*Habitat*, Rhode Island.**Hydroecia nitela.***Gortyna nitela*, Guenée.*Habitat*, Atlantic District.**Hydroecia nebris.***Gortyna nebris*, Guenée.*Habitat*, Atlantic District.

*Hydroecia nictitans*, *lorca*, *sera*, *immanis*, *stramentosa*, have been already correctly described from our Territory under this genus.

**Gortyna cataphracta**, Grote.*Habitat*, Atlantic District.

Represents in our fauna the European *Gortyna flavago*. Harris *Gortyna leucostigma* is probably the same as Guenée's *rutila*; the name proposed by Harris is preoccupied and cannot be retained in any event. The *Gortyna zea* of Harris, I have already referred to *Achatodes*. Guenée re-describes this species under the specific name of *sandix*.

**Ablepharon**,<sup>4</sup> n. g.

Ocelli. Eyes naked. Antennae in both sexes without pectinations, simple, not brush-like, under a higher power with very short pubescence. Tongue

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<sup>4</sup> Gr.: ἄ et βλέφαρον.

rather short and weak, testaceous. Wings rather broad; fore wings acute with straight external margin. Thorax rounded in front; abdomen proportioned, without tufts. Tibiae non-spinose; anterior pair slightly thickened. Ornamentation *Lucania*-like. All lines and spots obsolete; tints neutral; with longitudinal darker shades on the primaries, which, in *A. Henrici*, broadly contrast. From all the genera allied to *Leucania* differing by the simple antennae.

**Ablepharon Henrici.**

*Leucania Henrici*, Grote, huj. scrip.

*Habitat*, Atlantic District (Buffalo, June, Mr. Zesch).

**Ablepharon evanida.**

*Leucania evanida*, Grote, huj. scrip.

*Habitat*, Atlantic District (New York).

**Ommatostola**,<sup>5</sup> n. g.

Ocelli. Eyes naked, strongly lashed. Maxillae comparatively stout, corneous, dark. Antennae scaled above, bristled beneath, with two more rigid spinules on each joint. Robust, thickly haired; thorax large, square in front without tufts; head prominent, eyes large. Wings elongate; primaries with straight costal and rounded external margin.

The want of a clypeal projection separates both *Ablepharon* and *Ommatostola* from *Nonagria*. From *Leucania* the naked eyes separate our two new genera. From *Tapinostola* and *Calamia* the lashes, very prominent in *Ommatostola*. The simple antennae separate *Ablepharon* from any of the genera described by Lederer. The present genus seems more nearly related to *Tapinostola*. In ornamentation and size it approaches *Calamia*.

**Ommatostola Lintneri**, *Grote*.

♂.—Size rather large; body stout; abdomen exceeding hind wings, of the usual shape, not pointed, swelled or tufted; thorax hairy; eyes naked, strongly lashed; head large, not retracted; antennae scaled above, bristled beneath. Of the usual yellowish testaceous color; fore wings with the external margin rather full and rounded; costal region shaded with white, and all the veins more or less completely marked with white scales, interrupted with blackish; no markings visible except the t. p. line, which is well indicated by black dots

<sup>5</sup> Gr.: ὄμμα et σπολή.

on the veins; blackish shadings accompany the sub-costal nervure on the cell, the median and internal nervures and obtain terminally, and especially superiorly, on the interspaces; fringes concolorous; hind wings white, with a faint testaceous tinge; nervules obsoletely indicated; head and thorax yellowish testaceous without markings; beneath there are no markings, wings and body whitish; veins on primaries indicated by blackish scales.

*Expanse*, 40 m. m. *Length of body*, 18 m. m.

*Habitat*, New York (coll. J. A. Lintner, No. 2588).

**Cucullia Yosemiteae**, Grote, Plate 3, fig. 3 ♀.

♀.—Eyes naked, but with lashes; abdomen exceeding the hind wings, but shorter than in *intermedia*, which this species rather resembles in general color, but is much more distinctly marked; as usual the legs are proportionately short, the palpi thickly and finely scaled with small projected terminal joint. Pure dusty gray, not bluish gray, as in *intermedia* and its European allies, but rather brownish; the median lines are well marked and black; a basal black dash on submedian fold, extending to the inward dentation of the t. p. line, more or less distinctly; median lines very approximate inferiorly where the outward dentation of the t. a. line nearly touches the corresponding inward dentation of the t. p. line, above which point the t. p. line is heavily marked between vein 2 and the fold; there is a fine oblique black streak across median space above the submedian fold; t. p. line so contiguous to the empty finely black ringed reniform, that its acute dentations opposite the cell appear as the outer edge of the spot which is obsolete; orbicular empty, finely black ringed, large, rather elongate ovate, lying very obliquely on the cell; a series of blackish interspaceal lines; those between veins 2 and 5 extended inwardly, alternating with the outward dentations of the t. p. line; the subterminal line indicated by pale points on these lines; fringes interrupted at the extremity of the veins by pale scales. Hind wings griseous, with paler fringes and faint indications of a median line; beneath griseous, powdery, with faint discal marks and traces of a common line; body griseous, concolorous, collar with a black line.

*Expanse*, 42 m. m.

*Habitat*, California (coll. Theo. L. Mead, No. 29; Yosemite, Oct. 12th).

The thoracic vestiture is displaced on my specimen, so that I cannot observe its peculiarities.

**Xylina sculpta**, Grote, Plate 3, fig. 1 ♀.

♂ ♀.—Eyes naked; middle and hind tibia spinose; frontal tuft very short, improminent, not projectedly bifid, as in the typical species *Xylina Bethunei*, Grote and *Xylina signosa*, Walker.<sup>6</sup> Thorax squared, with the shoulders well defined; abdomen flattened; gray, shaded with blackish, with distinct ornamentation; a basal linear black dash; transverse lines geminate and much as in *Xylina capax*, G. & R., which this species strongly resembles; t. a. line, with the outer component line best expressed, dentate below costa, running obliquely outwardly in its general course, acuminate on submedian fold where it is connected by blackish scales with an acute inward inflection of the t. p. line at this place, inwardly dentate on vein 1; orbicular sometimes not defined against the ground of the wing; median shade blackish, diffuse; reniform of the usual kidney-shape; t. p. line well projected, interspaceally lunulate, its inner line most distinct and marking outwardly the veins at the point between the lunulations; subterminal line irregular, preceded by diffuse blackish shadings and irregular cuneiform interspaceal marks; sometimes vein 2 is accentuated, but there is no continuation of the streak on median space on the submedian fold beyond the t. p. line; terminal interspaceally dentate line marked by black points. Hind wings rather pale, powdery, with an indistinct continued median dentate line, discal dot and subterminal shade, better expressed in ♀, and a distinct black terminal line interrupted by the veins. Beneath the primaries are dark, with the subterminal line indicated by contrast with the paler terminal space, exterior line indicated on costal region; hind wings pale with the dot, dentate and terminal lines of the upper surface repeated.

*Expanse*, 40 m. m.

*Habitat*, Philadelphia (C. A. Blake, Number 42); New York (Theo. L. Mead, Number 119).

Smaller than *X. capax*, and with the reniform more kidney-shaped; more purely gray and black, less purplish and dark.

**Calpe Canadensis**, Bethune.

*Plusiodonta? purpurascens*, Walker.

*Oraesia sobria*, Walker.

*Habitat*, Canada; New York.

I regret that in our notes on the N. Am. Lepidoptera contained in the British Museum, Mr. Robinson and myself have erroneously considered Mr. Walker's descriptions of this species as earlier. The

<sup>6</sup> Mr. Walker's descriptions in this genus are almost useless; I have identified his *Xylina contraria* as a redescription of *Hyppa xylinoides*.

synonymy of this species will show the general style of Mr. Walker's determinations in the moths correctly. The species represents in our fauna the European *Calpe thalictri*.

**Lygranthoecia**, *Grote and Robinson* (1873).

This genus differs from *Heliothis* in its slender and elongated body parts, and less hairy squamation, From the section *Melicleptria* by the more rounded thorax. The naked eyes have a short frilling of scales beneath. The front is much flatter than in *Heliothis*, and the palpi are more porrected. The frontal scales are not mixed with hair, nor twisted towards a central point, as in that genus. The habitus is more like *Lepipolys*, or even *Schinia*. The shape of the abdomen is like *Heliothis* proper, but the ♀ oviduct is shortly salient and dependent. All the tarsi spinose, hind tibiae with two pair of spurs; middle tibiae with a single unequal pair, whereof one spur very long; fore tibia with terminal spines. The squamation is peculiarly pearly and powdery; the fore wings are divided into fields, as in some species of *Heliothis*, but the sombre hind wings and under-surface do not recall the gay coloration and ornamentation of that genus.

This genus was in manuscript at the time of Mr. Robinson's death. It had been remarked by him that the typical species, *Anthoecia rivulosa*, had been unjustly used by Dr. Herrich-Schaeffer to criticise Lederer's definition of *Heliothis*.

**Lygranthoecia marginata**, *Grote and Robinson*.

*Pyralis marginatus*, Haworth.

*Anthoecia rivulosa*, Guenée.

*Habitat*, Massachusetts to Alabama. The European *Chariclea umbra*, has for its synonym *Heliothis marginata*, leaving the specific name eligible for this species.

**Lygranthoecia Thoreau**, *Grote and Robinson*.

*Anthoecia Thoreaui*, *Grote and Robinson*, *Trans. Am. Ent. Soc.*, Vol. 3, p. 181, Plate 2, fig. 80, 1870.

*Habitat*, Pennsylvania to Alabama.

**Heliolonche**, *Grote*.

Antennae scaled, pubescent beneath in male, simple in female, in which sex the ovipositor is exerted as in *Melicleptria*; ocelli; front full, not convex;

body thickly and lengthily haired; size small; labial palpi heavily fringed, extending beyond the front; fore wings lanceolate, hind margin long, obliquely rounded, internal angle not prominent. Fore tibiae abbreviate, with a disproportionately heavy claw, else all the tibiae without spines. Eyes constricted; no clypeal tubercle as in *Omia*. Differs from *Melicleptria* in the shape of the primaries. The clypeus, while full, is not projected; the thorax is square, broad, and the whole body lengthily haired.

**Heliolonche modicella**, Grote, Plate 3, fig. 12 ♀.

♂ ♀.—Fore wings obscure purple, with a wide, roundedly oblique, pale yellowish fascia running from costal region, below the apices and costal margin, to just above internal margin, at about basal third, not attaining the base of the wing nor internal margin, which are covered with blackish olivaceous scales that, extending upwardly, partially border the central fascia. On the cell a longitudinal, pale yellowish shade streak; fringes pale. Secondaries rounded, small, wholly black, with pale fringes. Body blackish, clothed with olivaceous hair. Beneath without markings, pale; on the fore wings a faint indication of the fascia of the upper surface, preceded at the base of the wing, and succeeded subterminally, by dusky scales.

*Expanse*, 17 m. m. *Habitat*, California (Theo. L. Mead, No. 70).

**HELIOTHIS**, Ochsenheimer (1816).

Subgenus, *Melicleptria* Hübner<sup>7</sup> (1816).

Type: *Noctua cardui*, *Esper*.

**Heliiothis mitis**, Grote, Plate 3, fig. 7 ♀.

♀.—Ocelli; eyes naked; front bulging, very full; antennae simple, scaled; palpi and body without the very heavy fringing and vestiture of *Heliolonche*. Size small. Fore wings dark, olivaceous yellow, tinted with bright ochreous. A rounded, oblique, pale yellowish transverse exterior fascia, attaining internal margin. The narrow subterminal darker ground shade between this and the broader terminal pale yellowish space is, by contrast, distinct. A narrow terminal linear continued shade of the darker ground color; fringes bright ochreous. A hardly perceptible discal longitudinal paler shade. The ornamentation of the fore wings recalls that of the preceding species. The shape of these is, however, different, the external margin being shorter and the internal angle more determinate. Hind wings black, with pale yellow fringes.

<sup>7</sup> This section seems to me of at least equal value with *Dianthoecia*, and might be raised to generic rank.

Beneath largely blackish, without marks; the apices and costal region and the fringes of both wings pale yellowish.

*Expanse*, 18 m. m. A single specimen on flowers in July. Central Alabama. Collection of this Society.

The fore tibiae are provided with a double row of spines, terminating in longer claws; the other tibiae appear to me unarmed.

***Heliothis villosus*, Grote.**

*Melicleptria villosa*, Grote, Proc. Ent. Soc. Phil. p. 531, Plate 6, fig. 6, 1864.

*Habitat*, Colorado Territory.

***Heliothis suetus*, Grote, Plate 3, fig. 10 ♂.**

♂.—Ocelli; eyes naked; antennae simple, scaled above, pilose beneath. Body clothed with pale sericeous olivaceous hair. Fore wings dull purple, equally overlaid with pale sericeous scales. No traces of ordinary lines. Below median nervure, between the inceptions of veins 2 and 3, an even nearly white band descends straightly to internal margin. Above median nervure a whitish discal blotch takes the place of the orbicular and a second broader, at the extremity of the cell, the place of the reniform. These two discal demi-bands seem on either side continuous with the inferior band which hence has a furcate appearance. Terminal space paler than the rest of the wing, wanting the purple color, and indicating, by contrasting, a subterminal line. Hind wings black with a broad median fuscia interrupted medially and thus forming two large spots, the lower subquadrate, the upper ovate; fringes white. Beneath, largely white; costal edge of primaries white; the deep black basal patch not attaining costa; a large subquadrate black discal spot; transverse line indicated and followed by a large diffuse blackish shade inferiorly. Hind wings largely whitish; the black basal patch does not attain costa and partly absorbs the large discal spot. The wide, hind border is abbreviated.

*Expanse*, 23 m. m. *Habitat*, Colorado Territory (coll. Theo. L. Mead, No. 7).

Resembles the European *H. purpurascens*, but is more faintly colored and the band of the fore wings is single inferiorly.

***Heliothis persimilis*, Grote, Plate 3, fig. 11 ♀.**

♀.—Perhaps the opposite sex or a variety of *H. suetus*. It differs as follows: smaller and with olivaceous scales margining the median fascia

inwardly and obtaining on the cell between the two blotches. A third yellowish-white spot on the cell nearer the base of the wing, at about basal fourth. Hind wings with the spots much smaller than in *H. suetus*, the upper one notably reduced. A third spot nearer the base of the wing. [This accessory spot may be wanting in other specimens, since it is distinct on one wing, and I can find no trace of it on the opposite side, while my specimen is in perfect condition.] Beneath, much as in *H. suetus*, but the costal edge is black, and on either pair the black color predominates; the inner white spot of the primaries is very distinct; on the hind wings is a trace of a subterminal line continued above the abbreviated marginal band.

*Expanse*, 21 m. m. *Habitat*, Colorado Territory (coll. Theo. L. Mead, No. 6).

***Heliothis pauxillus*, Grote, Plate 3, fig. 6 ♂.**

♂.—Resembles the preceding two species, but the white bands and spots of the primaries are here wanting, and the normal two median lines are perceivable as paler flexuous lines, the transverse anterior arcuate, the transverse posterior subsinuous. The wing wants all purple tints and is dull sericeous olivaceous, the basal and subterminal spaces darker. Paler shades on the median space indicate the discal spots. Fringes darker-shaded at base. Hind wings black, with two small sub-equal yellowish spots situated rather nearer the base of the wing than usual. Fringes whitish. Beneath, much as in *H. persimilis*.

*Expanse*, 19 m. m. *Habitat*, Colorado Territory (coll. Theo. L. Mead, No. 9).

***Heliothis proruptus*, Grote.**

*Heliothis proruptus*, Grote, Trans. Am. Ent. Soc., Vol. IV, 1873.

*Habitat*, California.

***Heliothis spinosae*, Guenée.—**

*Heliothis spinosae*, Guenée, p. 182, Plate 9, fig. 10, 1852.

*Habitat*, Canada (auth. Guenée).

***Heliothis hirtellus*, Grote and Robinson.**

*Anthoecia hirtella*, G. & R., Proc. Ent. Soc. Phil., Vol. 6, Plate 3, fig. 3, 1865.

*Habitat*, Rhode Island.



This may be Guenée's *spinosa*, while the figure in the *Spécies Général* but distantly recalls our species, and the description does not agree entirely, especially in the color and position of the reniform spot.

***Heliothis tuberculum*, Hübner.**—

? *Anthoecia tuberculum*, Guenée.

*Habitat*, "Pennsylvania" (auth. Hübner).

Hübner's figure points to a species yet to be discovered by us, while M. Guenée's identification may be inexact, since the hind wings are described as "jaunes" in the *Spécies Général*.

***Heliothis binus*.**—

*Anthoecia bina*, Guenée, p. 186, 1852.

*Anthoecia bina*, Grote, Proc. E. S. Phil., p. 342, 1863.

*Habitat*, Amérique Septentrionale (auth. Guenée).

***Heliothis brevis*.**

*Anthoecia brevis*, Grote, Proc. Ent. Soc. Phila., p. 530, plate 6, fig. 4, 1864.

*Habitat*, Colorado Territory. A specimen from the Territory taken by Theo. L. Mead, and numbered 8, perfectly corresponds with my type, and measures 25 m. m. in expanse.

***Heliothis atrites*, Grote.**

*Anthoecia brevis*, Grote, ♀ var., Proc. E. S. P., p. 530, plate 6, fig. 5, 1864.

I have seen a second specimen in St. Louis, which was larger, while otherwise agreeing with the specimen from Colorado Territory, and I feel little hesitation in retaining it under a distinct name.

***Heliothis arciferus*.**

*Anthoecia arcigera*, Guenée, vol. 2, p. 184.

*Anthoecia arcifera*, Guenée, vol. 3, p. 399.

*Anthoecia arcifera*, Grote, Proc. Ent. Soc. Phila., p. 340, plate 6, fig. 3, 1863.

*Habitat*, New York; Pennsylvania.

**Heliothis Spraguei.**

*Anthoecia Spraguei*, Grote, Proc. Ent. Soc. Phila., p. 341, plate 6,  
figs. 4 and 5, 1863.

*Habitat*, New York; Pennsylvania; New Jersey.

This species unites in its coloration the first and second groups of M. Guenée's genus *Anthoecia*. There seems to be no value to that arrangement, since M. Guenée's *Anthoecia rivulosa* is not related to *A. arcifera*, but to *A. Thoreaui*, G. & R., a species which apparently would have been excluded by M. Guenée from his first group.

**Heliothis lynx.**

*Anthoecia lynx*, Guenée, p. 185.

*Habitat*, Massachusetts to Alabama.

**Heliothis Packardii.**

*Anthoecia Packardii*, Grote, Proc. E. S. Phila., p. 528, plate 6,  
fig. 2, 1864.

*Habitat*, Colorado Territory.

**Heliothis nobilis.**

*Anthoecia nobilis*, Grote, Proc. E. S. P., p. 529, plate 6, fig. 3, 1864.

*Habitat*, Colorado Territory. Perhaps the same as the foregoing. In the collection before me from the Territory are no specimens of either form, nor of the succeeding two species brought from thence by Mr. Ridings.

**Heliothis mortuus.**

*Anthoecia mortua*, Grote, Proc. E. S. P., p. 528, plate 6, fig. 1, 1864.

*Habitat*, Colorado Territory.

**Heliothis jaguarinus.**

*Anthoecia jaguarina*, Guenée, vol. 2, p. 184, plate 9, fig. 11, 1852.

*Anthoecia jaguarina*, Grote, Proc. Ent. Soc. Phila., p. 528, 1864.

*Habitat*, Colorado Territory (coll. Ridings).

Subgenus *Tamila*, Guenée (1852).

Type: *Noctua nundina*, Drury.

***Heliothis nundinus*.**

*Noctua nundina*, Drury.

*Habitat*, New York; Pennsylvania; New Jersey.

***Heliothis Meadi*, Grote, Plate 3, fig. 5.**

♂.—Fore wings bright olivaceous green, with silvery white transverse lines; basal half-line silvery white; transverse anterior line rather broad, silvery, forming a single arcuation, interrupted about median nervure by two minute black streaks; a similar interruption marks the transverse posterior line below median nervure; transverse posterior line silvery, forming two inward arcuations, the first to vein 5, the second to internal margin immediately on which the line straightens; median space with a pale diffuse shade inferiorly preceding the t. p. line below the nervure; medially, on the cell, is a pale spot which extends superiorly along costal region to the t. p. line; the bright olivaceous green subterminal space extends opposite the cell to the terminal margin, dividing the pale terminal space; the subterminal line is only indicated by the contrast between the bright subterminal and the pale creamy yellowish terminal space; fringes pale, cut with olivaceous green; hind wings whitish, with a broad, black marginal band, half interrupted as usual on the margin before anal angle, and a broad discal lunule fused with blackish basal scales; fringes white; beneath creamy white; the primaries show an inferior basal black dash, two discal spots, the outer the larger, and a diffuse black inferior shade without the transverse line; hind wings show a blackish discal lunule and an abbreviated marginal band at anal angle; thorax and abdomen creamy whitish, paler beneath.

*Expanse*, 26 m. m. *Habitat*, Colorado Territory (coll. Theo. L. Mead, No. 5).

This is the most beautiful species perhaps of the genus, and it gives me pleasure to dedicate it to Mr. Mead, to whose kindness I owe an opportunity for examining a rich collection of Noctuidae from Colorado Territory. The present species differs throughout from *H. nundinus*, to which its resemblance is only general, so that a comparative description would be superfluous.

Subgenus *Heliothis*, Ochsenheimer.

Type: *Noctua armigera*, *Hübner*.

***Heliothis citrinellus***, *Grote and Robinson*.

*Heliothis citrinellus*, *Grote & Rob.*, *Trans. Am. Ent. Soc.*, vol. 3,  
p. 180, plate 2, fig. 79, 1870.

*Habitat*, Texas.

***Heliothis phlogophagus***, *Grote and Robinson*.

*Habitat*, Western States; Colorado Territory (coll. Theo. L. Mead, Number 23); California. This species is sometimes confounded with *H. armigera*. In a late number of the *American Naturalist* (April, 1873) it is figured on p. 214, with an erroneous determination. On the same page, fig. 40 is considered to represent *Anomis xylinea*, which it does not. These errors impair the value of the article which the figures illustrate.

***Heliothis armigera***, *Hübner*.

*Heliothis umbrosus*, *Grote*, *Proc. Ent. Soc. Phila.*, Vol. 1, p. 219, 1862.

This is the "Boll-worm" of agricultural writers, and is more or less destructive to the cotton boll in the Southern States, where it is widely distributed. It is there often erroneously considered as the same as *Anomis xylinea*, which is the true "Cotton worm," feeds on the leaf, occurs in swarms at varying periods, and belongs structurally to a lower group of the family. I consider *Anomis xylinea* as an introduction, and not as a true habitant of the Cotton belt. From the irregularity of its appearance, its defective economy (brought about by feeding on an annual, whereas in the countries of which it is a native, the cotton plant lasts several years), and the circumstantial evidence offered by its progression northward, de novo, every year that it occurs within our limits, I conclude that its introduction is due to secondary causes. It is killed out every winter with the destruction of the plant by the frost in central Alabama, Georgia and the Carolinas. The last act of the successive generations is often to fly out of the loosely webbed and defenseless

pupa into the face of the frost. On warm winter days the moths may be disturbed in shelter. Since cotton is planted after the spring vegetation has appeared, and no worm troubles the early plants, it is evident that *Anomis xyliana* does not exist at that time in any stage. For if it existed as a moth, it would perish before the plant was up upon which to deposit; if as an egg, this would hatch equally before the food was ready; if as a chrysalis, it could not lie exceptionally dormant while kindred life was active, unless in all these cases it suited itself to the altered economy of its food plant. I have never found it in any stage in the Cotton belt in the early spring. The rapid numerical increase of individuals in the native broods may be owing to the absence of parasitic checks which have been escaped in migrating, and left behind in more Southern countries. On the other hand, *Heliothis armigera* is a resident of the United States. While a comparison of American specimens (*umbrosus*) with European individuals (*armigera*) affords me no apparently valid distinguishing characters, I yet remark that the larvae have not been compared. I am not yet prepared to believe that the species has been introduced from Europe, feeding, as it does here, on some peculiarly American genera of plants. Yet, according to Guenée, its habitat is very extended, since it has been taken in Australia, where, however, it may have been introduced since the colonization and from America. It occurs apparently rarely in Europe, whereas it is here common. Has it reached Europe by a westward route from California? We shall probably soon write after its habitat—the world.

#### **HELIOCHILUS**, Grote (1865).

##### ***Heliochilus paradoxus***, Grote.

The aberrant neuration distinguishes this genus, originally described from Colorado Territory. I have taken the species in Central Alabama, apparently only differing from my types by its smaller size. I learn that the genus has been since discovered in Northern Hindostan.

## CHARICLEA, Kirby.

**Chariclea exprimens.***Heliothis exprimens*, Walker.

Represents in the Atlantic District the European *Chariclea umbra*, Lederer (*Heliothis marginata*, Auct.).

**Argillophora**,<sup>8</sup> n. g.

Ocelli. Antennae simple, scaled, pubescent in both sexes. Labial palpi porrected, curved, coarsely scaled, held apart from, but not exceeding, the front, divaricate. Wings rather wide and subangulate. Fore wings roundedly produced opposite median nervules, below which the external margin is cut inwardly to internal angle. Hind wings with rather determinate apices, full about median nervules and a little inwardly cut before anal angle. Primaries 12-veined; 3, 4, 5, near together, 5 near 4, joined by a portion of the cross vein which is discontinued, leaving the cell open. An accessory cell from the middle of the lower margin of which 6 is angulatedly thrown off opposite 5; 7 and 8 arise together from the outer point of the cell; 9 out of 8 to costa just before apex; 10 out of the upper margin of the cell near its apex to costa; 11 out of subcostal nervure opposite 2; 12 a simple nervure to costa near 11. Hind wings with two internal veins, 1 and 1a; 3 and 4 from one point; 5 removed, springing from the cross vein which beyond its inception, arcuatedly closes the cell; 6 and 7 from one point, together; 8 from the nervure at a point within the inception of 2. Hind tibiae with double spurs. Body linear; abdomen exceeding the secondaries, with very minute dorsal tufts.

The color is yellowish buff, wings nearly alike, primaries with a white angulate fascia, so that we are reminded of *Leucania*. But in the arcuate palpi, the wide wings, their shape and the neurulation, we see that we have to do with a form allied to *Spargaloma*, and belonging to a very different group of the family.

**Argillophora furella**, Grote.

♂ ♀.—Dull creamy buff, shaded with blackish obliquely downwards from the apex inwardly, and longitudinally from the base outwardly over the median space. A black dot at base, one at the locality for the orbicular, and one (sometimes wanting) at the extremity of the cell, all parallel. A prominent

<sup>8</sup>Gr.: ἀργιλλος et φέρο.

silvery white elbowed band, limited by black scales more or less evidently, commences at the base of the wing below median nervure, and runs outwardly a little obliquely and downwardly, not attaining the internal margin, to a point beneath the second black dot, whence it ascends obliquely outwardly to the extremity of the discal cell, there widening and terminating, but sending beyond its termination on either side a continuing streak, the outer the longer, limiting inwardly the oblique, dusky, apical shade. Thus the termination of the white fascia is more or less furcate in appearance. A terminal series of black dots; fringes darker than the wing. Hind wings in the male more yellowish and clear, without shades or markings, in the female more or less smoky, in either sex with a terminal broken black line. Beneath the primaries show a blackish oblique apical shade and a single transverse line, projected opposite the cell and more evident superiorly. Hind wings faintly irrorate, with a minute discal dot and a subterminal atomical line running straightly across the wing, not coinciding with external margin and sharply angulate at about vein 6, thence running back to costa. In the female there is a blackish cloud at apex which conceals the angulation of the line, the course of which is peculiar to the group to which this form belongs. Body concolorous with wings; thorax above minutely irrorate with black scales, and these black scales also obtain over the surface of primaries at base. The few dorsal dots along the abdomen seem raised and appear as incomplete tufts.

*Expanse*, 24 m. m. *Habitat*, Central Alabama in July.

### **Harveya**, n. g.

Eyes naked, ocelli; caputal squamation short and thick; labial palpi free, exceeding the front; third joint half the length of the second, closely scaled; ♂ antennae with a rather long ciliary fringe across the joints beneath, converging at the sides; tarsi spinose; legs strong, closely scaled, strongly spurred. Body stout, smoothly and thickly scaled, in general form like *Panopoda*; abdomen not exceeding anal angle of secondaries, comparatively stout and thick, pointed at anus. Wings broad, densely squamose; primaries with the costa arcuate to the apices which are squarely cut, the external margin descending at right angles, 12 veined, 3, 4, 5 near together, 5 half the distance from 4 that separates 3 from 4, cell closed centrally by a fold, 6 opposite 5 from the cross-vein as near the lower angle of the accessory cell as 5 from 4, 7 and 8 together from the apex of accessory cell, 7 to apex, 9 out of 8 a very short furcation to costa; cell double, divided obliquely centrally by a vein which seems the prolongation of 10, upper side of the cell formed by 11, which anastomoses with 10, beyond which the two veins are thrown off near together to costa. Hind wings rounded, 8-veined, two internal veins (1 and 1a), cell open, or closed by an incomplete fold, 3 and 4 together, 5 a little re-

moved, costal and subcostal veins anastomosing at base. The fringes are short; internal margin lengthily haired; alar squamation dense. The species is broad-winged, stout, allied to *Panopoda*, *Guenée*, and *Pleonectyptera*, *Grote*. The whole insect is dyed of a pale vermillion, darker, shaded with yellowish above, and in its bright colors recalls both *Pleonectyptera* and the *Geometridae*; the usual lines and spots are absent. It has something of the compact appearance of *Pseudophia*.

I name the genus after Dr. Leon F. Harvey, Secretary of this Society, whose devotion to science and personal amiability merit the only recognition it is in my power to bestow.

### *Harveya auripennis*, *Grote*.

♂.—The whole insect is pale vermillion with an orange cast, shaded above with dead buff or yellowish. The lines are obsolete on the fore wings above. The transverse anterior line is merely indicated by two or three geminate, white and black scale points. The transverse posterior line is pale, even, nearly perpendicular, angulated opposite the cell, thence running inwardly obliquely to internal margin; it is marked by black and white scale points on the veins; the line appears as a narrow yellowish thread-like shade, removed towards the external margin. The reniform is sometimes perceptible as a vague yellowish mark, tolerably large and of the usual shape. Outside of this runs the powdery black median shade, the most prominent marking of the wing, sometimes obsolete superiorly, and appearing as a powdery black spot on internal margin, near the base of the t. p. line. A series of interspaceal subterminal black streaklets followed by white points sometimes faded out. There is a pale faint pruinose shade over the wing subterminally, which spreads over the concolorous hind wings, these latter show no other marks save a vague continuation of the markings of the t. p. line. Beneath, body and wings brighter than above, without markings, though a faint common line is indicated. Terminal joint of palpi with blackish scales; tarsi blackish; legs white dotted at the knees and base of the joints.

*Expanse* 45 m. m. *Habitat*, Florida (Charles Linden legit); Kentucky (Mr. Theo. L. Mead, No. 149).

### *Spiloloma*,<sup>9</sup> n. g.

Ocelli. Eyes naked, without lashes. Front without projection. Middle tibiae sparsely spinose; fore and hind tibiae without spines; all the tarsi spinose. Vein 5 of the hind wings equally strong, arising very near 4.

<sup>9</sup> Gr.: *σπιλος* et *λόμα*.



Abdomen without tufts. Labial palpi well developed, hardly exceeding the vertex, thickly scaled; third joint proportionally long. External margin of the wings waved. Legs closely scaled; fore tibiae shortened and with a swelling, more thickly haired. Antennae scaled above, thickly ciliate beneath, with a lateral longer bristle on the sides of each joint. Wings wide; size rather large; body proportionally slender. Squamation smooth and flattened, without tufts; between the antennae the scales have a forward direction without forming a prominent interantennal tuft. Head proportionally large. Collar discoloured, somewhat wide; thorax square in front, rather heavy; abdomen proportionally slender, tapering, fully as long as the hind wings.

Differs from *Leucanitis* in the middle tibiae being alone spinose; from *Catocala* in the waved margin, smooth vestiture, and concolorous wings; from *Pseudophia* by the non-spinose hind tibiae; from *Harveya* by the spinose middle tibiae, less thickly scaled middle and hind legs, broader wings with waved external margins, stouter palpi and slenderer shape. The ornamentation recalls *Megachyta lituralis*, and certain of the *Geometridae*.

***Spiloloma lunilinea*, Grote.**

♂.—Pale brownish dove color. Collar darker; body concolorous. Fore wings with obsolete ornamentation. Costal edge with four distinct deep brown liturate spots marking the inception of the extra-basal, transverse anterior, median shade and transverse posterior lines. Below these the transverse lines are merely indicated by minute nervular dots. The median shade is very faint, linear, somewhat ochreous. The ordinary spots are obsolete. Subterminal line faintly indicated, marked on costa and preceded by two costal marks. A darker shade over the median nervules on terminal space. Hind wings concolorous, with the t. p. line continuous and formed by minute nervular dots, and the pale subterminal, faintly indicated. Beneath, without markings, except a quite distinct continued dark narrow extra-mesial common lunulated line drawn across both wings, and accentuated on costal region of primaries. A faint discal shade spot on the hind wings.

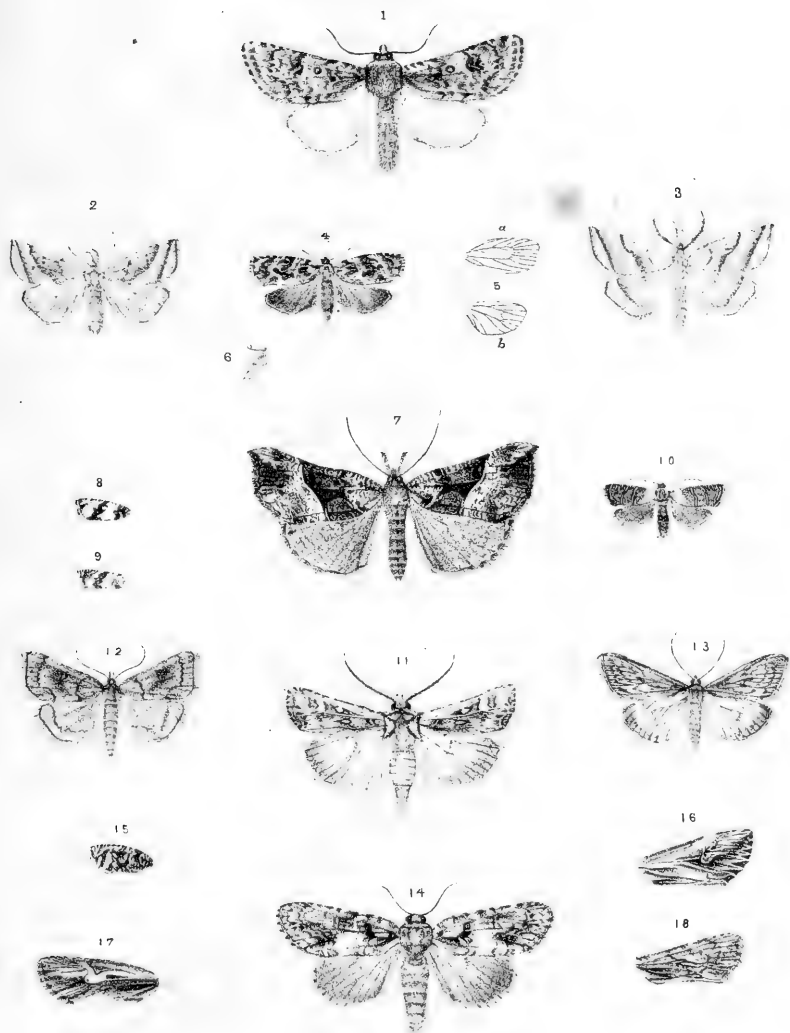
*Expanse*, 50 m. m. *Habitat*, West Virginia (coll. Theo. L. Mead, No. 148).

Our actual knowledge of our Moths, and more especially the *Noctuidae*, is yet too indifferent and our collections too meagre, to allow us to draw any stable conclusions with regard to their geographical distribution. While certain species occur from California

to Maine and southward to Texas, as for instance *Heliothis armigera*, and certainly show little or no local variation, it is possible that others, now separated by us specifically, may be hereafter united as geographical races. The important work of Allen on our Birds, shows us the value of minute comparisons over wide areas. But we are very far from possessing the basis for such intelligent comparisons in the Moths. Our material must first be named and the differences, such as we find them, exhibited, before we can properly estimate the value of the distinctions we perhaps may at first overweigh.

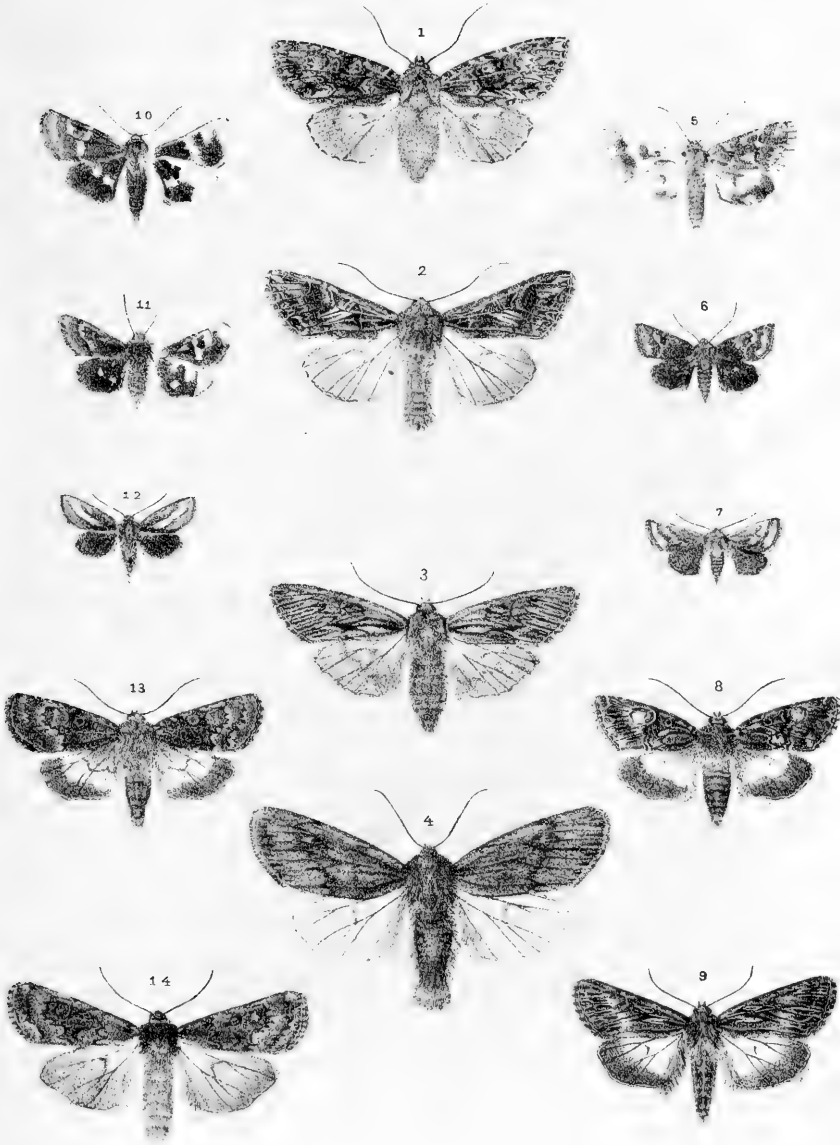
To the few intelligible figures of the older illustrators and the *Spécies Général* of M. Guenée, we have now to add the conscientious labors of Lederer on the *Pyrilidae*, and of Zeller on Texan Moths, increasing the number of observations written in Europe on our Moths, which are of permanent value. On the other hand the otherwise great labor displayed in the compilation of the British Museum Catalogue has been thrown away by the careless and incomplete descriptions it embodies, and it will remain a constant obstacle to a correct synonymy if we continue to recognise it as an authority. By its non-correction we are brought to face a dilemma by which we must either commit an act of violence and reject the Catalogue totally, or submit to the study of a repulsive compilation from whence we cannot derive either correct information or certainty on any one point and expose our lists to endless and irritating changes at the dictum of the British Museum. While the first course is openly advocated by many European scientists, who are in reality less interested in the matter than ourselves, I, for one, must prefer the latter alternative, as I elect to suffer through an injustice rather than to countenance an apparent wrong.

III



*H. P. P. P. P.*





*H. J. Sprague*



PUBLICATIONS

OF THE

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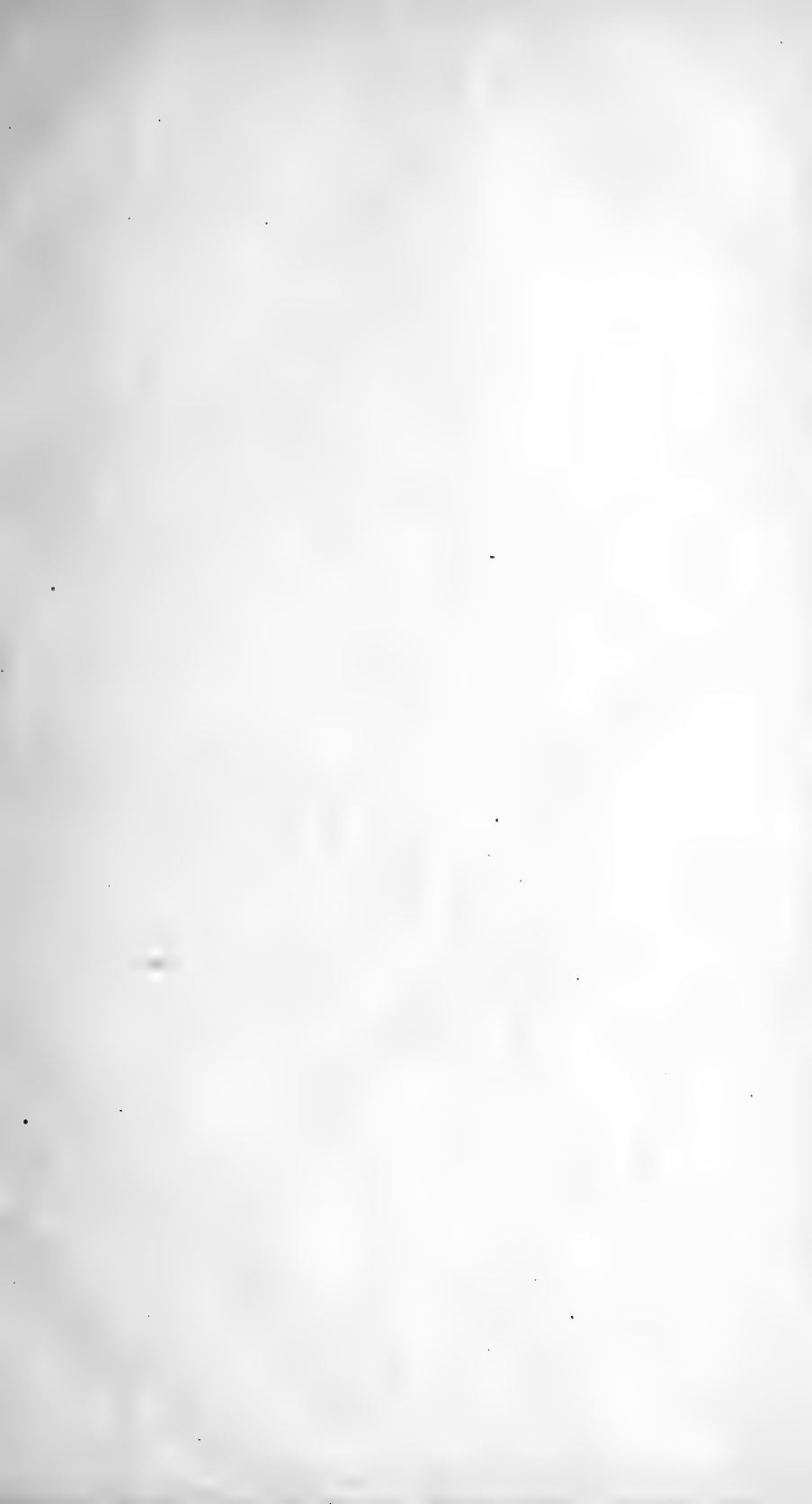
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## ERRATA.

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- For "Caraghan," page 56, read "Croghan."
  - For "unhüllt," page 90, read "umhüllt."
  - For "Penthinen—artigen," page 90, read "Penthinenartiger."
  - For "Ommatospila," page 112, line 22, read "Ommatostolä."



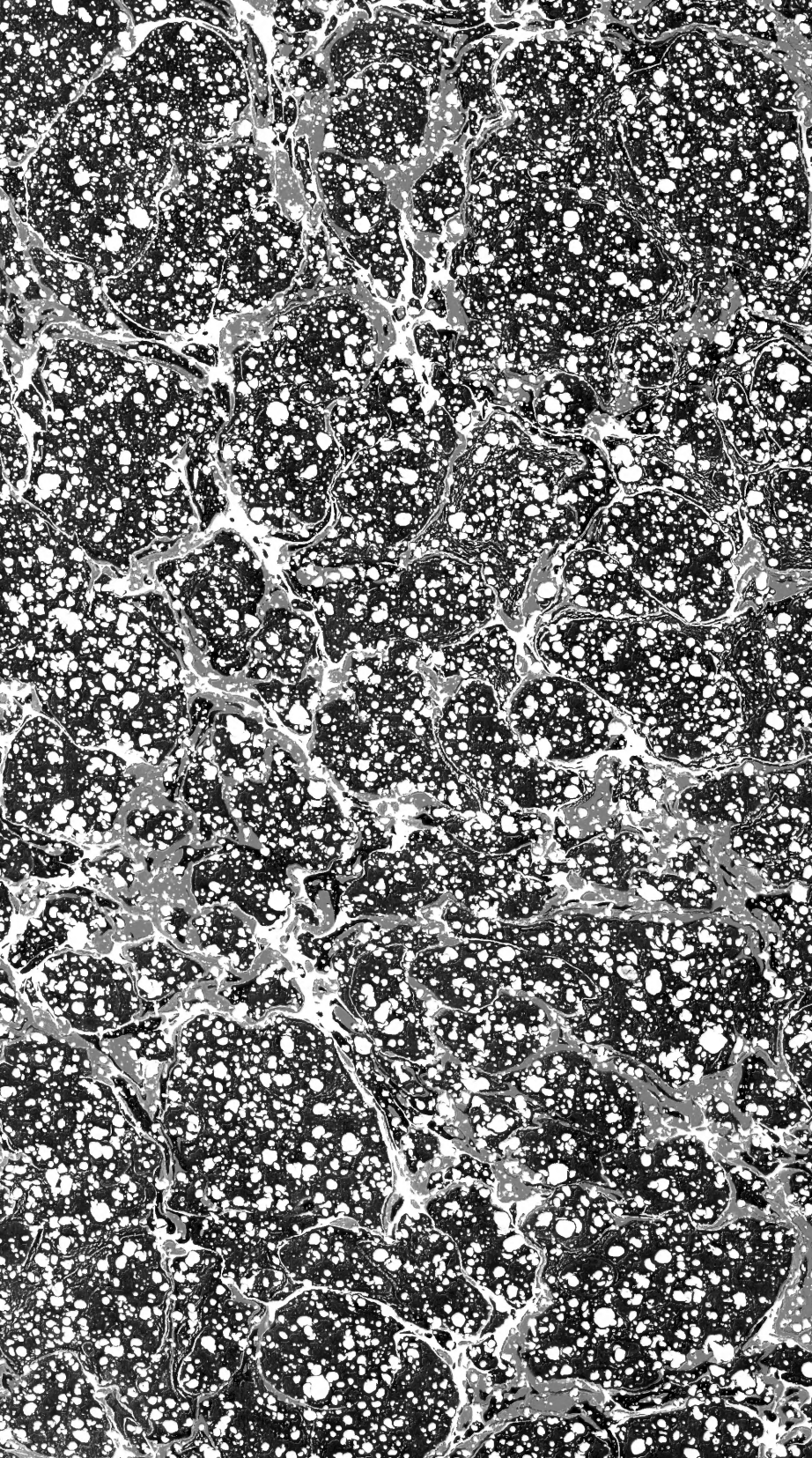












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