

MONTHLY BULLETIN
OF THE
DEPARTMENT OF AGRICULTURE
STATE OF CALIFORNIA



Sacramento, California

- - -

July to November, 1933

CALIFORNIA MICROLEPIDOPTERA VI

By H. H. KEIFER, California State Department of Agriculture

TORTRICIDAE***Clepsis busckana* Keifer, new species**

(Plate I, Figs. 1 and 2)

Palpi, head, and thorax chestnut brown. Ground color of forewings a golden luteus, the wings marked with chestnut brown and often sparsely irrorated with coarse transverse fuscous dashes which are more plentiful apically. Basal fifth of forewings chestnut brown, the outer border of this area slightly darker and running somewhat obliquely outward from costa to dorsal edge. A conspicuous oblique chestnut brown rather broad fascia, darker than basal area, extending from just before costal one-half to inner side of tornus. A lighter chestnut brown semicircular spot on costa well within apex is usually quite evident. Part of apical edge lined with a narrow irregular blackish or dark fuscous shade. Cilia golden luteus faintly lined darker basally. Hindwings whitish, the apical and posterior portions light luteus, with slight fuscous shading and short transverse fuscous dashes. Cilia colored as adjacent wing areas and lined slightly darker basally. Abdomen luteus, light fuscous overlaid above, more golden below. Legs rather chestnut brown except hindlegs which are golden luteus. Male and female genitalia as in Figs. 1 and 2, respectively. Alar expanse 16-20 mm.

Type, male, collected by the writer as larva on February 8, 1933, from *Scrofularia californica* Cham. in San Francisco. The adult emerged March 6, 1933. Allotype, female, reared from San Francisco *Scrofularia*, March 5, 1927. There are ten designated paratypes all from the same locality, part reared from *Scrofularia* and part from *Stachys bullata* Benth.

The larva is about 17 mm. long when full grown, robust, green with distinctly lighter tubercles. Head buff with some faint lighter longitudinal markings and a dark streak at the lateral posterior angle. Mandible with no internal tooth. Body overlaid dorsally by light fuscous. Crochets 40-44 in a complete biordinal circle, anal comb with 7 prongs, bifurcate distally. This larva is much like *Argyrotaenia franciscana* Wlsm and is found in company with it. When the two are full grown the new species is somewhat larger than *franciscana* and has a distinctly more pointed suranal plate with consequent rearrangement of the setae. The skin granules are distinctly smaller than *franciscana* and closer together.

This species is named for August Busck who determined it as new. He further writes that it is nearest to *virescens* Clem. but quite distinct.

***Batodes angustiorana* Haw.**

Mr. Busck informs me that this moth, which is of European origin, now is known from several localities in the United States. Its appearance in California, however, is the first record of it on the Pacific coast. Larvae were sent in from Niles, feeding on *Taxus* collected May 16, 1932. The brown adults emerged May 27. The larva is dark green with considerable fuscous shading dorsally, and lighter tubercles. Meyrick lists yew and apple as hosts in England, and indicates that there are others.

Platynota stultana Wlsm.

While in Southern California during July, 1933, I had an opportunity to observe this moth. Adults were taken at night at La Habra July 5, and were common flying at dusk in a *Baccharis* thicket near Riverside, July 7. One larva was beaten from *Baccharis pilularis* DC. at El Monte, July 7.

GELECHIIDAE

Aristotella urbaurea Keifer, new species

(Plate I, Figs. 3 and 4)

Alar expanse 9-10 mm. Palpi whitish slightly rose pink; basal joint dark brownish; second joint with two rather broad brownish annuli, one below middle, the other almost including the tip; terminal joint blackish, the rosy-whitish showing as three more or less complete annuli: one just above base, one about middle, the third just below tip. Antennae brown, the flagellum regularly alternating dark and whitish annuli. Face lighter below; head and thorax luteus, irrorated rather heavily dark brown. Forewings dark brown on costal half, luteus on dorsal half. At about costal fifth a broad whitish fascia somewhat rose-pink and brown irrorated extends obliquely across wing becoming strongly rose-pink on dorsum. Broad similarly colored fascia in middle of wing, widest on costa, outwardly angulate centrally, partly broken by indications of black stigmata centrally at angles. Costal side of fold between first and second fascia edged very dark brown. Fascia from costal cilia to tornus, inwardly oblique, more conspicuously rose-pink than the preceding, broken centrally by a short longitudinal black dash. Outer costal and apical margins of wing with blackish and rose-pink scales more or less forming light and dark spots. Cilia light ochreous-white with 3 parallel blackish lines along apical margin and overlaid grayish at tornus. Hindwings and cilia fuscous. Abdomen gray, posterior edges of joints tending to be lighter below. Legs dark brown with rose-pink annuli; foretarsi with three light annuli, 2 on first segment and one on second. Male genitalia with triangular uncus tapering to a rounded point and not as long as, nor surpassing harpes, which are slender; gnathos produced anteriorly and recurved into a pointed hook opposite sacculus, tegumen with rather pointed central inward projections and over half the length of the harpes; sacculus a series of small setose lobes at harpe base; aedeagus large, curved dorsally, broadly open distally with the upper projection longer and rather square. Female genitalia as figured. No sex scaling.

Type, male, Oroville (Table Mountain), Cal., collected by the writer as a larva from *Quercus douglasii* H. and A., the adult emerging June 2, 1928. Allotype, female, same data, the adult emergence June 2, 1928. Twenty-one designated paratypes, all from above host plant and representing Oroville, Folsom, Green Valley (El Dorado County), and Shingle Springs (El Dorado County). Specimens collected as adults and not paratypes include the above localities and Winters, Yolo County. Adults may be commonly taken under loose bark of dead Digger Pine throughout the winter. The larvae are never very common. I am indebted to Miss Annette F. Braun for the information that this is a new species. (*Urbs-city; aurea-golden.*)

The male genitalia of *intermediella* Chamb. indicate that the new species is very close to Chamber's species, but with several evident differences. In the eastern form the uncus is more attenuate, more sharply pointed and over half the length of the harpes, surpassing them. The gnathos in *intermediella* is longer, the tegumen is shorter with broader central projections. The aedeagus is distinctly broader and squarer distally.

The larva is found in a web skeletonizing the leaves of this one food plant so far as known. It is 7-8 mm. long when grown. Head greenish buff. Body greenish, the dorsum rather light fuscous which is reticulated whitish, resolving into six longitudinal broken and obscure fuscous lines with white reticulation between. Venter clear green. Tubercles minute, hairs slightly darkened. This is a typical

Aristotelia larva in form. The larvae may be taken during May, and reared adults appear in June.

Aristotelia rhamnina Keifer, new species

(Plate I, Figs. 5 and 6)

Alar expanse 10-13 mm. Palpi white, slightly infused rose-pink; basal joint with two rather broad blackish fuscous annuli, one just below middle, the second just below tip. Apical joint black at base, followed by a white annulus, the rest of the joint mostly black except a white anterior longitudinal line up to the white tip. Antennae dark brown, white lateral scaling evenly spaced. Head and thorax dull ochreous. Dorsum of forewings below and somewhat beyond fold ochreous, tinged with pale, rose-pink, remainder of wing predominately dark brown; both costal and dorsal margins narrowly and lightly irrorated blackish. Many isolated pale rose-pink scales especially toward apex. A faint short longitudinal fuscous streak below fold from dorsal base. A pale rose-white outwardly oblique fascia, somewhat fuscous irrorated, from basal sixth, disappearing on dorsum in a rose-pink shade and carrying inner dark brown edging a short distance across fold. A broader, more indefinite, similarly colored fascia at one-half, complete, outwardly angulate in center, widest on costa; plical stigma a black spot touching inner side of this fascia and obliquely before first discal; the two discal stigmata, elongate black spots, within inner and on outer edges at angles of this fascia respectively, the second followed and partly surrounded by ochreous. Third fascia inwardly oblique from costal cilia to tornus, more rose-white than former, divided centrally by an obscure black dash. Outer margin infused ochreous within. Outer costal and apical margins with alternate blackish and rose-white spots. Cilia whitish, slightly ochreous and with two blackish lines parallel to wing margin. Hindwing and cilia fuscous or grayish. Abdomen gray above, tip ochreous or gray-white; below either lined white or segments tipped white. Legs blackish with pale rose-pink annuli; forelegs with three annuli on the tarsi; two on the first segment, one on the second. Uncus of male genitalia triangular, tapering to a rounded point, not half as long as nor surpassing harpes which are slender; gnathos a blunt but slender anterior projection; tegumen with no inward projections; sacculus produced centrally into a knobbed supporting arm; aedoeagus a curved and rather pointed tube, distinctly more bulbous basally. Female genitalia as figured. No sex scaling.

Type, male, collected May 29, 1933, as larva by the writer from *Rhamnus californicus* Esch. near Folsom, Cal., the adult appearing June 17. Allotype with same data except collected June 9, and emerging June 26. Sixteen designated paratypes are from this locality; emergence dates from June 16 to 26. This species is known also from Oroville.

The work of the larva on the leaf of *Rhamnus* is quite characteristic. A web is spun over the upper surface and the leaf is partly skeletonized. Several leaves are occupied during the larval life.

The larva is $8\frac{1}{2}$ to $9\frac{1}{2}$ mm. long when full grown, and rather obscured greenish in color. Dorsally the body is overlaid whitish and fuscous reticulated; this whitish is more conspicuous laterally and extends ventrally between a brownish shade on each segment. Head buff, fuscous lined and reticulated posteriorly.

Aristotelia adenostomae Keifer, new species

(Plate I, Figs. 7 and 8)

Alar expanse 9-10 mm. Palpi dull pinkish white; basal joint blackish; two broad black bands or annuli on second joint, one below middle, the other just below tip, inner side of joint usually lighter; terminal joint black with a few whitish scales and indication of a basal annulus. Antennae black, lateral indications of white annuli. Head and thorax dark grayish black. Forewings grayish white but heavily blackened; dorsal half of wing with coppery reflections. Usually a coppery spot at fold base. Obscure whitish outwardly oblique fascia from costal one-fifth ends just across fold and edged inwardly black; its outer edging is a broad black band from costal one-third obliquely to fold, thence narrowing to a central longitudinal black line which ends above coppery tornal spot; this black line crossed twice by a wavy white line and interrupted by a white spot at apical third below which are often silvery scales. Opposed obscure coppery white costal and tornal spots, the lower more conspicuous, indicating an antapical fascia. Outer costal and apical margins of wing with alternate coppery white and black scales and spots. Cilia gray with two gray lines fading toward tornus; basally blackish along apical margin. Hindwings grayish, darker apically. Abdomen dark gray, posterior margins of segments lighter;

lighter below. Legs black, annulate white, the foreleg rather coppery and the fore tarsi with the three usual annuli. Male genitalia with broad triangular uncus projecting ventrally; tegumen compact; sacculi almost fusing midventrally; harpes slender. Female genitalia as figured. No sex scaling.

Type, male, collected July 4, 1928, as larva by writer at Crystal Lakes, San Mateo County, from *Adenostoma fasciculatum* H. and A. (Chamise). The adult emerged July 28. Allotype, female, from same host at Phoenix Lake, Marin County; the adult emerging July 30, 1927. Sixteen designated paratypes are from the above localities.

The larva, which forms a small web along the branches of Chamise, is $7\frac{1}{2}$ mm. long when grown. The body is yellowish to bright green with more or less fuscous on dorsum irrorated whitish. From the lateral side of each segment a conspicuous dark brown band runs obliquely upward and ends on posterior margin. Head greenish buff.

Recurvaria stanfordia Keifer, new species

(Plate I, Figs. 9 and 10)

General color cream-buff. Second joint of palpi overlaid dark fuscous on outer basal half, slight irroration beyond; terminal joint with a fuscous spot or annulus below middle and another below tip. Head unmottled, face lighter. Antennae somewhat infuscated, lighter and darker alternate rings. Patagia somewhat infuscated basally; thorax more or less fuscous infused and with a blackish tuft on either side before apex of second thoracic segment. Forewing generally irrorated fuscous. Costal base of forewing infused and irrorated dark fuscous, blackish scales within costa (this spot the base of what would be the first oblique dark dash); slight fuscous infusion carried along costa to second costal spot at basal third, which spot has some raised black scales within costa; half way between first two costal spots a black spot well within costa; third costal spot (or oblique dash) just before apical third of wing. Blackish spot or tuft at base of fold. Black paired tufts at basal fifth, just beyond basal third, and just before apical third respectively, first pair on either side of fold, lower of second pair in fold, third pair confluent at end of cell, directly below third costal spot and almost connected to it. A faint very angulate narrow fascia from beginning of costal cilia, to tornus. Four to six black dots around apex at base of cilia. Cilia irrorated dark fuscous, except tornal cilia. Hindwings slightly whiter, very lightly fuscous. Fore- and mid-legs rather heavily overlaid dark fuscous, hind legs with few dark markings except tarsi. Abdomen darker below. Male genitalia with both tegumen and harpes asymmetrical; the tegumen with lateral projections, the left longer; the left harpe long; male with ochreous hair-pencil from dorsal base of hindwings. Alar expanse $9\frac{1}{3}$ to $11\frac{1}{3}$ mm.

Holotype, male, collected by the writer as larva, on Monterey Cypress (*Cupressus macrocarpa* Hartw.), at Palo Alto, California, (Stanford Campus) April 15, 1932, adult emerged May 23, 1932. Allotype, female with same data except the emergence date which is May 16, 1932. Twenty paratypes are designated which were either collected as larvae on April 15 by the writer or on May 18 by Dr. H. E. Burke and reared here in Sacramento. Adult emergence dates on these are from May 16 to June 23. Veins 2 and 4 in the forewing are very weakly developed, almost obsolete.

This is the first *Recurvaria* recorded from *Cupressus* in North America. It does not fall in with such coniferous feeding forms as *variella*, *apicitripunctella*, etc., as these have a symmetrical tegumen in the male genitalia and have browner and whiter forewing markings (there is no pure white on *stanfordia*). I am not sure just what the closest relative of this would be. It is much nearer previously known species whose hosts are in the *Pinaceae* than any of those examined which feed on *Cupressaceae*. It certainly does not belong to any species heretofore described from California.

Longest larva examined $6\frac{1}{2}$ mm. Body yellow, usually overlaid red; head brown with fuscous blotches, shield fuscous; tubercles small,

becoming larger on the ninth segment, light fuscous except some anterior and posterior which are darker. Adfrontal sutures of head reaching occipital foramen. Setae on prothoracic prespiracular tubercle almost in a straight line; tubercle III on A2 to A7 very close to and dorsad of spiracle, with seta IIIa minute and on the level of seta III; III on eighth segment dorsoanterior to spiracle; setae on ninth segment in a straight line, tubercles II rather large and more or less joined across middorsum. Caudal fork absent. Crochets about 16, in unevenly biordinal circle, caudal proleg crochets in unbroken line. The larvae hollow out the tips of the twigs and travel from twig to twig. This larva differs from *Argyresthia* in many ways, two of which are: in *Argyresthia* the adfrontal sutures do not approach closely to the occipital foramen, and III is further from and dorso-posterior to the spiracle.

The ecological factors regulating the distribution of this moth are probably temperature and atmospheric moisture. Monterey Cypress trees are grown throughout the peninsula especially in San Francisco, yet this *Recurvaria* does not occur in San Francisco. It has never issued from any of numerous collections of cypress twigs taken in Golden Gate Park, yet it appears in numbers from the first such Palo Alto collection. The wind from the ocean which produces the heavy summer fogs on the ocean side of the peninsula hills, "fog belt," does not seem to have much influence further south than Burlingame on the Bay side. Thus *Recurvaria stanfordia* and *Epinotia subviridis* Heinr. occur in Palo Alto (which is on the inland side of the peninsula back of high hills), but not in San Francisco, while the reverse is true of *Argyresthia franciscella* Busek and *Epinotia hopkinsana cupressi* Heinr. *Laspeyresia cupressana* Kearf., *Argyresthia trifasciae* Braun, and *Argyresthia cupressella* Wlsm., can be found in both places. The new species is described from a host which is over one hundred miles from its native habitat, Monterey, which is in the "fog belt" and therefore by the above reasoning should not be the original host of the species.

Recurvaria bacchariella Keifer

Ref: Pan-Pacific Ent. III, p. 136, 1927 (April)

This "fog belt" species is the only member of the genus so far recorded from the *Compositae*. The male genitalia are figured in plate II (fig. 11). Larvae of this insect may be found through June, July and into August working in the terminals of *Baccharis pilularis* D. C. They pupate in the galleries and the adults emerge in August and September.

The larva is 8 to 9 mm. long when grown, with a clear ochreous head and yellow body; a pink longitudinal subdorsal stripe; tubercles moderate in size, body color. Similar to *stanfordia* except: prothoracic prespiracular setae at points of a triangle; tubercle III not as close to spiracle on any abdominal segment; tubercles on dorsum of A9 comparatively smaller; caudal fork present, central prongs crossed. Crochets 25-28, unevenly biordinal in complete circle slightly broken inwardly; crochets of caudal prolegs discontinuous centrally.

PLATE I

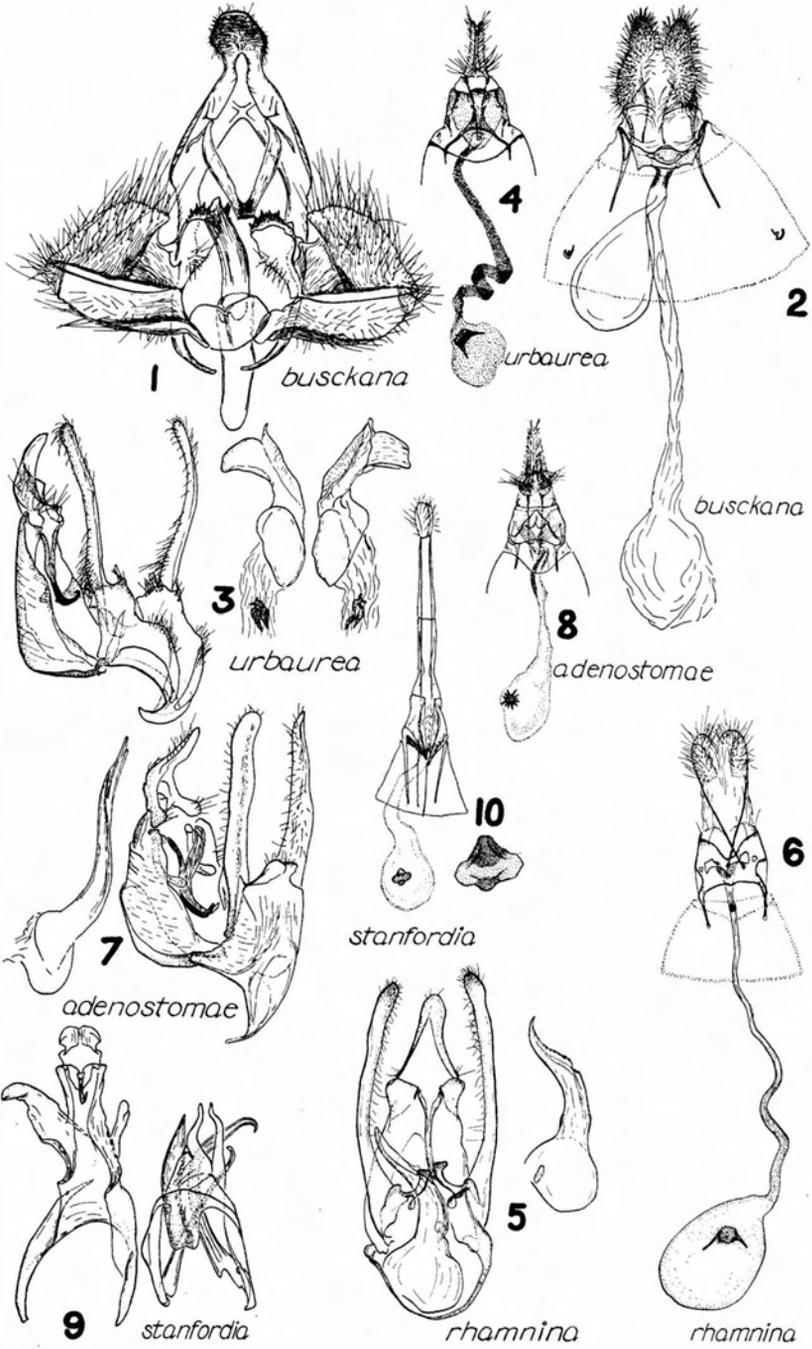


PLATE I

- FIG. 1. *Clepsis busckana*, male genitalia.
- FIG. 2. *Clepsis busckana*, female genitalia.
- FIG. 3. *Aristotelia urbaurea*, male genitalia with aedoeagus removed and diagrams of both sides to the right.
- FIG. 4. *Aristotelia urbaurea*, female genitalia.
- FIG. 5. *Aristotelia rhamnina*, male genitalia, also aedoeagus drawn separately to the right.
- FIG. 6. *Aristotelia rhamnina*, female genitalia.
- FIG. 7. *Aristotelia adenostomae*, male genitalia with aedoeagus removed to the left.
- FIG. 8. *Aristotelia adenostomae*, female genitalia.
- FIG. 9. *Recurvaria stanfordia*, male genitalia with tegumen and uncus separated to the left.
- FIG. 10. *Recurvaria stanfordia*, female genitalia and enlarged diagram of the signum.

Telphusa glandiferella Zell.

I have a few examples of this moth taken at Oroville and at Colfax (Eleanor Fourness). It is apparently not common. The male genitalia are very different from *Telphusa* and, so far as I know, none of the other examples now referred to that genus have vein 5 of the hindwing straight. The second joint of the labial palpi is practically smooth.

Telphusa baldiana B. and B.

This large species is now recognized in material from the San Francisco Bay region. After several years of collecting I know of only four examples. The host is yet undetermined.

Telphusa baldiana belongs to the larger group of the genus which are atypical in lacking the gnathos and in having a broader, more compact tegumen.

Xenolechia Meyrick

In seeking for a genus in which to place the two following new species, Mr. Busck has found that the above name must be removed from *Telphusa* and given the status of a valid genus. Through the kindness of Mr. Busck I have been able to examine the designated genotype, *aethiops* Westwood, which proves this contention.

The male genitalia of all the species here referred to *Xenolechia* are very similar, and are different from those of *longifasciella*. They differ in possessing the following characters; broad and bifurcate uncus; gnathos absent; compact and rather short tegumen; harpes absent except sacculi; aedoeagus broad and blunt.

The female genitalia of *Xenolechia* are characterized in part by the long ovipositor and the sclerotized projection around the ostium.

Xenolechia has a slightly thicker and rougher terminal joint on the palpi. The scales in all the species examined have a characteristic white tip, less evident in *aethiops*. This is not found in *T. longifasciella*.

Wing venation and wing form are variable and can not be used for separation. Thus *aethiops* has long rather slender wings like *longifasciella* with venation quite similar. The wings of *ontariensis* and *querciphaga*, however, are shorter, broader, and in the hindwings 6 and 7 are short-stalked in the former and separate in the latter. There is no sex sealing in the genus.

T. velatella Busck belongs here, as well as the above species.

Xenolechia querciphaga Keifer, new species

(Plate II, Figs. 12 and 13)

A gray or blue-gray species, the scales light gray, darkened just before tip and tipped white, the ground color almost entirely obscured. Palpi whitish, the light scales slightly infuscated; second joint blackish on basal third, also a broad dark antapical annulus, the joint generally lighter inwardly; terminal joint blackish at extreme base, a prominent dark antemedian and a dark antapical annulus, with extreme tip light. Antennae fuscous, lighter outwardly due to more conspicuous white annuli. Face whitish, head above and thorax gray. Forewings gray; often a darker spot or tuft at plical base; tufts and some raised scales present, the tufts usually blackish or somewhat darker than general wing color and located as follows: one on each side of fold at basal fifth, the dorsal tuft large, the opposite tuft irregularly extending obliquely inward toward costa meeting a rather faint dark oblique dash; second series of tufts partly in disc, just before one-half, one in fold, with tufts and raised scales extending slightly obliquely inward toward a dark costal mark; an elongate transverse tuft at end of cell opposite a slight dark costal spot;

cilia gray dark mottled or spotted basally, the tips white. Hindwing and cilia lighter gray than forewing. Abdomen lighter than hindwing, tip ochreous. Legs as forewings but slightly ochreous and with white annuli and white segment apices. Alar expanse 11-12 mm.

Type, male reared May 9, 1930, from a larva collected April 19, 1930. Allotype, female, with same data. Fourteen paratypes are indicated. Type locality: Fair Oaks (Carmichael), Sacramento County, California. Foodplant: *Quercus wislizenii* A. Other localities represented are Oroville and Clarksville (El Dorado County). The species also has been reared from *Quercus douglasii* H. and A. Emergence dates include April 28 and June 1. All specimens collected by the writer.

Larva: Length about 8 mm. when mature. Head light amber. Shield ochreous green, dotted black at base of lateral and posterior setae; body green, the dorsal tubercles small, dark, those anterior are larger and black. Prepupal larvae more or less colored bright pink. Seta I of abdomen hardly one-half length of Seta II. Tubercle III, on segments A2 to A7, inclusive, very close to and dorsad of spiracle; seta IIIa minute, on level with spiracle; tubercle III on A8 dorso-anterior of and not unusually close to spiracle. Setae IV, V and VI on A9 on compound tubercle. Caudal fork present, the central prongs long, curved, crossed. Crochets unevenly biordinal, 23-26 circle almost broken outwardly, longest on inner side.

The only nearly related larvae available for comparison are *Gelechia* spp., *Recurvaria* spp., and *Telphusa sedulitella* Busek (*agrifolia* Braun). The larva of the new genus seems between *Recurvaria* and *Gelechia*, possibly closer to *Gelechia* which it resembles in form of crochets. It should be noted that in some species of *Recurvaria* tubercle III is close to the spiracles. The larva of *Telphusa sedulitella* has crochets heaviest outwardly and slightly broken on the inner side; it is pure green, as proved by many rearings, and lacks the black tubercules found in *querciphaga*, otherwise the two species appear quite similarly colored; the caudal proleg crochets are discontinuous centrally.

Xenolechia ontariensis Keifer, new species

(Plate II, Figs. 14 and 15)

Alar expanse 12 mm. This species in general appearance is much like *querciphaga*, but the overlying wing color is distinctly browner, that is, more fuscous. The ground color which is whitish-gray is much more evident. The underside of the body is more distinctly infused with buff or ochreous. The color pattern of this species is much like *querciphaga* with the exception of more contrast on the wings and therefore more distinguishable dark streaks from the costa. The basal third tufts seem to be smaller, also. The male genitalia are very similar but the sacculi are distinctly broader and the horns of the uncus are broader. The female signum is differently shaped in the two species

Type, male, taken at Toronto, Canada, June 23, 1933. (Parish coll.). Allotype, female, with same data but taken June 20. Ten designated paratypes from this locality were collected about the same time. Mr. Busek informs me this is undescribed.

Gelechia acrina Keifer, new species

(Plate II, Figs. 16 and 17)

Second joint of palpi brownish-ochreous, infused and irrorated on brush and outer side with black, tip brownish-ochreous; apical joint black, faint brownish annulus below middle, extreme tip brownish. Head brownish ochreous, face light, side of head and above infuscated. Antennae blackish with narrow lighter annuli. Thorax infused fuscous, apex of thorax blackish. Forewings a mixture of dark brown and

blackish, brown flecks throughout wings. Dorsal base lined black (as in *trichostola*). Stigmata black, more or less associated before or after or both with light, almost white scales, plical at basal third, obliquely before first discal, second discal just beyond one-half. A spot of black and light scales at end of fold. Antapical fascia faint, narrow, broken, outwardly angulate. Black dots and brown scales around apical margin. Cilia irrorated blackish on brownish fuscous. Hindwings whitish overlaid fuscous. Legs whitish-ochreous-brownish, heavily overlaid black except apices of joints. Abdomen whitish above, ochreous below, a black line on either side below. No secondary male characters. Male genitalia with left harpe short, right harpe projecting past uncus; uncus hoodshaped; gnathos rather long projecting, enlarged end. Alar expanse 18-20 mm.

Type, male, collected from oak as a larva by writer on Mt. Diablo, April 19, 1931; the adult appeared June 11, 1931. Allotype, female, as designated. Eleven paratypes from the same locality and also from Soda Creek, Napa County, are so labeled. I am indebted to Mr. Busck for the opinion that this insect is undescribed. The individual examples vary somewhat in the amount of brown present; the thorax and head vary from light ochreous brown to blackish brown.

Larvae up to 16 mm. long were examined. Body gray or purplish-gray, dorsal half with six longitudinal gray-brown broken stripes from prothorax to anal shield; addorsal and subdorsal stripes deep gray-brown, the lower wide and the most prominent; spiracular stripe brownish-pinkish-purple. Brownish-purple flecks on underside and suggestion of a lateral line below spiracles. Tubercules black, prominent. Head and shield deep brownish-black. Anal fork present.

This species is properly compared with *trichostola* Meyr., which it resembles quite closely. In *trichostola* the forewings are less mottled with brown, there is a series of hairs on the underside of the male hindwings, the left harpe does not reach to the apex of the uncus, the gnathos is not enlarged at the tip and the larva is generally lighter. Meyrick's species averages a little smaller. The larvae of both species are very similar and possibly at times indistinguishable. In range the two species are found side by side though *trichostola* covers an incomparably wider area and prefers inland oaks. *G. acrina* is nearly always found on Coast Live Oak (*agrifolia*). It occurs in a north and south strip abreast of the highest inner ridge of the coast range, just before the Coast Live Oak drops out. *G. trichostola* is found both on the east and west side of it.

Gelechia occidentella Chambers

This species was reported upon in Vol. 3 of the Pan-Pacific Entomologist, p. 138, 1927. Since then several additional facts have been learned. The larva is found later in the year than other oak infesting species, and continues as late as August in this stage, on the immediate coast. All other oak Gelechiids in the same territory produce adults by the end of May and so far as known are single brooded. Very small larvae of *occidentella* are found with mature larvae of all others. As well as feeding on *Quercus agrifolia* Nee, the species has been taken feeding on *Ceanothus thyrsiflorus* Esch. and *sorediatus* H. & A., *Cercocarpus betuloides* Nutt., and once on the inland oak, *Quercus douglasii* H. & A., near Santa Rosa. *G. occidentella* can be taken from *agrifolia* throughout most of the coast range just north of San Francisco Bay. As a rule it can not be found on *douglasii* even though the two oaks are side by side in exceptional places. The opposite can be said for *trichostola*. The inland range of the species includes that of *acrina*

but no farther east. The larva is interestingly colored; the head and all thoracic segments are brownish, and the dorsal half of the abdomen longitudinally lined (6 lines). In such a species as *vernella* Murtf., the head and first two thoracic segments are concolorous, and the longitudinal lines include the last thoracic segment. *G. occidentella* is known to me from Marin County and Los Angeles County; from the latter, larvae only.

Gelechia ochreostrigella Chamb.

The larvae of this species feed on *Rumex*, presumedly *crispus* L. Since this is probably a native insect the original host is yet unknown. Long silken galleries are spun along the leaves near the base.

Larva 12-14 mm. long. Head light yellow-brown; shield yellow. Body light yellow, generally infused pink with suggestions of six pink longitudinal dorsal stripes. Tubercles small, fuscous, hardly noticeable. Crochets unevenly triordinal, about 40. Caudal fork present, the central prongs crossed. Seta VI A9 separate from IV and V.

Gelechia scabrella Busck.

This moth was described from San Diego. I now have examples taken at light from Santa Cruz and Mt. Hermon, Santa Cruz County, and Alma, Santa Clara County, which localities all are comparatively close and a long distance north of San Diego.

Gelechia vernella Murtf.

Larvae of this moth are rather common during April and May on Valley White Oak (*Quercus lobata* Nee). They are rare on Blue Oak (*douglasii*) and apparently never on live oaks. The larva forms a retreat of heavy silk on the underside of the leaf. It is about 12 mm. long when mature; head blackish, first two thoracic segments dark brown, remainder of body creamy white with six longitudinal brownish stripes on dorsal half. There is an anal fork present. Localities are: Chico, Oroville, Sacramento; rare in Marin County.

The adults are grayish moths with what appears to be cubital pecten on the hindwings and a black basal male hair pencil.

Gnorimoschema ericameriae Keifer, new species

(Plate II, Figs. 18 and 19)

Alar expanse 11-15 mm. Palpi white, more or less irrorated and infused blackish; basal joint light; second joint with a dark annulus at base and apical half dark, the inner side behind generally lighter; terminal joint generally darkened leaving a whitish annulus just above base, and a slightly lighter tip. Antennae blackish, the funicle with alternately lighter and darker annuli; more uniform dark toward tip. Face whitish irrorated dark fuscous or blackish. Head and thorax heavily infused dark gray and irrorated black, with sometimes brown and pink scales at thoracic apex. Forewings with grayish-white or whitish scales, crossed just before tip by blackish shade; dorsal area lighter; general though sparse pinkish irroration throughout wing on lighter areas. A dark shade of dark gray and brown crossing wing near base; touching this and at costal one-fifth a diagonal light fascia runs to fold and fuses with dorsal area at a conspicuous pink spot at one-third; this fascia bordered outwardly by a dark gray shade which runs to center of wing and is from there roughly continued as a jagged dark central line (interrupted by stigmata) to within apex; above this central line a curved light streak runs down from costa at one-third and returns at costal cilia, enclosing a dark gray area, the center of which is just beyond one-half; within apical margin a gray streak fusing with central line. Plical stigma obscure black spot with some brown scales at about one-third (above pink dorsal spot); first and second discals black spots in curved light streak, surrounded by brown scales at just beyond one-third and one-half, respectively. Some black dots around apex. Cilia as wing except ternal cilia which are gray.

Hindwings gray with slight pinkish reflections. Abdomen dark gray, slightly pinkish basally; whitish along sides. Legs white generally well irrorated blackish. Apparently no sex scaling. Male genitalia as figured; slightly assymmetrical; the aedeagus slender, bulbous basally, three spines and a flagellum-like projection apically. Female genitalia with the signum a curved spine.

Type, male, collected and reared from a gall on *Ericameria ericoides* Less. by the writer. Locality, San Francisco. The adult emerged July 5, 1927. Allotype, female, with same data except emerged June 6, 1929. Sixteen designated paratypes are from the same locality and host. Most of the area from which these examples were taken is now occupied by houses.

The larva lives in a small rather round, apically pointed, terminal gall and is full grown in May. It is about 9 or 10 mm. long when mature, dull brownish partly retracted head, and body sordid creamy-white with pinkish fuscous above.

This species is quite near *coquilletella* Busck as indicated by the genitalia of some examples which answer the description of that species. It has a very different appearance, however, being much darker, notably at the forewing base; it attacks a different species of plant, and occupies a different ecological habitat.

Aproaerema metadesma Meyr.

The larvae of this moth bunch the leaflets of *Lupinus chamissonis* Esch. in San Francisco and mine into these leaflets. Larvae are present in numbers during January and the early part of February. Adults emerged around March 1 from larvae collected February 8 and 9, 1933. Of about eighty adults of this little black moth fully one-third either entirely lack the white fascia or show it only faintly.

The larva is about 7-8 mm. long when full grown. Head and shield black; or nearly so; tubercles fuscous, body gray. Both frontal and adfrontal sutures reach the occipital foramen which is deep. Tubercles Ia and Ib joined on meso- and meta-thorax (as in *Anacamptis*). Inner seta of group VII on A2 separated. Tubercle V on A7 and 8 unisetose. Tubercles I and II on A9 usually joined, seta VI apparently absent. No caudal fork. Crochets 10-13, in two transverse rows, unevenly biordinal.

Anacamptis sacramenta Keifer, new species

(Plate II, Figs. 20 and 21)

Alar expanse 14-19 mm. basal joint of palpi fuscous; second joint dull ochreous or whitish ochreous, infused fuscous on outer side lighter at tip; terminal joint dull whitish with fuscous along anterior edge including tip. Face rather light. Head and thorax drab. Forewings whitish drab lightly irrorated blackish and fuscous. Dorsal base and adjacent areas slightly more fuscous than general wing. A transverse spot of fuscous in center at basal fifth just crossing fold. Plical stigma a fuscous spot at one-third; first discal a fuscous spot obliquely above plical at just before one-half. Second discal similar at beyond one-half. A faint outwardly angulate apical fascia indicated by fuscous inner edging which runs between a fuscous spot on costa at beginning of costal cilia, and a dark dash at tornus. This tornal dash running obliquely inwardly almost to second discal stigma. Apical area of wing almost free from dark irroration. Outer costal and apical margins with blackish spots evenly spaced. Cilia fuscous for basal two-thirds except at tornus where they are almost whitish. Forewing dark gray beneath. Hindwing dark grayish fuscous, cilia whitish with a gray band at base and another at two-thirds; hindwings whitish beneath. Abdomen as forewing, darker basally. Legs rather whitish drab with fuscous infusion and irroration on outer side. Male and female genitalia as figured.

Type, male, collected at Sacramento from *Salix sessilifolia hindiana* And. as a larva, May 8, 1932, the adult emerging May 27. Allo-

type, female, with same data except that it emerged May 30. Sixteen designated paratypes have approximately the same data as above, part collected during May, 1933. This species is apparently unlike any other California form. All material collected by the writer.

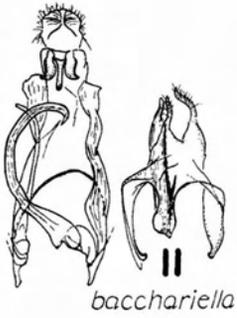
The larva forms a characteristic shelter in a bunch of leaves on the willow twig. It is about $12\frac{1}{2}$ mm. long when full grown with black head and dark gray skin. The spiracle is fused with tubercle III on the eighth segment; crochets biordinal, in two converging transverse arcs. In form and seta characteristics this larva is much like that of *Aproaerema* and quite distinct from the *Gelechia* type.

Anacamptis niveopulvella Chamb.

This blue-gray moth occurs throughout the higher Sierra Nevada range in California. I have reared examples from Lake Tahoe and Sonora Pass, the larvae collected by Norman A. Donges. The larva spins together a mass of leaves of *Populus tremuloides* Michx. and is about the same size but lighter than *sacramento*.

All types are deposited in the Museum of the California Academy of Sciences, San Francisco. Paratypes are distributed to the U. S. National Museum, Miss Annette F. Braun and Dr. J. F. G. Clarke. The type of *Clepsis busckana* n.sp. is in the U. S. National Museum.

PLATE II



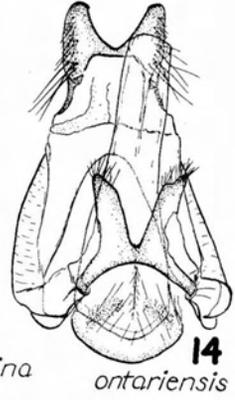
11 *bacchariella*



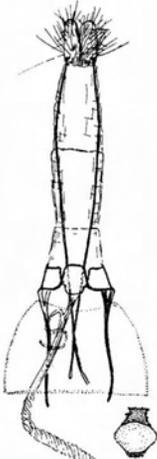
12 *querciphaga*



13 *querciphaga*



14 *acrina ontariensis*



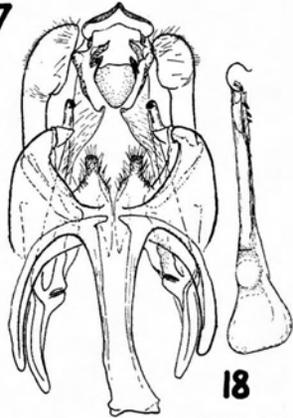
15 *querciphaga*



16 *acrina*



17



18 *ericameria*



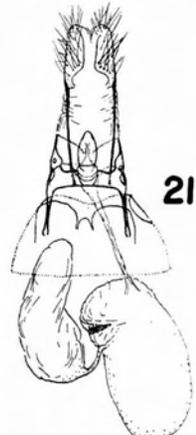
19 *ontariensis*



20 *ericameria*



21 *sacramento*



22 *sacramento*

PLATE II

- FIG. 11. *Recurvaria bacchariella*, male genitalia with tegumen and harpes separated to the left.
- FIG. 12. *Xenolechia querciphaga*, male genitalia.
- FIG. 13. *Xenolechia querciphaga*, female genitalia with detail of signum.
- FIG. 14. *Xenolechia ontariensis*, male genitalia.
- FIG. 15. *Xenolechia ontariensis*, signum of female genitalia.
- FIG. 16. *Gelechia acrina*, male genitalia with aedoeagus removed.
- FIG. 17. *Gelechia acrina*, female genitalia and diagonal detail of the signum.
- FIG. 18. *Gnorimoschema ericameriae*, male genitalia with aedoeagus removed to the left.
- FIG. 19. *Gnorimoschema ericameriae*, female genitalia.
- FIG. 20. *Anacampsis sacramento*, side view of male genitalia.
- FIG. 21. *Anacampsis sacramento*, female genitalia.