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The Canadian Entomologist.

VOL. XIII.

LONDON, ONT., APRIL, 1881.

No. 4

DESCRIPTION OF THE PREPARATORY STAGES OF TERIAS NICIPPE, CRAMER.

BY W. H. EDWARDS, COALBURGH, W. VA.

EGG.—Long, narrow, fusiform, thickest in the middle, tapering about equally to either end; the two ends nearly equal, small, blunt, the upper one rounded; the sides marked by many low, narrow, longitudinal ribs, about 30 in number; in shape much resembles egg of *Colias Philodice*, but the ribs are more numerous and less prominent, and there are no cross striæ. Color, when first laid, greenish-yellow, after a few hours turning to red. Duration of this stage in midsummer 2 to 3 days.

YOUNG LARVA.—Length .6 inch; cylindrical, nearly even, each segment at its anterior end a little smaller than the posterior end of the next preceding; color whitish, semi-translucent; a few whitish clubbed appendages scattered about each segment; legs and feet color of body; head a little broader than 2, obovoid, greenish-white. To 1st moult in July 2 to 3 days.

After 1st Moulting.—Length .16 inch; slender, even, head as broad as 2; color of body deep green; dorsum, the sides and lower parts lighter; each segment transversely crossed four or five times, and on the ridges so caused fine tubercles, some of which put out short clubbed white appendages, others short hairs, white or black; head sub-globose, finely tuberculated and somewhat pilose; yellow-green. To next moult in July 2 days.

After 2nd Moulting.—Length .2 inch; same shape; color wholly deep green; head as before, lighter green than body. To next moult in July 2 days.

After 3rd Moulting.—Length .4 to .5 inch; same shape; deep green; a darker green vascular medio-dorsal line, the basal ridge pale green from 2 to 13; head as at preceding stage. To next moult 2 days.

After 4th Moulting.—Length .6 to .7 inch; two days later reached maturity.

MATURE LARVA.—Length 1 inch to 1.1; cylindrical, thickest at 2 and 3, and tapering gradually to extremity; the three anterior segments curved down in a circular bend when at rest; dorsal surface pale green, the lower part of sides of a soft whitish-green; each segment creased four or five times, and on the ridges small tubercles, each of which sends out a short white or black hair; along the basal ridge a whitish stripe, most often immaculate, sometimes with an orange patch on each segment, and occasionally an orange line the whole length; under side, feet and legs pale green; head small, sub-globose, very little depressed at top, finely tuberculated, and with a few short fine hairs; color yellow-green. Two days after the moult the larva suspended, and twelve hours later pupated.

CHRYsalIS. Length .8 inch; long, slender, the ventral side greatly produced; head case conical, prolonged to a point, which is a little curved back; mesonotum low, rounded, followed by a slight depression; from this to posterior extremity the dorsum is a little convex; the wing cases cover the ventral prominence, and this is thin, rising to a narrow keel, the sides being a little excavated; from the summit of the keel the slope is regular to head, but posteriorly there is an abrupt curve down to abdomen; a slight ridge upon the side from end to end; color of dorsum pale green or whitish-green, with a darker medio-dorsal line; the wing cases and ventral side of abdomen yellow-green; the side ridges cream-color; so is the ventral carina, but where this approaches the abdomen it becomes brown and the dark color is dilated into an irregular stripe; on either side of head case, and also on lower side of same, are small brown patches, and near base of mesonotum at upper end are two pairs of small brown spots, edged posteriorly with white, the posterior pair the larger; the wing cases with several brown points, part of which are disposed in two rows near to and parallel with the hind margin.

Some chrysalids are quite largely sprinkled with brown dots and patches over whole anterior part, including wing cases, and the keel is brown. Two chrysalids bred in September, 1880, differed from all the rest in that they were black, or black-brown; the anterior parts darkest; one of these had the posterior part of the ventral prominence, beyond the wing cases, dull green; both had the two pairs of spots above mesonotum white. I thought it probable that these chrysalids were diseased, but

both gave imagos in no way differing from the usual form. Duration of the chrysalis stage in July and August 8 days.

Nicippe is a very common species in this part of West Va. Its food plant is Wild Senna, *Cassia Marilandica*, which grows abundantly, and the butterfly is present in several successive generations and in overlapping broods from early in May to winter. I have seen it on the wing 29th April, and also in December, and am of the opinion that a few individuals successfully hibernate. At almost any time eggs and larvæ can be found on the Senna leaves, many eggs perhaps dotted over the surface of a single leaf and mostly the under surface. On one occasion I noticed a butterfly just from chrysalis standing by its empty shell, on a stem of Senna, and near by were fresh-laid eggs and newly hatched larvæ up to mature larvae. I recorded at the time that there were about forty larvae on one stem. The larvae are very nearly the color of the leaves, and usually may be found, when at rest, lying full length along the mid-rib on upper side.

The butterflies differ much in size and color. The normal color is deep orange, but I have taken males of all grades up to clear sulphur yellow, with no trace of orange. The females also are often nearly yellow, but I have seen none which had not a little orange in the disks.

Nicippe is found over all the Southern and Western States, on the Pacific coast, and so to the tropics, avoiding the highlands. It is common about Pittsburgh, Pa., and is occasional as far to the eastward as Massachusetts. In 1877 I saw a single one flying near the coast, below Boston.

DESCRIPTION OF A NEW SPECIES OF EUDAMUS.

BY J. A. LINTNER.

EUDAMUS ELECTRA, n. sp.

Size of small *Nisoniades Fuvenalis*. Primaries narrower than in *Eudamus Pylades* Scudd. ♀, more rounded on the costa, and more oblique on the hind margin. Secondaries rounded, not prolonged at the anal angle as in *E. Pylades*, nor excavated opposite the cell as in most of the *Nisoniades*.

General color dark brown, approaching that of *E. Pylades*; the fringe concolorous with the terminal portion of the wings, a little paler at their tips.

Primaries with eleven transparent white spots, upon which an ordinary lens shows regular rows of small black scales—the spots, as follows: Near the end of the cell (apparently open) are two spots, separated by the cellular fold and extending to the enclosing veins (subdorsal and median)—the upper one twice as large as the lower and prolonged backward superiorly in one or two teeth—the lower one subtriangular in shape; above and in line with these two, in cell 10, is a small elongated spot—the smallest on the wing, while beneath them and in range, in cell 2, extending from vein 2 to vein 3, is the largest spot on the wing, enlarged superiorly and excavated inwardly. Outside of this discal band of four spots, are seven others, bordered by dark brown, and arranged in an irregular curve, as follows: in cells 9, 8 and 7, three costo-apical spots, oblique to the costa; outside of these, in cell 6, a spot; in cell 5, still nearer the margin, another; in cell 4, a little farther removed from the margin, another—these last three subtriangular in shape; in cell 3, extending from vein to vein, a subquadrate spot, placed farther from the margin, about equidistant with the lower costo-apical spot; these seven spots, commencing at the costa and omitting the fifth, show a regular increase in size. Outside of these transparent spots, is a series of obscure dark brown intranervular subterminal spots which merge into the dark brown shade of the margin. Inside of these spots, the wing shows by oblique light a purplish reflection approaching a grape bloom but more vivid, with the exception of the internal margin and two brown bands of the color of the outer margin and posterior wings; the bands extend from the subcostal to the internal vein; the outer and broader embraces the discal band of transparent spots in its outer margin, and the other crosses the median vein at its intersection by vein 2; a brown shade rests also on the base of the wing.

Secondaries traversed at about their outer third by a narrow obscure brown band, inside of which the wing is dark brown; outside of this band, the subterminal series of brown spots of the primaries is continued.

Beneath, the purplish reflection of the upper surface appears only at the tip of the wing—the median and basal portions being dark brown, concolorous with the secondaries inside of the paler brown band; the obscure intranervular brown spots of the upper surface are repeated, and continued on the secondaries; the transparent spots are without the lines of brown scales.

The costal vein of the primaries intersects the costa nearly opposite the end of the cell; vein 8 reaches the margin at the extreme apex—not below it.

Antennæ about one-half the length of the anterior wings, dark reddish-brown, marked inwardly with white at the joints, expanding rapidly into the club (the terminal half of the club lost).

Palpi in length about equal to the diameter of the eyes, clothed with thick, bristly, dark brown hairs, some of which are white tipped; apical joint short, conical, projecting a little beyond the hairs.

Locklet black, curving about half way over the eyes. Front of head dark brown.

Thorax above and beneath clothed with long brown hairs, concolorous with the posterior wings.

Abdomen darker brown, reaching only to the pale band of the hind wings.

Legs dark brown; the posterior pair have the femur and tibia of the same length, bearing brown hairs which nearly equal them in length; tibiæ armed with two pairs of spurs; tarsi twice as long as the tibiæ, moderately spinose.

Expanse of wings, 1.65 in.; length of body 0.55 in.

Described from a single female received from Mr. W. H. Edwards. The specimen was captured in Hamilton, Ontario, by Mr. J. Alston Moffat, in 1877, in company with another like it, which escaped capture.

In the Hesperidæ the antennal club affords excellent generic features. It is unfortunate that in this unique specimen, the half of one antenna and the terminal half of the club of the other, have been lost. It being also of the female sex, we are without knowledge of the presence of a costal fold in this species. In the absence of these characters, it is referred, with some doubt, to the genus *Eudamus*, in which Dr. Herrich-Schæffer, Dr. Speyer and others arrange species with rounded hind wings and those in which they are greatly prolonged. Of the three groups in which Dr. Speyer has divided the genus, viz., *Hind wings on submedian nervure little or not at all produced,—**Prolonged in a lobe,—***Caudated,—*E. Electra* falls in the first group.

The detection of the above species is a very interesting discovery for this portion of the United States.

NOTES ON CRAMBUS.

BY A. R. GROTE.

Crambus sericinellus Zeller.

I am indebted to Professor Fernald for specimens of this species from Maine. It appears in two forms; one in which the thorax and fore wings are pure satiny white, which, from Prof. Zeller's description and a specimen sent him for identification, is the typical *sericinellus*; the other, in which the white is somewhat faded, having a slight yellowish or fuscous cast. This latter, Professor Fernald informs me, corresponds to Clemens' type of *inornatellus*, a name which I have referred as a synonym in my preliminary list. It may be retained as a varietal name; I do not think it can be specifically distinct; in some undoubted *sericinellus* the thorax is a little soiled.

Crambus minimellus Robinson.

I have identified this species from a specimen in my collection from Massachusetts. It has very pointed fore wings, and the little species seems to me related to the *Leachellus* group.

Crambus undatus Grote.

This species belongs to the *exsiccatu*s group; it is smaller than *exsiccatu*s, pale brown, the primaries washed with whitish, and having two dotted transverse lines, angulated on the disc, continuous and very distinct, not drawn in submedially. Fringes brown, with a silky or metallic shade. A fine series of terminal brown dots. Hind wings pale gray, with a faint subterminal line, discontinued inferiorly, visible also beneath. We have two Californian species, *anceps* and *undatus*, and two Eastern species, *exsiccatu*s and *laciniellus*, which are allied in having the fore wings crossed by two brownish angulated uneven lines more or less continuous and differing in expression in each species.

Crambus occidentalis Grote.

Mr. Hy. Edwards considers this a distinct species and not a variety of *Leachellus*. It differs by the prominent notch of the white stripe on its lower edge at the middle, and by the dark shades accompanying the stripe below. It is collected about San Francisco. What I regard as the

same as our Eastern *Leachellus* has been collected by Mr. Edwards at Vancouver and also at Mendocino.

Crambus attenuatus Grote.

This species has been collected about San Francisco. The Californian specimens are a little brighter tinted and slightly exceed in size the material I had before me from Vancouver.

ON A NEW SPECIES OF APHIS AFFECTING THE PINE.

BY WM. H. ASHMEAD, JACKSONVILLE, FLORIDA.

Among our native forest trees, none, unless it is the oak, suffer more from the depredations of insect enemies than the pine. Distributed as it is—from the Arctic to the Tropics—climatologically speaking, it becomes a prey to every conceivable form of insect life.

Already its enemies may be reckoned by hundreds; but notwithstanding this, hardly a year goes by without some careful investigator adding others to the list. It is not the intention of the writer to enter into full details or enumerate all of its foes, but to call the attention of entomologists to a new *Aphis* affecting a pine in Florida, that has evidently been overlooked by others.

For the past two years we have detected numerous large brown plant-lice upon the common pine of this region, *Pinus australis*, which for want of time we have left unmolested. They cluster together upon the new and tender branches, which they puncture with their remarkably long beaks, causing the sap to exude and the branch upon which they exist to become gummy and sticky. In their habits they are surprisingly shy and timid. On disturbing them they invariably seek safety by hiding between the needles of the pine; indeed, even on hearing approaching footsteps, we have observed them cling closer to the limb, while a few skelter off where the needles are denser.

In looking up literature on the subject, we find several species of Aphides described and mentioned as existing upon pines, but none on *Pinus australis*, nor will any of the descriptions agree with the species under consideration. It belongs to the section *Lachnini* as defined by

Thomas, and we therefore propose for it the name of *Lachnus australi*, and submit the following description :

LACHNUS AUSTRALI, n. sp.

Wingless ♀ : Length .08 to .16 of an inch. Uniform light brown ; head small, eyes large and round, bulging out on each side ; beak extremely long and slender, reaching to last ventral segment ; antennæ six-jointed, reaching to hinder part of thorax ; joints 1 and 2 bead-like ; 3rd longest, widest at apex ; thorax twice as wide at hinder part as head ; abdomen very broad, wider than long, with numerous black spots on top, arranged in transverse rows ; nectaries black, tuberculous, nearly obsolete ; legs very long, setaceous and black, excepting basal third of tibiæ, which are yellowish.

Winged individual ♂ : Blackish, length .08 to .10 of an inch ; ala. expanse about .35 of an inch. Head black, punctate, outer margin pale yellowish ; prothorax dark brown or blackish, greenish yellow along suture next the head ; antennæ short, reaching below middle of thorax ; mesothorax is beautifully marked with pruinose bands, starting from each corner of scutellum, which is transverse and pruinose ; they curve inwards and meet on top of mesothorax, forming one band which runs straight forwards, dividing again obliquely into two bands to juncture with prothorax ; two dots of pruinose on either side of this band ; wings hyaline, front pair with a very long, thick stigma, with the third vein remarkably thin and three-branched ; hind wings with two oblique veins ; abdomen with a dorsal row of whitish or pruinose spots on 5 abdominal segments, also along each side, and 12 brownish subdorsal round spots ; under surface uniformly pruinose ; legs black, excepting tibiæ, which are partly yellowish ; beak long, reaching to last ventral segment, pale in color to near the tip, which is black.

ENEMIES.

We have bred from this species three ichneumon flies, two belonging to the Aphididæ family and one to the Chalcididæ, which we shall describe in a future paper.

ENTOMOLOGY FOR BEGINNERS.

THE LEGGED MAPLE BORER—Aegeria aceris (Clemens).

BY THE EDITOR.

In 1860 Dr. Clemens described this pretty moth in the Proceedings of the Academy of Natural Sciences, Philadelphia, and since then it has been written on by Mr. P. Gennadius in the *American Naturalist* for January, 1874, and in the same year by C. V. Riley, in his 6th Missouri Report. It is well figured in the accompanying cut, figure 6 (after Riley), in all its stages; *a* shows the larva, *b* the cocoons exposed by removal of the bark, *c* the moth, and *d* the chrysalis.

The moth appears late in May and during June. When the wings are expanded it measures about three-quarters of an inch across; its wings are transparent, decorated with bluish-black markings. The head and palpi are of a deep reddish-orange, antennae bluish-black, thorax ochreous-yellow, abdomen bluish-black varied with ochreous-yellow and terminated by a tuft of brilliant reddish-orange hairs.

The under side of the body is ochreous-yellow with bluish-black markings.

The female deposits her eggs on the bark of the soft and sugar maple trees, chiefly on the former, and when hatched the young larvae burrow through the bark and feed upon the inner portion and sap wood, never penetrating into the solid heart wood. The excavations made by the larva are filled with its brown castings. When full grown it is more than half an inch long, cylindrical to the eleventh segment, then tapering to the end, with the skin wrinkled and folded. The head is small, of a yellow color, cervical shield paler; stigmata brown; legs and tips of prolegs reddish. When the larva is full grown it eats its way nearly through the



Fig. 6.

bark, leaving but a very thin layer unbroken; it then retires within its burrow, and having enclosed itself within a loose, silky cocoon, changes to a brown chrysalis. A short time before the moth escapes the chrysalis wriggles itself forward, and pushing itself against the thin papery-like layer of bark, ruptures it and the chrysalis protrudes as shown in the figure. Soon afterwards the imprisoned moth in its struggles ruptures the chrysalis and escapes.

This insect appears to be increasing in numbers every year, and is very destructive, especially to young maple trees. Many of our shade trees in London are much injured by it, and where very numerous it is liable to completely girdle the tree and kill it. It is also found throughout the Middle States. To prevent the moths from laying their eggs the trunks of the trees should be painted about the first of June with a mixture of soft soap and lye about the thickness of paint, or with a mixture of lime and soap. When once the larvae obtain an entrance it is very difficult to discover them, and they will then carry on their destructive work all through the summer.

PTEROPHORIDÆ.

BY CHARLES FISH, OLD TOWN, MAINE.

About three years ago I commenced the study of the "feather-wings," with the intention of preparing at some future time a monograph of the North American species of this family. While adhering to my original intention, I have decided to so far modify it as to publish in advance certain new species which have accumulated on my hands, and I am induced to this course the more because it may be a considerable time before sufficient material will have been obtained to justify me in publishing my general paper. In the meantime I wish to obtain as many examples of this family as possible from all parts of North America, and any aid that may be given me by collectors I shall try to reciprocate. I prefer to have the examples pinned, but not spread, and great care should be observed in pinning, that the wings be not denuded or the legs broken off. The upper surface of the wings should never be touched with the fingers, nor should the specimens be allowed to roll about in the cyanide bottle and become denuded in this way. The very excellent directions

given by Prof. Fernald in CAN. ENT., Vol. x., No. 5, for the collection of *Tortricidæ*, will apply equally well to the *Pterophoridaæ*.

I desire to express my obligation to Prof. Fernald, who first suggested to me the idea of making a special study of this group, and who has granted me the free use of his valuable private library, and greatly aided me in other ways. I am also much indebted to Prof. P. C. Zeller and Lord Walsingham for aid in determination of species and advice during the prosecution of my studies of this group. To the entomologists and collectors who have assisted me in procuring material I likewise desire to render my thanks. To Mr. Henry Edwards in particular I am under obligation for the loan of his entire private collection in this family, comprising many beautiful species, mostly obtained in California and Oregon.

PLATYPTILUS ALBICANS, n. s.

♀. Head, thorax and palpi cream color. Frontal tuft very short and blunt. Palpi ascending, extending beyond frontal tuft. Antennæ pubescent, banded above with alternate black and white scales, dark brown beneath. Abdomen pale ochreous, cream color at base. Anterior and middle femora and tibiæ cinnamon brown, sprinkled with whitish scales exteriorly, pale cream color interiorly; tarsi dark cinereous, first two joints whitish interiorly. Posterior tibiæ cream color, brownish just before the spurs; tarsi cinereous, whitish at base of joints.

Fore wings cleft one-fourth, creamy white along the inner margin, along the costa broadly cinnamon brown sprinkled with white. Costal triangular patch not sharply defined, cinnamon brown, bordered posteriorly above the fissure by a rather broad white line, but below the fissure its apex is continuous with the brown color of the lower lobe. Both lobes cinnamon brown, more or less sprinkled with white atoms, with a broad white transverse line which does not reach the inner margin of second lobe. Costal cilia concolorous with adjacent portion of wing, white just before the apex, a few brown hairs at the apex. Cilia of fissure white, behind transverse line brown. Cilia of posterior margin whitish, at posterior angle of each lobe brown. Cilia of inner margin whitish. Hind wings cinnamon brown, with concolorous cilia. Third lobe very narrow, linear; cilia pale at base, bearing no dark scales. Underneath, fore wings cinnamon brown, with white transverse line sharply reproduced, also white line at base of first lobe, reaching from costa half-way to base of fissure. First and second lobes of hind wings cinnamon brown, the first

lobe with a very broad oblique white line near the apex. Third lobe creamy white, somewhat dusted with brown along inner margin on apical half. Alar expanse, 22 mil. Nevada, H. K. Morrison.

PLATYPTILUS EDWARDSII, n. s.

Head, thorax and abdomen ochreous brown. Frontal tuft short and blunt, brown above, whitish beneath. Palpi ascending, extending beyond the frontal tuft, brown above, whitish beneath. Antennæ finely ciliated, obscurely banded above with alternate white and blackish scales, beneath cinereous. Abdomen slender. Legs ochreous brown; hind tibiae and all the tarsi rather pale.

Fore wings cleft one-fourth. Color reddish ochreous brown, darker on the costa, with a faint sprinkling of whitish scales. Triangular costal patch blackish brown, bordered posteriorly by whitish scales. A small brown patch near the inner margin at the basal fourth, and another near the costa at the basal third; a white transverse line at apical third of the lobes. First lobe before transverse line very dark on the costa, and with a longitudinal dark patch midway between costa and inner margin; second lobe dark at the anal angle. Costal cilia white just behind triangular costal patch and near apex; between, very dark brown. Cilia of fissure white to transverse line, beyond dark brown; on posterior margin white outwardly, brown on basal half, with a marginal line of darker scales at base; at posterior angle wholly brown; on inner margin whitish, with a small patch of dark scales before, and one just behind apex of costal triangle.

Hind wings reddish brown, third lobe with ochreous tinge on inner edge. Cilia brown, with a dark division line at end of first and second lobes. Third lobe linear; cilia of inner margin whitish at base, and bearing a small patch of dark scales just before apex.

Under side of fore wings cinereous brown, ochreous towards apex; transverse line distinct, also white spot on costa behind triangle; triangular patch showing faintly. First lobe of hind wings ochreous, with oblique white line near apex; second lobe cinereous; third lobe with ochreous and white scales mingled.

Alar expanse, ♂ 25-27 mil., ♀ 22-23 mil. Described from 2 ♂ and 3 ♀ taken at Boston, Mass., by Mr. Hy. Edwards, to whom the species is respectfully dedicated; and 5 ♂ and 1 ♀ taken at Amherst, Mass., by Mr. L. W. Goodell.

CEDEMATOPHORUS GRATIOSUS, n. s.

Head and palpi rather dark brown, scarcely lighter between antennæ. Antennæ pale brownish, dotted above with white and dark brown scales. Thorax brown gray, anterior portion lighter. Abdomen fawn brown; scales somewhat raised at extremity of segments. Legs grayish brown, spurs concolorous, not tipped with darker color, tarsi pale cinereous, slightly browned at extremities of joints. Middle band of middle tibiæ inconspicuous, consisting of a few raised scales on one side.

Fore wings pale cinereous with dark brown dusting; an oblique brown patch before base of fissure; faint indication of a brown median spot; a longitudinal brown costal spot nearly opposite base of fissure. Cilia concolorous. Hind wings and cilia brownish cinereous, third lobe whitish. Under side of wings dusky cinereous. Alar expanse, 22 mil. California, Mr. Hy. Edwards.

CEDEMATOPHORUS CINERACEUS, n. s.

Front of head and palpi dark brownish gray, neck dark brown, vertex of head and thorax pale cinereous. Palpi stout, turned upward, third joint very short. Antennæ brownish cinereous, dotted above with dark brown. Abdomen brownish cinereous, somewhat marked with dark brown scales. Legs brownish cinereous dusted on one side more or less with dark brown scales; middle and end band of middle tibiæ dark brownish gray; spurs all tipped with dark brown; tarsi whitish cinereous, very slightly browned at extremities of joints.

Fore wings pale cinereous, tinged with brownish, and very thinly dusted with dark brown atoms. These brown scales form a very small median spot, and a somewhat larger one before the base of fissure, bordered posteriorly by whitish. There is a longitudinal brown costal spot opposite base of fissure, two smaller ones towards the apex, and one on inner margin of anterior lobe just before apex. Basal two-thirds of costa only along the very margin dark brown gray. Cilia brownish cinereous. Hind wings and cilia brownish cinereous, darker than fore wings. Under side of wings dark brownish cinereous. Alar expanse, 28 mil. Washington Territory, H. K. Morrison.

CEDEMATOPHORUS BARONI, n. s.

Front of head and palpi rather dark brown, lighter on the vertex. Palpi rather stout, third joint very short and blunt. Antennæ pale

cinereous, obscurely dotted above on basal portion with dark brown. Thorax and abdomen pale brownish cinereous, the latter marked dorsally by a row of fine black dots, one at the extremity of each segment beyond the third; a few black scales also on the lateral portions. Anterior and middle femora pale brownish cinereous, tibiæ gray, tarsi whitish cinereous. Posterior femora and tibiæ pale brownish cinereous, tarsi whitish; spurs very short, tipped with black.

Fore wings brownish cinereous, with a decidedly ochreous tinge on the inner margin and posterior lobe, the whole surface being thinly dusted with fine black atoms. No other markings. Cilia concolorous with adjacent surface. Hind wings and cilia, as well as under side of wings, dark cinereous.

Alar expanse, 30 mil. California, O. T. Baron, to whom the species is respectfully dedicated.

NEW CYNIPIDAE.

BY H. F. BASSETT, WATERBURY, CT.

(Continued from Page 57.)

CYNIPS Q. POMIFORMIS, n. sp.

Globular, polythalamous galls, sessile on the twigs of *Quercus Agrifolia*, much resembling small round apples except that the apex is not depressed as is usually the case in this fruit. Size from one to two inches in diameter. Color various shades of brown, depending upon the degree of exposure to the sun. The smoothish surface sometimes with a few small, hard, scattered wart-like points. In the larger specimens there are faint lines reaching from the base to the apex, as though it were divided internally by septa; but no such divisions are found. The interior is a rather dense mass of yellowish brown cellular tissue, in which, near the base, lie closely imbedded the thin walled larval cells.

I received these galls last summer from my brother, H. D. Bassett, of San Francisco, Cal. The exact locality where found was not mentioned. The flies began to appear the first of March. They are all females, and judging from the appearance of the galls they seem to belong to the dimorphic class whose cycle of change is completed in one year.

Gall-fly: Head black, vertex coarsely wrinkled. Ocelli large, black and shining. Antennæ 14-jointed, only two-thirds as long as the body; 1st joint stout, club-shaped; 2nd short, ovate, almost globular; 3rd a little longer than the two preceding taken together; 4th equal to the 1st and 2nd together; 5th to 10th gradually shorter, 11th to 14th very short, sub-equal. Color, clear dark yellowish brown, changing to dusky brown towards the tips. Face black, with fine hairs, broad, but vertically quite narrow. Mandibles black, palpi clear dark shining brown. Thorax black, coarsely rugose, the rugæ crossing and nearly obliterating the parapsidal grooves. These, as far as traceable, are as follows: Two short parallel lines from the collare, one-third the distance to the scutellum; two lines from the collare to the scutellum, closely convergent on the latter. A short, *smooth* line or *ridge* over the base of each wing. Scutellum small, wrinkled; foveae small, indistinct. The entire thorax and legs with fine microscopic hairs. Legs light shining brown, posterior pair much darker. Wings slightly dusky. Veins slender, except the 1st and 2nd transverse, which are heavy, and the latter has a dark cloud at the base of the radial area. The longitudinal veins brown, becoming almost colorless towards the apex of the wings. Areolet small, in some specimens a minute translucent point. Radial area open. Abdomen shining black, 1st segment very long, with white hairs beneath the wings. The posterior edge of all the segments a clear shining brown. Ventral sheath same color. It is very small and the few hairs at and near the tip are microscopic.

Length, body .16, wing .16, antennae .10. Des. from twenty living specimens in my collection.

CYNIPS Q. FICULA, n. sp.

Closely compressed clusters of monothalamous galls, sessile on and surrounding the young branches of *Q. macrocarpa*, forming globular and symmetrical masses sometimes two inches long and an inch and a half in diameter, but usually about one-half this size. The individual galls in these clusters assume a great variety of forms, by reason of the lateral pressure which they exert upon each other. The most common form resembles that of pressed figs, and this species bears a close resemblance to the much smaller one which Dr. Fitch named *C. q. ficus*, but which Mr. Walsh described as *C. q. forticornis*. The normal form would undoubtedly be that of a regular cone attached by its apex to the branch.

They are when young entirely covered with a rust colored pubescence which mostly disappears from the outward and exposed surface. This outer portion of the gall is somewhat wrinkled and of a dull reddish brown color. The interior is filled with a soft spongy reddish brown substance which is more dense towards the true base of the gall, and where lies the single larval cell. This cell is not separable from the spongy mass surrounding it. These galls were collected last fall in the northern part of Georgia by Mr. W. H. Patton, from whom I received them. They produce only female gall-flies, which I describe as follows :

Gall-fly : A very dark reddish brown throughout. The thorax and abdomen almost black. Head—Vertex finely punctate and with a few short yellowish hairs. Surface of the face entirely concealed by the dense covering of short and closely appressed hairs. Antennae a uniform dark reddish brown, 14-jointed ; 1st joint club-shaped, 2nd regularly ovate, 3rd one-fourth longer than the two preceding taken together, 4th equal in length to the 1st and 2nd together, 5th to 10th gradually shorter, 11th to 14th sub-equal. Surface of the entire thorax concealed by the fine, dense, closely appressed hairiness. Parapsidal grooves—two parallel lines reaching half way from the collare to the scutellum, two slightly diverging lines reaching a little more than half way from the scutellum to the collare, and a smooth line over the base of each wing. Legs of a uniform clear dark reddish brown. Wings large, sub-hyaline, veins dark brown, very distinct but rather slender. Cubitus very slender and disappearing altogether just before reaching the first transverse. Areolet small but well defined. Radial area open, the longitudinal vein bounding its inner edge considerably curved. Abdomen rather small, highly polished and shining, 1st segment with a tuft of yellowish white hairs beneath the wings. Sheath of the ovipositor (in *dry* specimens) projecting beyond the abdomen and covered with coarse yellowish hairs.

Length, body .13, wing .18, antennae .11.

CYNIPS Q. MAMMULA, n. sp.

Galls : Hard woody knots at the base of the young shoots on thrifty young white oak trees, *Q. alba*. They affect both the lateral and terminal branches, and as they are of a hemispherical form, and of large size when compared with the branch which always grows out of their summit, they suggest the name above given. They are polythalamous, and the larval cells are arranged as though the eggs had been deposited around the bud

before the leaves appeared. The white, thin-walled larval cells are imbedded in woody tissue from which it is almost impossible to detach them. The galls formed around the lateral buds are from one-half to three-fourths of an inch in diameter, but those around the cluster of terminal buds are often an inch in diameter, and instead of a single branch, several are often found growing out of a single gall. They do not seem to affect the growth of the branches the first year, but must seriously injure the tree the following year when the perforated galls begin to decay. This species was very common last year in a thicket which I have searched for galls every season for the last fifteen years without discovering it. The flies are of both sexes and they leave the galls in July.

The flies, of which I have many thousands, may be described as follows :

Female : Head clear yellowish brown ; the vertex when highly magnified shows a finely crackled surface. Eyes and ocelli black, the latter very near together. Face rounded and full, with a few short hairs scattered over it, and a brush of long bristly hairs on the mentum. Tips of the mandibles show a faint duskiness. Antennæ 13-jointed, 1st joint club-shaped, abruptly truncate ; 2nd small, regularly ovate ; 3rd and 4th slender, 3rd a trifle shorter than the two preceding taken together, 4th equals the 1st in length. The first four joints are of a uniform clear yellowish brown, while the remaining ones are of a dull dusky brown ; the transition from one shade to the other is abrupt, and not gradual as in most species. The remaining joints are also considerably larger than the third and fourth, and are short and sub-equal, except the last, which is one and a half times the length of the preceding. Thorax dark brown, semi-translucent, the scutellum and post-scutellum almost black. Mesothorax smooth and shining, but highly magnified it appears very finely rugose. Parapsidal grooves absent, scutellum darker and more strongly rugose than the mesothorax. Fovæ wanting. Two anterior pair of legs pale yellowish brown, posterior pair much darker. Wings hyaline. The 1st and 2nd transverse and the subcostal veins rather heavy, and a dark smoky brown. The cubitus disappears about midway between the two transverse veins. Abdomen smooth and shining and apparently black. The first segment one-third longer than the very long second segment, remaining segments short.

Length, body .09, wing .09, antennæ .06.

Male : Entire body a few shades darker than the female. The legs a

shade lighter. Antennæ 15-jointed, 3rd joint incised. The antennae are much longer than in the female, and the first four joints darker and the remaining ones a little lighter, and the transition less abrupt than in that sex. Abdomen small. The first segment twice as long as the second.

Length (dry specimens), body .07, wing .07, antennae .08.

CYNIPS Q. UTRICULA, n. sp.

Globular, monothalamous galls on the petioles and leaves of *Quercus alba*. Thin-walled, .15 of an inch in diameter, green or purplish, pubescent. Sometimes entirely preventing the development of the leaf, and appearing on the end of the short petiole. Sometimes found on the end of a vein in a partially developed leaf, and more rarely surrounded by the lamina of the leaf. In the last case it appears on both sides of the leaf, but is most prominent above. It contains no larval cell. In size and in structure it resembles *C. q. vesicula* found on the same oak, but it is several weeks later and the insects differ materially.

The flies appear early in June, and are of both sexes.

Female: Head black, very finely wrinkled, face sparsely covered with short stiff hairs. Antennae 13-jointed; 1st short, club-shaped; 2nd globular, 3rd long and straight, 4th three-fourths as long as the 3rd; 5th and succeeding ones, except the terminal one, one-half as long as the 3rd; 13th long and with an indistinct suture in the middle. Color clear yellowish brown at the base, gradually changing to dull deep brown at the tip. Thorax black. Mesothorax finely rugose. Parapsidal lines distinct, and a broad, deep median line from the collare to the scutellum. Line over the base of each wing present but indistinct. Scutellum coarsely wrinkled, sparsely hairy. Fovae connate, deep, smooth and shining at the bottom. Legs, two anterior pairs yellowish brown, except the trochanter, which is nearly black. Posterior pair darker brown.

Abdomen black, shining. Sheath of the ovipositor with short hairs at the tip. It turns upward and extends above the dorsum as in *C. q. operator*. Wings hyaline. The subcostal and the 1st and 2nd transverse veins shining brown, rather heavy, the others quite pale. The cubitus does not reach quite to the 1st transverse.

Areolet very small, and in some cases wanting. Radial area open. Surface of the wing more hairy than is usual among the Cynipidae. Length (dry) .10.

Male: Black, except the legs and the antennae, which are a little darker than the female. Antennae much longer than the female, 15-

jointed, 3rd joint not incised. Abdomen small, slender, shining. First segment equal in length to all the others. Length (dry) .08.

This species is often quite abundant in the limited space where I have found it. In describing the galls I should have added that the larva is not enclosed in a larval cell.

Habitat—Conn.

LIMENITIS EROS VERSUS VAR. FLORIDENSIS.

BY THEODORE L. MEAD, NEW YORK.

Among the generally accepted canons of nomenclature is the rule that if a description includes two or more species, it shall be valid for neither as against subsequent authors who discriminate the forms properly.

While all of us may not be willing to push this rule to its limit and reject the first name altogether, it certainly is a wholesome restriction against a custom which has prevailed in some quarters, notably in France, of making loose and indefinite descriptions, waiting until some more careful writer has separated one of the forms as distinct and named it, and then declaring that the latter was the species really intended by the indefinite description, thus at one stroke of the pen creating a synonym and finding a new species to be named.

It seems to me that Mr. Strecker's reclamation as to *Limenitis* var. *Floridensis* and *L. Eros*, on page 29, is of this nature.

He speaks of his *Limenitis* as "the form found in the extreme south." Now there is a darker form of *Lim. Misippus* at the south—some specimens from West Virginia show a darker color than those from the Catskills; in Texas and even in Southern Illinois specimens are found of a deep mahogany color. This is the "southern form" of *Misippus* which differs notably from *Eros* in the absence of the white band on under side, to which the mention of v. *Floridensis* does not allude. This mention, it seems to me, is too brief and indefinite to rank as a description, especially as the names have now been fixed by careful descriptions and the status of *Eros* established as a distinct species.

The New York Entomological Club has a committee whose duty it is to consider cases of disputed nomenclature; their decision, when ratified, of course carries only the weight due to the unanimous opinion of the entomologists composing the Club. But this is a gain over the unorganized

expression of individual opinion, and it seems to me that this example might very profitably be followed by other similar societies.

I am authorized to state that this committee unanimously sustain the name of *Eros* Edw. as applied to the dark species, and *Floridensis* Streck. as applying to the dark variety of *L. Misippus* which ranges from Illinois to Florida.

CORRESPONDENCE.

ON THE USE OF THE FORCEPS OF FORFICULA.

I just happen to hit upon Dr. J. G. Morris's article on the functions of the forceps of Forficula (Can. Entom. 1877, p. 218), and it reminds me of a statement on the same subject in E. Newman's "Zoologist," 1850, p. 2,695, which however differs in its details, and deserves therefore to be reproduced here. The article is signed: John Williams, Royal Astronomical Society, Somerset House; the insect was *Labia minor*, and the principal passage runs thus: "Upon arriving at the highest point it "could attain (on a book upon which it had alighted) the insect stood "quite still and raised the elytra; it then, with a very quick motion, thrust "the point of one of the caudal appendages, close to the body, under the "wing, which was unfolded by its agency; this being repeated on the "other side, both wings were fully expanded and the insect briskly flew "away, etc." According to Mr. Morris, the insect *lifted up the short elytra with his forceps, before the wings would expand*. Both passages may perhaps be reconciled, only the former is more explicit in the statement that it is *the wing* which requires the help of the forceps in expanding.

C. R. OSTEN SACKEN, Heidelberg, Germany.

The determination of *Alaus* published by Mr. J. T. Bell, on p. 59 of your last issue (xiii., No. 3) as *gorgops* is perhaps erroneous. I know that species (the older name of which is *lusciosus* Hope, v. Crotch List, Suppl. 27) from no locality north of the western part of Louisiana and Texas. The Canadian form *must* be *A. oculatus*.

In this connection, I would observe that a determination unless as authentic as possible, is liable to produce serious error if published as a contribution to a faunal list.

J. L. LeCONTE.

Philadelphia, March 28th, 1881.