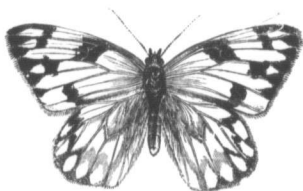


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VOLUME XXXIII.



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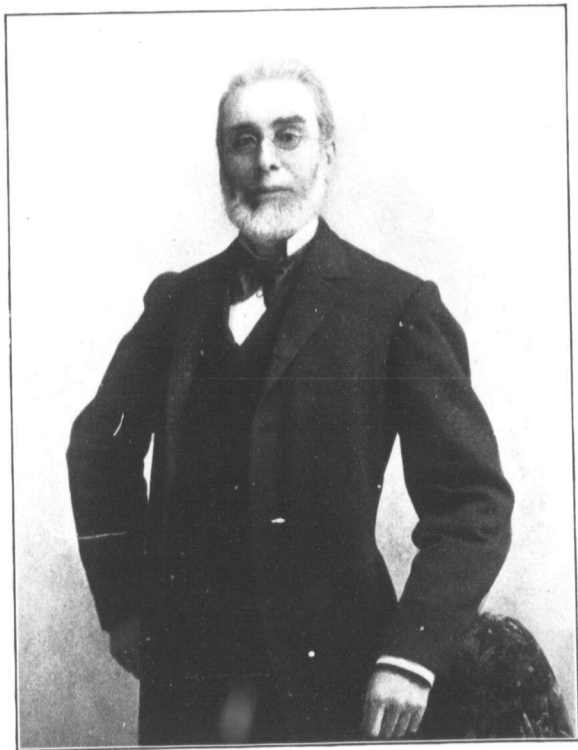
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No. 1

LIFE-HISTORY OF XYLINA BETHUNEI, G. & R.

BY HENRY H. LYMAN, MONTREAL.

On the evening of 17th of April, 1898, a ♀ of this species entered my room, and was bottled and not looked at again until the morning of the 19th, when it was found that the cyanide in the bottle was exhausted and that the moth was still alive and had laid a considerable number of eggs. The eggs were distributed through the cotton wool at the bottom of the bottle, and this had to be carefully pulled to pieces thread by thread to secure the eggs.

The following description was taken :

Egg.—Somewhat of gumdrop shape, .60 mm. in diameter, wider than high. Many low ribs rising from the base, the whole surface pitted with rather large depressions having the appearance near the apex of short transverse striæ. Colour when laid, creamy with a tinge of green, soon turning whitish and then soon showing a mottling of brownish red. Later they turned darker, but the mottling remained; hatching 1st and 2nd May. Egg period about 14 days.

Young larva.—Stage I: Length, at rest, 1.42 mm.; in motion, 1.70 mm. Head large, considerably exceeding the 2nd segment, lower part projecting forward. Colour creamy white, but with a darker interior shade beginning at the 3rd segment and extending about two-thirds to anal end, but darker and more marked on the anterior segments. Setæ long, concolorous, as are also the feet and claspers.

The larvæ were offered wild cherry, red-oak bud, hawthorn, silver maple, white birch, willow, plantain, ash, apple. They ate several of the foods offered, but preferred cherry, maple or apple; hawthorn, birch and plantain were not touched.

By the 5th May the general colour was a pale green, the interior shade being dark green, though some did not show the darker interior shade, being uniformly pale green.

Passing 1st moult 7th May; described 9th May.

After 1st moult.—Stage II: Length 6 mm. Head pale greenish with a few white hairs, ocelli black. Body pale green, dark green interiorly, with a whitish subdorsal line, and a similar subspiracular line. Warts whitish.

By the 12th some had passed 2nd moult.

After 2nd moult.—Stage III: Length 8.60–9.40 mm. Head pale horn colour. Body green, darker, especially interiorly, above, yellowish green below. There is now a very broken dorsal line of short white dashes. The warts are conspicuous, being of a shiny white, like glazed china. Setæ short and whitish; spiracles very inconspicuous. These larvae are sometimes restless, but do not tend to stray from the food-plant. They constantly spin threads, so that when picked up with a camel's-hair pencil they are sometimes pulled back by the thread.

While under observation one began to clear away the frass from the maple leaf it was on, picking the pieces up with its jaws and throwing them aside. One mass so known consisted of six or more pellets stuck together.

By the 15th nearly all had passed the 3rd moult.

After 3rd moult.—Stage IV: Length, at rest, 12 mm.; in motion, 14.5 mm. Very evenly cylindrical, but with a slight fullness about the 12th segment. Head very pale green with a few whitish hairs, mouth-parts whitish, ocelli rather inconspicuous. Body green with yellowish shades, especially at the segmental folds. Warts as before.

The white lines are the same as before, but the subspiracular fold is strongly marked and is yellowish white. There is an indication by white dots of another line between the subspiracular fold and subdorsal stripe. The spiracles are small and very inconspicuous. Feet and claspers pale greenish.

Passing 4th moult 17th May.

After 4th moult.—Stage V: Length, at rest, 15.6 mm. Head, 2nd and 13th segments, light green, rest of body yellowish green. Warts and stripes as before, white. Setæ pale yellowish, subspiracular fold yellowish white, feet and claspers light green.

On 22nd nine out of fourteen in one jar were found to have passed the 5th moult, and the appearance of the larva is now entirely changed.

After 5th moult.—Stage VI: Length, at rest, 24 mm.; in motion, 28 mm.

Head pale greenish horn colour mottled with blackish green. Body

greenish gray, mottled on part above the subspiracular fold with velvety black. Top of the second segment almost solidly black, with a thin pale horn colour dorsal line, the warts very small and similar in colour to dorsal line. This black patch is bordered on the sides by a whitish line, and below is a clear greenish wedge-shape space, wider anteriorly; below this it is mottled in black to the subspiracular band. Dorsal stripe from 3rd segment to 13th yellow, shaded with orange. Warts distinct, white like glazed porcelain. Setæ rather weak, pale in colour. On 8th to 11th segments there are two small white dots like warts in advance of wart i., at about same distance from i. as ii. is. These spots are a little further from the dorsal line than i., but not quite as far as ii. Subdorsal stripe broken up into a line of spots, subspiracular fold broad, cream colour; just above this a black band of varying width, widest at the spiracles, which show upon it as white ovals; between this and the subdorsal stripe there is a series of white dots.

The black mottling tends to be grouped about the warts and other white dots.

The top of the 12th segment is slightly swollen. Below the subspiracular fold the body is pale green with only a powdering of black atoms about the warts v. and vi.

Feet and claspers pale green.

On 23rd May I noticed that there were only 13 larvæ in the jar where there had been 14, and it is possible that one had been eaten, though they had never been short of food. In the other jar cannibalism, which is a characteristic of this group, had evidently been practised, as evidenced by the remaining anal extremity of a larva which had apparently been devoured when in process of moulting.

I therefore separated them into four jars so that they should have more room. One larva was of a much grayer tone than the average, being wanting in the greenish shade. The larvæ were mature about the end of May, the colour as usual changing just before the pupation, the greenish shade of the upper area giving place to a pinkish tinge.

The length of the mature larva is 31-32 mm. The larva enters the ground and makes a close cocoon of grayish silk and pellets of earth. The pupa is of the usual noctuid type. The moths began to appear about the 29th July, and continued to emerge for a week or ten days. This is very much earlier than they would have emerged had they been subjected to the vicissitudes of their natural life out of doors.

NEW JASSIDÆ FROM THE ROCKY MOUNTAIN AND
PACIFIC REGION.

BY E. D. BALL, FORT COLLINS, COLO.

The following species, with a few exceptions, were taken by Mr. E. P. Van Duzee and the author while on a very interesting and successful trip through southern and western Colorado during the latter part of July, 1900. These species are all strictly south-western in distribution as far as known, and most of them were found feeding on one or another of the peculiar plants of that region. While collecting in the valley of the Grand River, a number of species of Homoptera were taken, hitherto only known from the Californian region, and it is very probable that in turn several of these species, which were taken along with them, will, eventually, be found in California.

HECALUS BRACTEATUS, n. sp.

Resembling *brunneus*, the elytra shorter in the female, longer in the male. Head longer and thinner. Female, pale yellow. Male, milky-white with fuscous lines. Length, ♀ 7 mm., ♂ 5 mm. Width, ♀ 1.5 mm., ♂ 1.25 mm.

Female.—Vertex long, with a foliaceous margin, disc transversely convex, the lateral margins but slightly narrowed for half the length, then forming a parabolic curve. Length and width in front of eyes about equal, two and one-fourth times the length of the pronotum. Elytra brachyp-terous, covering the first abdominal segment, as long as the vertex, their apices rounding. Venation reduced, a broad margin outside of the first section, which is once forked, no apical and rarely more than one ante-apical cell present.

Male.—Vertex roundly triangular, its basal width one-third greater than its length, slightly longer than pronotum, margin not foliaceous. Elytra long and narrow, much longer than abdomen, venation distinct, somewhat irregular, usually the second cross nervure present, forming three anteapical cells, of which the second is much the longer.

Colour: female pale yellow or straw colour, the elytra with a few fuscous dots next the nervures; abdomen with a pair of olive stripes on each side, these stripes margined with dotted fuscous lines, a similar median line. Sometimes the olive stripes disappear, leaving the abdomen with nine dotted fuscous lines. Male milky white, sometimes with five olive stripes, dotted with fuscous, on vertex and pronotum. Elytra

with the milk-white nervures margined with fuscous dots. Upper half of the face fuscous.

Genitalia: ultimate ventral segment of the female as long as the penultimate, the posterior margin roundly emarginate, with a broad blunt tooth. Male, valve triangular, plates triangular, the margins slightly concave, fringed with stout spines; plates about three times the length of the valve.

Described from numerous specimens from Rocky Ford, Colo. This species is apparently intermediate in structure between this genus and *Parabolocratas*. The females are all brachypterous and have the elongate head of a *Hecalus*, while the males are long-winged and have the short vertex of *Parabolocratas*.

ATHYSANUS SYMPHORICARPE, n. sp.

Form and size of *instabilis*, lighter coloured, resembling *striatulus*, but larger and lighter testaceous. Length, 4.5 mm.; width, 1 mm.

Vertex twice wider than long, half longer at apex than against eye, rounding to the broad almost parallel margined front, clypeus much narrower than apex of front, parallel margined. Elytra stout, longer than body as in *instabilis*, the central antepical cell long, narrowed in the middle, more than half its length beyond the apex of clavus.

Colour: vertex and face yellowish testaceous, lines on front and irrorations on vertex fusco-testaceous. Pronotum and scutellum paler, with a slightly olive tinge. Elytra pale brownish or olive testaceous, subhyaline, the nervures light. Legs and all below pale orange testaceous.

Genitalia: ultimate ventral segment of the female little longer than the penultimate, the lateral margins narrowing, the lateral angles a little produced, triangular, between these the posterior margin is slightly rounding, shining black. One specimen has an acutely angular notch either side the middle, one-third the distance to the margin, leaving a broad central tooth; one has only one notch; and two, probably not having copulated, have none.

Described from four females from Ridgeway, Colo.

ATHYSANUS VARUS, n. sp.

Form and colour of *alpinus* and *extrusus*, but with a narrower body and longer elytra. Male darker, resembling *plutonius* female. Length, ♀ 5 mm., ♂ 4.25 mm. Width, ♀ 1.5 mm., ♂ a little over 1 mm.

Vertex roundly triangular, twice wider than long, two-thirds the length of the pronotum, disc convex, rounding to front, apex bluntly conical; front broad and flat, width between antennæ a little less than three-fourth its length. Elytra long, the outer margins almost parallel, their apices very broadly rounding. Venation strong, often accessory cross nervures along clavus and between sectors of corium; central anteapical cell very long, the posterior end angularly enlarged.

Colour: ground colour a dirty straw-yellow; vertex with a transverse band just back of the ocelli, the ends of which do not reach the eye, but curve forward to the front; another interrupted band half way between this and the posterior margin and two dashes curving away from the apex and paralleling the other bands, black. Elytra with the nervures white, the cells mostly filled with dark fuscous, omitting a transverse, hyaline, band across the juncture of apical and anteapical cells, a large milk-white patch on the cross nervures between the sectors, a smaller one at the apex of each claval nervure and sometimes another next to the claval suture. Face, dirty yellow arcs on front, especially on upper half; sutures, spots around the antennal sockets and the disc of the clypeus, fuscous. Male much darker than female, lower part of face and below black.

Genitalia: ultimate ventral segment of the female one-half longer than penultimate, posterior margin nearly truncate, the median third roundly produced; usually the segment is curved over the ovipositor so that it appears emarginate, with a quite pronounced median lobe; male valve less than half as long as its breadth at base, the apex rounding; plates no wider than the valve, slightly concavely triangular, the apex acute, two and one-half times the length of the valve, clothed with stout white spines.

Described from ten females and one male from Fort Collins, Colo.

Readily distinguished from any other American species by the genitalia and venation. There is a group of about six European species that possess the same milk-white elytral markings, of which *distinguendus* and *Schenkii* are similar in form, but none of them in venation and genital characters.

THAMNOTETTIX GRAECULA, n. sp.

Form of *flavocapitata* nearly, but stouter; as large as *Coquilletti*, which it somewhat resembles in colour. Length, ♀ 5.5 mm., ♂ 5 mm.

Vertex roundingly angular, the apex conical, scarcely two-thirds as long as its breadth at base, half longer than against eye; disc convex, rounding to the front except at apex; front broad, rather flat; clypeus broadest just before the rounding apex. Pronotum a little over half longer than vertex; elytra rather stout. Venation peculiar, resembling *longula*, except that the outer anteapical cell is pointed and petiolate anteriorly and the outer fork of first sector is very faint. Male smaller and with a blunter vertex.

Colour: pale yellowish olive; the female has two large spots within the basal angle and two smaller ones on the disc of the scutellum and the cross nervures between the sectors brown. Elytra with slight reddish cast. The males have no marking on scutellum, the elytra are distinctly embrowned, especially along the claval and apical areas. In both sexes there are a number of oval subhyaline areas. In the males there are three approximate pairs along the sutural margin.

Genitalia: ultimate ventral segment of female half longer than penultimate, the lateral angle rounding, the posterior margin triangularly emarginate from the lateral angles half way to the base; from the bottom arises a strap-shaped tooth equalling the lateral angles; male valve broadly evenly rounding. The plates, concavely, triangularly acuminate, about twice the length of the valve.

Described from one female and three males from Rifle, Durango and Colorado Springs, Colo.

SCAPHOIDEUS BLANDUS, n. sp.

Form and general appearance of *jucundus*, smaller and paler, lacking the reddish tinge of that species. Costal margin of elytra with numerous regular cells. Length, 5 mm.; width, 1.10 mm.

Vertex right-angled back to the eyes, which round off, not quite as long as its basal width, disc flat, margins straight, vertex and face forming an acute angle; front, margins straight, clypeus very slightly broadened below. Pronotum as long as vertex, more than half of its length within the curve of the vertex. Elytra, claval veins but slightly curved apically, usually a cross nervure from outer one to suture and often several irregular ones between the veins, outer anteapical cell usually with one cross nervure to the costa, sometimes several, costal margin with numerous, indistinct, almost equidistant nervures which are perpendicular to the margin.

Colour: almost uniform dull yellow, the anterior margin of vertex pale, faintly margined with brown. Elytra with oval light spots, which are milky on clavus and subhyaline white on corium; the three pairs along the sutural margin are very regular. Below pale yellow.

Genitalia: ultimate ventral segment of female twice wider than long, posterior margin rounding, variably trisinate either side of a narrow median incision; the inner pair of lobes usually largest, lateral angles rounding, disc with a dark spot, pygofer short, strongly inflated in the middle. Male valve small, bluntly triangular; plates rather broad, the basal half rounding, apical half triangularly narrowing to the blunt tips, two and one-half times longer than valve, the flat lateral margins separated from the convex disc by a dark line.

Described from numerous specimens from Rifle, Ridgway, Dolores and Durango, Colo. The quadrangular cells along the costa will readily separate this from any described form.

SCAPHOIDEUS FUMIDUS, n. sp.

Resembling *blandus* in form and size. Colour rich testaceous brown, the margins of vertex and pronotum and apex of elytra white. Length, 5 mm.; width, 1.5 mm.

Vertex right-angled, slightly shorter than its basal width, lateral margins slightly rounding, disc flat or slightly transversely depressed on the middle; outline of face as seen from the side straight, front rapidly widening above antennal pits, regularly narrowing below; clypeus short, constricted in the middle, genæ broadly margining the loræ below. Pronotum slightly longer than vertex. Elytra rather long and narrow behind; outer claval vein nearly straight, venation obscured by the deep colour, except in the apical cells, nodal vein arising from beyond the middle of the outer anteapical cell.

Colour: rich testaceous brown, vertex lighter, the lateral margins of vertex and pronotum and the costal margin of elytra at base creamy white, the apex of corium from just beyond the clavus and including all the apical cells and the apices of the two outer anteapical cells, subhyaline white. Sometimes a few oval white spots in the testaceous portion of elytra. Face and below pale creamy yellow.

Genitalia: ultimate ventral segment of female with a broad, triangular, median notch, either side of which there is a broad rounding lobe which slopes away to a small triangular lobe next the lateral angle;

male valve small, not as long as the ultimate segment, roundly triangular; plates narrow, long, triangular, their apices acute.

Described from ten specimens from Rifle, Dolores and Durango, Colo. The white margins anteriorly and the sharply defined tip to the elytra against the rich ground colour render this an easily recognized species. The general shape and colour suggest the genus *Platymetopius*, but the shorter vertex and the face characters place it with *Scaphoideus*. Such species as this weaken generic characters and at the same time help us in that they show affinities.

PHLEPSIUS VANDUZEI, n. sp.

Form and general appearance of *cinereus*, but much larger; stouter built than even *nebulosus*; grayish cinereous, with a trilobate commissural line. Length, 8 mm.; width, 2.75 mm.

Vertex very bluntly conical, one-fourth longer on middle than against eye, three-fifths the length of the pronotum, no visible line between it and front; front not quite as long as its basal width, the apex one-third the width at base; clypeus long, wedge-shaped, broadest below; pronotum two and one-third times wider than long. Elytra broad, longer than the body, compressed before the flaring apex; claval veins sometimes tied across.

Colour: dirty white, sometimes a pale yellow wash on vertex and pronotum. Vertex with a distinct round black spot on the middle of either side at the base, a few irregular dark vermiculations anteriorly, omitting a broad median line which extends down the front; numerous short arcs on front, a spot on clypeus, a pair on loræ, another pair just under eyes, fuscous. Pronotum and scutellum with very faint markings, elytral veins yellow and fuscous; between them the membrane is very finely, sparsely, and somewhat irregularly vermiculate, omitting a broad commissural line, which is divided into three lobes by the apices of the claval nerves. The outer apical and two costal veins often very much infuscated, the spaces between clear.

Genitalia: ultimate ventral segment of the female appearing only as a narrow strip along the pleura on either side; in its place is a thin membrane shaped almost like the segment in *apertus*, with its rectangular median excavation, and showing beyond its posterior margin the rounded apices of the plates, near the middle line, and the rounding lobes of a second membrane near the lateral angles; male valve triangular, the apex bluntly roundly produced; plates broad at base, roundly triangular,

their apices produced, compressed, slightly divergent; disc, convex, inflated, a few appressed hairs along the margin; plates equalling the pygofers, nearly five times the length of the valve.

Described from a pair taken at Rifle, Colo., by Mr. E. P. Van Duzee, and two females taken at Grand Junction the next day by the author. This large species is strikingly distinct in form, colour and genitalia, and it gives me great pleasure to name it after the man who has in the past so carefully worked out this genus for us, and whose energy and "Kansas umbrella" taken together did so much to make this mountain trip both pleasurable and profitable to the author.

PHLEPSIUS EXTREMUS, n. sp.

Very small, oval, depressed, with a flat, thick margined vertex; resembling *decorus* and *areolatus* in general appearance, but much smaller. Smaller than *ovatus*, head as wide as the pronotum. Length, ♀ 4.5 mm., ♂ 4 mm.; width, 1.5 mm.

Vertex flat, over three-fourths the length of the pronotum, over half longer on middle than at eye, not quite twice wider than long, the anterior margin thick, angle with front acute; front broad, nearly flat, longer than wide. Elytra short, oval, claval veins distinct.

Colour: milky white, heavily irrorate with dark fuscous so that the general colour is dark without the reddish or brownish tinge so common in this genus; vertex very heavily irrorate, omitting a narrow margin and median line. Pronotum with large olive brown spots along the anterior margin as in *decorus* and *areolatus*. Elytra with numerous supernumerary veins and reticulations, irrorations almost obsolete except in a few dark spots around the apex and along the costa, one or two near the apex of clavus and two very distinct ones between the sectors of the corium. Front very heavily irrorate with brownish fuscous, rest of face and legs lighter.

Genitalia: ultimate ventral segment of the female twice the length of the penultimate, the lateral angles broadly, roundly produced, between these the margin is roundly emarginate with minute angular teeth at the bottom. In the natural position of the segment it appears to be angularly emarginate almost from the lateral margins; male valve very small, broad and short, about one-fourth the length of the ultimate segment; plates triangular, their apices hardly acute, a little longer than the ultimate segment.

Described from two males and two females, three from Rifle and one

from Durango, Colo. One Rifle specimen from Mr. Van Duzee. This is as short as *albidus*, but much broader, and is quite distinct structurally from any other species with a flat vertex and a broad head.

PHLEPSIUS DENUDATUS, n. sp.

Resembling *ovatus*, but broader and shorter. Even lighter coloured than *albidus*. Head broader than thorax. Form stout. Length, 4 mm.; width, 2 mm.

Vertex blunt, rounding, twice wider than long; front broad, about one-fifth longer than wide, clypeus enlarged at apex. Pronotum very short, but one-third longer than vertex, lateral margin scarcely apparent. Elytra short, broad, flaring behind, giving the insect a square-set appearance. Venation very indistinct, somewhat variable.

Colour: milky white, very sparsely spotted and irrorate with fuscous. Vertex with a pair of round spots just inside the eyes; within and back of these a pair of oblique dashes, fuscous. Pronotum with a pair of fuscous spots in a line with the inner margin of the eye on either side, sometimes a row of fuscous markings inside of these. Scutellum with a pair of triangular spots within the basal angles and a smaller pair of round ones on the disc. Elytra with three pairs of equidistant approximate spots along the suture, the middle pair the largest, and a number of spots along the costa, black. Sometimes these are absent except the large pair on the suture, and a spot opposite the anteapical cells on either costa. Veins pale yellow, indistinct. Face and all below dirty white.

Genitalia: ultimate ventral segment of the female about twice as long as the penultimate, the lateral angles feebly, angularly produced, the margin between them very slightly rounding, with a small semicircular median emargination; male valve small, triangular; plates broad, triangular, as long as the ultimate segment.

Described from numerous specimens from Grand Junction, Colo. (V. D. and the author.) This is another of the "white" Phlepsids, which seems to be strictly south-western in distribution. In structure it resembles *Vandusei*, but in size and colour it is very different.

(To be continued.)

I desire to acknowledge the Society's indebtedness for a perfect pair of *Plusia aeroides*, from Mr. C. H. Young, Hurdman's Bridge, through Dr. Fletcher. A very rare species in this district.

J. ALSTON MOFFAT, Curator.

REVISION OF THE GENUS CATOCALA.

BY G. H. FRENCH, CARBONDALE, ILL.

On page 191, Vol. XXXII., of the CANADIAN ENTOMOLOGIST (1900), Dr. Grote describes a new species of *Catocala* from Texas, *C. moderna*, related to *C. viduata*. If we place this as No. 7 in our list of the former article, and push the rest one number forward, it will bring *C. relicta* No. 21 instead of No. 20. Following this with the "red wing" species, I would arrange this group as follows:

- | | |
|---|---|
| 22. <i>Cara</i> , Guenee.
var. <i>Sylvia</i> , Hy. Edw.
var. <i>Carissima</i> , Hulst. | 45. <i>Hermia</i> , Hy. Edw. |
| 23. <i>Amatrix</i> , Hubner.
var. <i>Nurus</i> , Walker. | 46. <i>Cassandra</i> , Hy. Edw. |
| 24. <i>Concumbens</i> , Walker.
var. <i>Diana</i> , Hy. Edw.
var. <i>Hillii</i> , Grote. | 47. <i>Briseis</i> , Edw. |
| 25. <i>Californica</i> , Edw.
var. <i>Perdita</i> , Hy. Edw.
var. <i>Cleopatra</i> , Hy. Edw. | 48. <i>Faustina</i> , Strecker.
var. <i>Zilla</i> , Strecker.
var. <i>Verecunda</i> , Hulst.
var. <i>Allusa</i> , Hulst. |
| 26. <i>Hippolyta</i> , Hy. Edw. | 49. <i>Irene</i> , Behr.
var. <i>Virgilia</i> , Hy. Edw.
var. <i>Volumnia</i> , Hy. Edw.
var. <i>Valeria</i> , Hy. Edw. |
| 27. <i>Arizonæ</i> , Grote. | 50. <i>Parta</i> , Guenee.
var. <i>Perplexa</i> , Strecker.
var. <i>Petulans</i> , Hulst. |
| 28. <i>Luciana</i> , Hy. Edw.
<i>Nebraska</i> , Dodge.
var. <i>Somnus</i> , Dodge. | 51. <i>Coccinata</i> , Grote.
<i>Sinuosa</i> , Grote.
var. <i>Circe</i> , Strecker. |
| 29. <i>Marmorata</i> , Edw. | 52. <i>Aholibah</i> , Strecker. |
| 30. <i>Babayaga</i> , Strecker. | 53. <i>Violenta</i> , Hy. Edw. |
| 31. <i>Aspasia</i> , Strecker.
var. <i>Sara</i> , French. | 54. <i>Verilliana</i> , Grote.
var. <i>Ophelia</i> , Hy. Edw.
var. <i>Votiva</i> , Hulst. |
| 32. <i>Junctura</i> , Walker.
var. <i>Walshii</i> , Edw. | 55. <i>Ultronia</i> , Hubner.
var. <i>Celia</i> , Hy. Edw.
var. <i>Mopsa</i> , Hy. Edw.
var. <i>Adriana</i> , Hy. Edw.
var. <i>Herodias</i> , Strecker. |
| 33. <i>Unijuga</i> , Walker. | 56. <i>Ilia</i> , Cramer.
var. <i>Zoe</i> , Behr.
var. <i>Uxor</i> , Guenee.
var. <i>Osculata</i> , Hulst. |
| 34. <i>Beaniana</i> , Grote. | 57. <i>Innubens</i> , Guenee.
var. <i>Flavidalis</i> , Grote.
var. <i>Hinda</i> , French.
var. <i>Scintillans</i> , Grote. |
| 35. <i>Augusta</i> , Hy. Edw. | |
| 36. <i>Rosalinda</i> , Hy. Edw. | |
| 37. <i>Pura</i> , Hulst. | |
| 38. <i>Semirelicta</i> , Grote. | |
| 39. <i>Meskei</i> , Grote. | |
| 40. <i>Stretchii</i> , Behr. | |
| 41. <i>Portia</i> , Hy. Edw. | |
| 42. <i>Mariana</i> , Hy. Edw.
var. <i>Francesca</i> , Hy. Edw. | |
| 43. <i>Jessica</i> , Hy. Edw. | |
| 44. <i>Grotiana</i> , Hy. Edw. | |

The three forms, *Babayaga*, *Aspasia* and *Walshii*, have been more or less confused. While at a casual glance they are very close, still I have no trouble in separating them. The first I have seen from Texas and Arizona. The fore wings have a brownish velvety appearance, the s. t. line not lighter than inside the t. p. line, the t. p. and t. a. lines dark brown with a mesian transverse and s. t. brown shade. The mesian band of the hind wings is very narrow, only slightly expanded in the middle, abruptly bent at the posterior and not reaching the internal margin.

Aspasia has the ground colour of a slight bluish tinge, the lines of a deeper brown, almost black, the mesian and s. t. shades more distinct brown, the s. t. line almost or quite concolorous with the ground colour. The mesian band of the hind wings is from a quarter to a third wider than in *Babayaga*, and often nearly reaches the internal margin by a shade.

In *Walshii* the ground colour of the fore wings is much as in *Aspasia*, but the s. t. line is white or whitish and the shades are less brown, and the mesian band of the hind wings is nearly twice as wide as in *Babayaga*.

I have seen *Babayaga* from Texas and Arizona; *Aspasia* from Arizona and Colorado; *Walshii* from Arkansas, Missouri and Illinois; and what may be *Junctura* from Arkansas. I have not before me Walker's description, and hence do not know the locality he gives for the specimen he described. If I know the genuine *Junctura* it has more or less white through the middle of the fore wings, as Grote says in one of his descriptions, somewhat simulating *Unijuga*, with the mesian band of the hind wings wider than in either of the first three forms. I have seen such specimens from the East, and one or two from Arkansas in the collection of Mr. T. C. Poling, of Quincy, Ill., approximate the eastern forms. On the strength of this I have put *Walshii* as a variety of *Junctura*.

As to the specific status of these forms I have not much to say. I have taken *Walshii* here in Southern Illinois for more than 20 years, and have never found one intergrading toward what I have called *Junctura*, and hence have not shared Mr. Grote's idea that it was a synonym of *Junctura*, and only place it as a variety for the reason given above. Nor have I seen any intergrading toward *Aspasia* or *Babayaga*. It is possible that these four forms are but one species, but it seems to me better to let them stand till by breeding they are proven to be one.

In another species, *Stretchii*, I found by breeding that there was considerable variation in the colour of the fore wings, but the mesian band

of the hind wings and the main markings of the fore wings were constant. Hence I separate this without hesitation from all other forms.

It is commonly conceded now, I think, that *Nebraska*, Dodge, is a synonym of *Luciana*, Hy. Edw. I have not seen *Portia*, *Jessica* and *Cassandra*, and place them where they have been placed, as I have only descriptions of these species. From my own observation I should be inclined to separate *Circe* from *Coccinata*, as I take only the first form here, but the size given in the descriptions and what I have seen in other collections lead me to think that they are but forms of one species.

A NEW CANADIAN TINEID.

BY AUGUST BUSCK, WASHINGTON, D. C.

Anacamptis lupinella, n. sp.

Antennæ bronzy black with white annulations, slightly serrate, especially towards the tip.

Labial palpi long, smooth, recurved; second joint somewhat thickened, with appressed scales, dark ochreous brown; terminal joint longer than second, acicular, dark brownish, with tip black.

Maxillary palpi obsolete. *Tongue* stout, scaled.

Eyes [in the dry specimen] dark brick red.

Face light brown, with dark purple reflexions.

Head and *thorax* concolorous with fore wings, purplish black, with a satin lustre and with numerous evenly distributed bluish white scales, only visible under a lens.

Three varieties are before me.

Fore wings in some specimens without any markings; in others they have a distinct whitish yellow spot at the beginning of the costal cilia and another similar dorsal spot opposite.

In still other specimens these spots are extended downwards and upwards relatively and meet each other, forming a narrow transverse fascia.

In the two former varieties the fore wings are otherwise uniformly coloured, but in the last moth the outer half of the wing is suffused with irregular longitudinal streaks of light brown.

Presumably all gradations of these types exist.

Under side of fore wing uniformly bluish black, without trace of the fascia or spots.

Hind wings a little broader than fore wings, termen not sinuate, black, with strong purple reflexions.

Venation typical: Fore wings: 12 veins, 7 and 8 stalked, the others separate. Hind wings: 8 veins, 3 and 4 connate, 6 and 7 connate.

Entire body and legs purplish black.

Alar expanse 14 mm.

Habitat.—High Park, Toronto, Canada.

U. S. National Museum, type No. 5351.

Described from three perfect female specimens, reared from *Lupinus perennis* and presented to the National Museum by Dr. J. Fletcher.

The insect is in several respects an interesting one. It belongs to that group of *Anacamptis*, Curtis [*Tachyptilia*, Hein., *Meyrick*], which in coloration suggests strongly the *tenionella* group of the genus *Aproærema*, Durrant [*Anacamptis*, *Meyrick*].

It is nearest *Anacamptis* (*Gelechia*) *agrimoniella*, Clemens, and has not only the pattern but the leguminous food plant of *Aproærema*, while having the wing form and venation of *Anacamptis*; indicating in connection with the other species in this group the correlation of the two genera.

Its general habitus suggests very much the genus *Trichotaphe*, Clemens, to which genus I took it to belong, before examining closely the venation.

The insect is one proof of the close relationship between *Anacamptis* and *Trichotaphe*, which in their nearest related forms only differ in the single point: veins 2 and 3 in fore wing being stalked in *Trichotaphe*, while they are separate in *Anacamptis*.

Anacamptis tristrigella, Walsingham, described as *Gelechia*, and *Anacamptis levipedella*, Clemens, described as *Strobisia*, belong in this immediate group.

The following description of the full-grown larva is by Dr. James Fletcher, Ottawa:

Larva.—Shape as in many other Tineids, almost cylindrical; head and 2nd segment slightly smaller than rest of body; segments 3 to 5 very little smaller than segments 6 to 12. Length 13 mm., extended 15 mm. Width, segments 6 to 12, 2 mm. wide; segment 2, 1.40 mm., segments 3, 4 and 5, 1.60 mm. Head 1 mm. wide, flattened and rather shorter than wide; horizontal, slightly oblique, shining, bearing a few slender hairs; deeply indented at apex, testaceous, darkened along posterior margin and bearing a black blotch at lower posterior angle of each cheek; ocellar field black; length .90 mm. Thoracic shield large, conspicuous, concolorous with head; width 1.30, depth .50 mm; almost straight in front,

rounded posteriorly. One-third of lower margin edged with black and terminating with a black point at lower anterior angle; posterior margin swollen and bearing on each side of median line 3 small black piliferous tubercles. There are also 3 others on front margin. Tubercles of body black, bearing slender fawn-coloured hairs, normally placed, consisting of 3 dorsal, 3 substigmatal and 1 ventral series. No. i. anterior, and sub-dorsal, half the size of ii. and iii.; No. ii. posterior, and supralateral; No. iii. median, immediately above the minute black spiracles, slightly larger than ii.; on segments 7 to end enclosing the spiracles in their lower margins; No. iv. twice its width from spiracles and immediately below them; No. v. below and in a line with No. ii.; the tubercles of series No. vi. form a line running from base of thoracic feet to base of anal prolegs; the tubercles of this series are more than twice longer than high, being merely short black chitinous dashes bearing 2 or 3 bristles, except on segments 5, 6, 11, 12 and 13, where they are dots. Substigmatal series, tubercles iv., v., vi., are all of the same size as ii., larger than i., smaller than iii. Medio-ventral series of very small tubercles, one on each side of every segment, beneath. On segment 2 a large black oval tubercle (No. v.), beneath thoracic shield and anterior to the spiracle, and a tubercle at base of thoracic foot (No. vi.). On segments 3 and 4, tubercle No. i. is wanting, and as usual Nos. ii., iii. and v. are arranged in a curved line across the segments; No. v. anterior to the other two; vi. is at base of thoracic foot, and iv. immediately above it, but higher up than v.

General colour of larva dark olive green above, paler below, dorsal vessel showing as a dark stripe. Thoracic feet testaceous, blackened at tips, with a narrow chitinous black fold in front and another behind at the base of each. Prolegs concolorous with body; claspers rusty.

Cocoon, slight, among the leaves. Pupa chestnut brown, length 6.50 mm. by 1.75 mm. at widest part. Thorax and abdomen bearing a few slender bristles, which are most numerous towards the cremastral end. Cremastral hooks long and slender. Whole body covered with a very short fulvous velvety pile.

These larvæ were found in considerable numbers among leaves of *Lupinus perennis* kindly sent from High Park, Toronto, by Mr. Allan Kinghorn. Each larva made a tent by tying two or three of the leaflets loosely together. They were almost full-grown when received, and the first pupated on the 10th of June. Pupal period about eight days. Eight moths were reared, all females. There was considerable variation as to markings, the transverse fascia being obliterated in some specimens, but more or less apparent in most.

CYPHODERRIS MONSTROSA.

BY SAMUEL H. SCUDDER, CAMBRIDGE, MASS.

From time to time during the last two or three years, Dr. James Fletcher has sent me specimens of a curious Locustarian taken at Banff, Alberta, by Mr. N. B. Sanson, curator of the Government museum in the National Park at that place. The specimens were all wingless and apparently immature females, but quite unlike anything known from that region. A study of their structure showed that they belonged to the Stenopelmatini and were most nearly allied to the genus Cyphoderris. Now, Cyphoderris, though described by Uhler thirty-six years ago, is a rare creature and was on record from only two localities, Oregon and Wind River, Wyo., and only males had hitherto been taken. The probability that these immature and wingless females belonged with the winged males appeared to me, however, so great that in my recent catalogue of North American Orthoptera I recorded the species given in the title above as found in Alberta.

Nevertheless, I had misgivings and asked Dr. Fletcher to obtain mature specimens to make sure. By his urgency, Mr. Sanson has forwarded separately this last autumn two mature females *alive*, the first of which Mr. Fletcher sent to me. These were in no respect different from the immature specimens except in size and in slight traces of wing-pads beneath the pronotal shield; while in the appearance of the pronotum they differed so greatly from the male of Cyphoderris that I was as much at a loss as ever; for the male Cyphoderris has the posterior half of the pronotum so hunched and enlarged as to be almost a half broader posteriorly than anteriorly; this is to give room for the coarse and bellied tegmina, which it overhangs, which are considerably longer than the pronotum, and nearly the whole of whose dorsal surface is made up of a coarse stridulating organ. But the females sent had a pronotum of nearly uniform diameter and practically no wings. Only by securing a male from the same region or females from Oregon or Wyoming could the question really be decided whether these represented closely-related genera or the same or nearly-allied species. The matter has just been definitely settled by the receipt of a male from Banff, kindly sent by Mr. Sanson from his collection, which cannot be separated from the Oregon types in my possession. Mr. Sanson responded generously to the

demands upon him; he obtained his specimens under logs and stones where he had placed old bones as a bait. They appear to be scarce, and he has so far secured but one male.

The occurrence of such a form so far north is of particular interest, for *Cyphoderris* belongs to a group of Anostostomata (a subdivision of *Stenopelmatini*) which is purely American, but mainly tropical, its northernmost allies being found in Mexico. Moreover, the Old World species and genera of Anostostomata are from the southern hemisphere exclusively.

Both Mr. Fletcher and I kept our females alive for nearly a month, feeding them chiefly on apples, of which they partook rather sparingly. They were very sluggish, as seemed fit for such heavy-bodied creatures, and could scarcely jump at all, not above half an inch at a time, and were more active by night than by day. Whether eggs are laid in the autumn or spring is uncertain; the former would seem probable from their dying in captivity before November, the latter from the fact that when captured in September the thermometer stood at 19° F. I gave my specimen no water, but Mr. Fletcher gave his some from a brush, which she drank, but, he writes me, "if I push the brush too assiduously she turns over on her back and bites and kicks savagely and then lies perfectly still." After death the abdomen contracts greatly.

Taking advantage of possessing a living specimen, I took notes of the colouring, etc., from which the following description of the female is taken:

Head above the antennæ bronze black, longitudinally marked with pallid luteous; genæ and face below the antennæ pale lilac, excepting the clypeus and labrum, which are pale lemon yellow, the whole marked with blackish; palpi pallid, feebly infuscated, especially the maxillary pair, in stripes and apical marginings, the extreme apex of apical joint pallid; basal joint of antennæ pallid, with broad basal and narrow subapical fuscous annuli, the remaining joints bronze black; eyes castaneous.

Pronotum subcylindrical, subequal, very feebly constricted just in advance of the middle, dull luteous with a nacreous sheen, the posterior edge and lower margins of the lateral lobes flavous or flavescent, the whole heavily and massively marked, especially in the constricted region, with very dark glistening bronze green, the whole surface, whether dark

or light, sprinkled very sparsely and very inconspicuously with luteous dots. Sternal parts of thorax luteous, more or less infuscated. Tegmina reduced to minute membranous testaceous pads, concealed beneath the pronotum. Coxæ and trochanters blackish fuscous; femora luteo-testaceous, the whole apex and a broad longitudinal median band on the outer side subpiceous; tibiæ pallid luteous, with a piceous stripe following the upper lateral spinigerous margins, heavier in basal than in apical half; the fore pair with one spine above on inner margin, besides an apical one, none on the outer margin, below with two or three spines on each side, besides the apical one; the middle pair with no spines below, two or three on either side above, besides the apical one; and the hind pair with no spines below and six or seven on either side above, besides the apical one; the spines pallid or luteous tipped with black, excepting the apical spines, which are almost wholly fuscous; tarsi very pale red beneath, pallid above, edged apically with fuscous.

Abdomen very plump, deeper than broad, having above the same colours as the pronotum, the luteous nacre forming the base, and the bronze green, somewhat embrowned, confined to the apical margins of the segments in an irregular edging; sides of abdomen between the dorsal and ventral scutes pale brown, sparsely sprinkled with pallid dots, the spiracles glistening bronze.

Length of body, 21 mm.; pronotum, 8 mm.; breadth of same, 7 mm.; length of antennæ, 25 mm.; hind femora, 11 mm.; hind tibiæ, 10.5 mm.; hind tarsi, 7 mm.

[Mr. Sanson states that these insects are by no means common at Banff. The first specimen he acquired was found in the basement of the Canadian Pacific Hotel, by Miss Adams, of Winnipeg; Mr. W. C. McCalla, of St. Catharines, Ont., took two immature specimens among the fir boughs used as a bed in his camp. One specimen was given to Dr. White, of Banff, by Mr. George Paris, of the same place. Mr. Sanson caught two mature females, one by placing some biscuits and brown sugar under a sheet of botanical drying felt near one of the summer residences off Tunnel Mountain Rd., near the place where the perfect male referred to above was taken; the second was found under a log where a bone had been placed as a bait; and the last specimen found was brought to him by a member of a camping party, who had it for a few days and brought it in alive. In all, seven specimens have been secured.—ED.]

NOTES ON SOME ONTARIO ACRIDIIDÆ.—PART IV.

BY E. M. WALKER, TORONTO.

(Continued from Vol. XXXI., page 36.)

- 16a *Spharagemon collare*, Scudd., race *Wyomingianum*, Thomas.
Oedipoda Wyomingianum, Thom. Ann. Rep. U. S. Geol. Surv. Terr., V. 462 (1872).
Spharagemon Wyomingianum, Scudd. Proc. Boston Soc. Nat. Hist., XVII., 470 (1875).
Spharagemon oculatum, Morse. Proc. Boston Soc. Nat. Hist., XXVI., 232 (1894).
Spharagemon collare, race *Wyomingianum*, Morse. Psyche, VII., 298 (1895).

In September, 1899, I found this species fairly plentiful on sand dunes, in Rondeau Provincial Park, Kent Co., on the shore of Lake Erie. The sand dunes occupy a considerable area there, and in some places near the lake shore are thinly wooded with red cedar (*Juniperus virginianus*). It is here that I found this locust in the largest numbers, though they were also to be found further away from the shore in open places in oak woods; only, however, where the soil was sandy. In another part of the Park, where the trees were mostly pines, *S. bolli*, Scudd. was common, but I never found the two species together. In the juniper groves near the beach, *S. Wyomingianum* was in company with *Trimerotropis maritima* which occurred in great numbers, and was found also, and still more abundantly, on the open beach, where *S. Wyomingianum* did not venture.

The hind tibiæ of my specimens vary from pale yellow to orange, none being decidedly red. They are dated Sept. 14 and 15, 1899.

This is the first notice of this species in Ontario, and of the race *Wyomingianum* in Canada. I have found the typical *collare* common from Manitoba to British Columbia.

Encoptolophus sordidus, Burm.—Until the last two or three years this species was quite rare in Toronto, which was about its northern limit in that part of Ontario. In the fall of 1897 I saw quite a number in some of the dry, sandy hillsides in High Park, and in 1898 they were much more numerous, and were even seen about the city, in open grassy places. This summer they were common everywhere, their crackling stridulation being heard in almost every field. They have now extended to Lake Simcoe, if not further, for I found them in small numbers, this summer, at De Grassi Point. The species seems to be spreading northward.

21a. *Podisma glacialis*, Scudder.

Pezotettix glacialis, Scudd. Boston Journ. Nat. Hist., VII., 630-631
(1863).

Pezotettix borealis, Glöv. (nec. Scudd.). Ill. N. A. Ent., Orth.
(1872).

Podisma glacialis, Scudd. Rev. Melanopli, p. 98 (1897).

While collecting at North Bay, Lake Nipissing, on Sept. 12, 1900, I took 10 ♂s and 5 ♀s of this insect. They differ slightly from the typical *glacialis* of the White Mountains, approaching *P. variegata* to a slight degree in several points. Having compared them with two pairs of typical *glacialis* from New England, and noticing these peculiarities, I sent a few specimens to Mr. Scudder, who says that they are "without doubt *glacialis*, though varying slightly towards *variegata*, especially in the (feebly) banded hind femora." He also notes that "the cerci of the ♂ are more smoothly rounded at the apex and the furcula shorter than in typical *glacialis*." As compared with my New England specimens, they also differ in having in every case distinctly longer antennæ and hind femora, and in the more prominent eyes; in all of these characters approaching *variegata*.

In the White Mountains Mr. Scudder has found this species on the dwarf birch (*Betula nana*), while Mr. Morse has found it most common in the various species of *Vaccinium* characteristic of mountain tops, and on dwarf cornel. Most of my specimens were found on red raspberry bushes, like *P. variegata*, at Lake Simcoe, but many were also seen on alders. Unlike *variegata*, they are not confined to swamps, but are also found in comparatively dry places.

I have two immature males of a *Podisma*, probably this species, collected by Mr. G. M. Stewart on the portage between Lakes Esnogami and Kabinakagami, in Northern Ontario. This portage is across the Height of Land, and is a little further north than the species has hitherto been recorded. One of the specimens is almost full-grown, and in both the hind femora are pale yellow, strongly banded with black. They are dated July 12 and 13, 1900.

26a. *Melanoplus extremus*, Walk.

Caloptenus extremus, Walk. Cat. Derm. Salt. Brit. Mus., IV., 681
(1870).

Pezotettix junius, Dodge. CAN. ENT., VIII., 9 (1876).

Caloptenus parvus, Prov. Nat. Canad., VIII., 110 (1876).

Melanoplus extremus, Caulfield. Rep. Ent. Soc. Ont., XVIII., 71
(1886).

I have a single female of the short-winged form of this grasshopper, collected by Mr. G. M. Stewart in a muskeg ten miles west of the portage between Lake Kabinakagami and the Matawishguia River.

At the same spot Mr. Stewart also took two males of *M. islandicus*, Blatchley, an adult and a nymph. These three specimens are dated Aug. 18, 1900. On the portage between Lakes Esnogami and Kabinakagami two mature females of *M. islandicus* were taken, July 15, 1900.

29a. *Melanoplus bivittatus*, Say.

Gryllus bivittatus, Say. Journ. Acad. Nat. Sc. Philad., IV., 308 (1825).

Caloptenus bivittatus, Uhler (pars), Say. Ent. N. A., ed LeC., II., 238 (1859).

Melanoplus bivittatus, Scudd. (pars), Hitchc. Rep. Geol. N. H., 1, 376 (1874).

I took a single ♀ of this grasshopper while collecting at North Bay, on Sept. 12, 1900. This is the true *bivittatus*, not the common species with red hind tibiæ, usually so-called, which is *M. femoratus*, Burm. The hind tibiæ of my specimen are dark bluish-green above at base, gradually passing into pale greenish-yellow at apex.

Although I spent some six hours collecting at North Bay, and searched carefully for both *M. bivittatus* and *M. femoratus*, I obtained but one specimen of each, both females. I expected to find *femoratus* common, as it is abundant in Muskoka, and has been taken as far north as Hudson's Bay.

M. bivittatus is an interior and Western form, so that its occurrence in Northern Ontario is of some interest.

Melanoplus punctulatus, Uhler.—During the last two seasons I have found this insect quite plentiful locally, though I spoke of it in a former paper (CAN. ENT., XXXI, 35) as one of our rarest Acridians. Until then I had never seen the male, but in the season of 1899 I found about a dozen of them, and this season I have seen more than one hundred. I found them most numerous on dead stumps and logs, in a wood of second-growth white pine, at De Grassi Pt., Ont. They were sometimes seen on the trunks and branches of living trees, but most often on the stumps and fallen trunks of the oid forest, and on the pine rails of a snake fence enclosing the wood. They were found only on the borders and more open parts of the woods, where they were to be seen upon almost every stump. I have seen ten ♀s on a single stump. It is in these dead stumps and logs that the females deposit their eggs, in which operation I have

observed them repeatedly. The female chooses a crack in the wood or an old beetle-boring of suitable size, and lowers her abdomen down this, sometimes nearly as much as an inch. Sometimes when the hole is of large size, only the head and legs of the insect can be seen above it. Unlike *Chloealtis conspersa*, the female of *M. punctulatus* apparently never bores herself unless merely to make her way through any loose rubbish that might be obstructing the hole. She generally chooses sound or only partly decayed wood.

I managed to obtain several fragments and one complete packet of eggs. The latter was fixed by the cement substance at its lower end to the wall of a beetle-boring three-eighths of an inch in diameter. It was attached at a distance of about three-quarters of an inch down the hole, and except at the lower end, which was imbedded in a depression in the wall, the packet was quite free. It was covered with a rather thick coating of a porous or vesicular cement substance, which also filled all the spaces between the closely-packed eggs. The latter were twenty-three in number, and their arrangement was in general in a longitudinal direction, the anterior ends pointing towards the free end of the packet, but was otherwise irregular.

The eggs are 4 to 4.8 mm. long, elongate-elliptical in form, finely and densely punctate, reddish-brown. There is a slightly impressed line encircling the egg close to its posterior end.

M. punctulatus has been fairly common also at Toronto this season. I found a pair on a white oak tree, the others on pine.

A NEW CECIDOMYIID ON GUTIERREZIA.

BY T. D. A. COCKERELL, E. LAS VEGAS, N. M.

Asphondylia gutierreziae, n. sp.

♀.—Length slightly over 3 mm.; antennæ pale brown, 2 + 15 jointed, the first two joints darkened; eyes united on vertex; thorax reddish-brown, dorsally shining, naked, with four very thin longitudinal bands of hairs; femora pale brown, tibiæ and tarsi darker; wings well fringed with hairs; abdomen nearly naked, bright red, ovipositor and a dorsal apical patch white; ovipositor moderately long.

Pupa shell white, the anterior part faintly tinged with brown.

Gall a pale green fusiform or suboval swelling in the flower-head of *Gutierrezia sarothræ*, about 7 mm. long and 3 mm. broad.

Hab.—Las Vegas, New Mexico; collected by Wilmatte P. Cockerell; flies emerging October 31.

The colours of *A. gutierreziae* are described from fresh material; dried examples will not be so bright.

THE GENERIC NAMES VATES AND THEOCLYTES.

BY JAMES A. G. REHN, PHILADELPHIA.

Recently the writer made the statement (Trans. Amer. Ent. Soc., XXVII., p. 87) that the generic name *Theoclytes* was a synonym of *Vates*, the latter being the older by one year. A further examination has shown that the matter should have been examined closer. Three generic names are involved—*Vates*, Burmeister; *Theoclytes*, Serville, and *Pseudovates*, Saussure—the included species of each being as follows:

Vates, Burmeister.*V. cnemidotus*, Burmeister = *subfoliata*, Stoll.

<i>V. orbis</i> , Illiger.	} <i>Zoolca macroptera</i> , Stoll.
<i>V. macropterus</i> , Stoll.	

Theoclytes, Serville.*T. foliata*, Licht. = *subfoliata*, Stoll.*T. undata*, Fabricius = *Popa undata*, Fabricius.*T. chlorophæa*, Blanchard.*Pseudovates*, Saussure.*P. tolteca*, Saussure.

The type of the genus *Vates* is therefore *subfoliata*, Stoll., the other two included species (synonymous) having been removed by Serville to his new genus, *Zoolca*, in 1839. As the species *subfoliata* was used by Burmeister (and is by elimination the type of the genus), it must be barred from consideration in the genus in which it was placed by Serville. The second species, *undata*, having been removed to another genus, the third, *chlorophæa*, must stand as the type. The last genus, *Pseudovates*, of Saussure, was based simply on *tolteca*, which is congeneric with *Vates*, and therefore the two are synonymous, unless the two types can be separated subgenerically, in which case the name *Pseudovates* is available for one. The revised generic names stand as in the following table:

Vates, Burmeister. Type, *V. subfoliata*, Stoll.— *Pseudovates*, Saussure.*Theoclytes*, Serville. Type, *T. chlorophæa*, Blanchard.

While a few authors have followed almost the same pattern as this, the general tendency has been to distort the names by placing them to suit their fancy or their particular system of classification.

TWO NEW BLIND BEETLES, OF THE GENUS *ADRANES*,
FROM THE PACIFIC COAST.

BY H. F. WICKHAM, IOWA CITY, IOWA.

The species of *Adranes* are to be looked for in nests of ants belonging to the genus *Lasius*. They are helpless creatures, lacking eyes and with much reduced mouth-parts, dependent probably upon the ants for their supply of food. They are carefully attended by their hosts, to whom they give requital in the form of a secretion, much appreciated by the ants, which collects on certain patches of hair situated on the tips of the elytra and on the base of the abdominal dorsum. The antennæ are much modified, consisting of only two joints, the second of which is very large and heavy, varying in form in different species.

Until recently but two species were known, namely, *A. cæcus*, Lec., from Pennsylvania, Georgia and Illinois, and *A. Lecontei*, Brendel, from the Mississippi, Potomac and Ohio* valleys. Some time ago I received from the Rev. Geo. W. Taylor a specimen which appeared to belong to a third species. It had been captured by him in an ants' nest near Nanaimo, Vancouver Island. My trip to the Pacific Coast has given additional specimens of the same kind, and also of a fourth species which is very distinct from any of the others.

While all of the *Adranes* are of much the same colour (a peculiar shining reddish yellow) and agree closely in general shape, they nevertheless offer structural characters, particularly in the male sex, which enable us to separate them readily. I regret not to have seen *A. cæcus*, which evidently approaches the form that I have called *pacificus* in size and in some other features. I annex a table which gives in brief the differentials necessary for specific discrimination:

Head cylindrical. Antennæ with second joint narrowed to tip. L.
1.8 mm. *cæcus*, Lec.

Head narrowed behind.

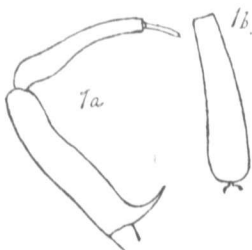
Antennæ with second joint narrowed to tip.

Smaller (2 mm.); middle tibiæ of ♂ not appreciably thickened
near the base. *pacificus*, n. sp.

*Dr. E. Wasmann has also a record of *A. Lecontei* from California. (Krit. Verz. d. Myrmekoph, u. Termitoph, Arthropoden, Berlin, 1894, p. 107.)

- Larger (2.5 mm.); middle tibiæ of ♂ more slender and strongly thickened near base..... *Lecointei*, Brend.
 Antennæ with second joint cylindrical, not appreciably narrow at tip; middle tibiæ of ♂ with a strong tooth about one-third from the tip..... *Taylori*, n. sp.
 Figures of the antennæ and middle legs of the males of three of the

above are given, the sketches having been made with the aid of a camera lucida. Care has been taken to get a like point of view in each case. The spine of the middle leg has been figured as part of the trochanter in *A. Lecointei* by Dr. Brendel*, who was misled, I suppose, by the use of imperfect lenses. In specimens of an *Adranes* from Iowa City, determined by him as his *Lecointei*, the spine is femoral in origin, as shown in my figure



(Fig. 1a), to which I have added a sketch of the antennæ (Fig. 1b) for comparison with the others.

The new forms may be described thus:—

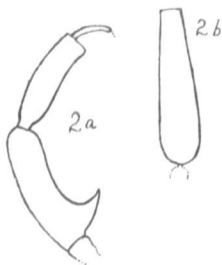
Adranes pacificus, n. sp.—Reddish yellow, less shining than *A. Lecointei* or *A. Taylori*. Above finely punctured, pubescence yellowish, recumbent, coarser than in either of the previously mentioned species and more inclined to form regular lines. Head (in profile from above) broadest just behind the antennæ, thence almost regularly narrowed to base, sides hardly arcuate, frontal margin truncate. Second antennal joint straight, distinctly narrowed to the tip and somewhat thicker in proportion to the length than in *A. Lecointei*. Pronotum resembling that of *A. Taylori*, but the lateral impressions are less deep, and in consequence the sides in front of them appear less bulging; basal fovea naked, deep and almost exactly circular. Elytra at base about equal to the base of the prothorax or very slightly wider, conjointly deeply

*Bulletin from the Laboratories of Natural History of the State University of Iowa, Vol. I., pl. VI., Fig. 3. The same origin is ascribed to this spine in *A. cactus*, l. c. pl. VI., Fig. 5; and p. 221. However, I have not seen the latter species, and make no further comment.

triangularly emarginate, rapidly, slightly arcuately broadening to the tip, each with a tuft of long yellowish hair near the middle of the posterior margin, the exact shape of which is thus concealed. Abdomen above convex, surface more shining than that of the rest of the body, the pubescence long, recumbent, very fine and sparse; arcuation of the juxta-basal portion of the margin more regular and less sudden than in *A. Lecontei*, which it closely resembles in the form of the impressions and foveæ. Body beneath of the same colour as above, scantily pubescent. Legs stouter than in *A. Lecontei* or *A. Taylori*, middle femora of male with a large strong curved basal tooth, middle tibiæ slightly curved, but without strong sinuation or tooth. Length 2 mm.

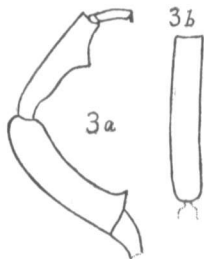
Type, ♂ from Sisson, California, in the Mount Shasta district. Collected by myself in a nest of a pale variety of *Lasius niger*, L. (det. Pergande), under the bark of an old stump, near the end of July, 1900. This beetle is readily distinguished from the other Pacific Coast species by the facies, smaller size and greater opacity. Fig. 2a shows the middle leg of the ♂, Fig. 2b the antenna.

Adranes Taylori, n. sp.—Reddish yellow, shining, above finely punctured and with rather long yellowish recumbent pubescence, which does not conceal the surface nor give the effect of opacity. Head (in profile from above) truncate anteriorly, sides gradually slightly divergent to a point behind the middle, thence rapidly narrowed to base. Antennæ with the second joint cylindrical, not tapering to the tip. Pronotum, broadest about one-third from the base, narrowing anteriorly to about the width of the head and posteriorly to near that of the elytra. Behind this broadest part is, on each side, an oblique impression, while on the median line near the base is a large rounded hairless fovea. Base of elytra equal to or slightly greater in width than that of the prothorax, conjointly deeply triangularly emarginate; rapidly arcuately broadening to apex, each with a tuft of long yellowish hair near the middle of the posterior margin, the exact shape of which is thus concealed. Abdomen above convex, surface more shining than that of the rest of the body, the pubescence rather long,



recumbent and very fine, much sparser than that of the elytra. Width at base (compared with the elytra) less than in *A. Lecontei*, the arcuation of the juxta-basal portion less pronounced. Impression and foveæ much as in *A. Lecontei*. Body beneath of same colour as above, shining, sparsely pubescent. Legs, ♀ unarmed, ♂ intermediate femora with a short stout basal tooth, middle tibiæ sinuate internally and with a strong triangular tooth, as large as that of the femur, at about one-third from tip. Length 2.5 mm.

Type, ♂ from Newport, Oregon; collected by myself in nest of *Lasius niger*, L. (det. Pergande), under a prostrate log, near the middle of July. Also received from Rev. Geo. W. Taylor, collected by him at Nanaimo, Vancouver Island, in March and April, and to him the species is dedicated in recognition of the value of his entomological and other researches into the fauna of his district.



The middle leg of the male *A. Taylori* is shown in Fig. 3a. It is quite characteristic and will readily distinguish this species from any other thus far known. The shape of the second antennal joint (Fig. 3b) is also peculiar to this insect.

CHANGE OF NAME.

On page 248 of Vol. XXXII. of the CANADIAN ENTOMOLOGIST, I proposed *pruinus* for a species of *Tabanus*. Prof. J. M. Aldrich has kindly informed me that *pruinus* has been used previously by Bigot for a species of that genus. My species is a true *Atylotus*, and Bigot's is placed in *Tabanus* in the strictest sense, but I prefer to change the name of my species to *Ohioensis*. JAS. S. HINE, Columbus, Ohio.

The GENERAL INDEX to the 30 annual Reports of the Entomological Society of Ontario (1870-1899) will be ready for distribution in a few days. Copies will be sent postpaid on receipt of the price—50 cents bound in cloth; 25 cents unbound. Address: Entomological Society of Ontario, 429 Wellington Street, London, Canada.

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