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## PRACTICAL AND POPULAR ENTOMOLOGY.—No. 8.

### A METHOD OF MEASURING INSECTS.

BY J. R. DE LA TORRE BUENO, NEW YORK.

The common callipers ordinarily sold for measuring insects have always seemed to me too coarse for fine work. In the Hemiptera especially, where there is an abundance of small forms, they would certainly be useless for the delicate measurements of antennæ and limbs so frequently necessary, and for the proportional dimensions called for in the determination of species. While endeavouring to solve this problem, my

set of drawing instruments came to my mind, and with the bow-dividers (Fig. 12) the difficulty was partially solved. I ground the points flat and parallel, to knife-edges. Now, by means of the screw of the dividers



Fig. 12.

and by the use of a magnifier, it was possible to make direct measurements of parts of an insect, such as diameter and length of limbs and antennæ, dimensions of the segments, etc. The next problem was an accurate scale. In looking over the machine-tool catalogue of Brown & Sharpe, Providence, R. I., I ran across the cut of a little steel scale

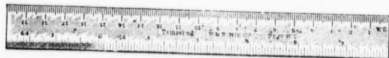


Fig. 13.

(Fig. 13) 5 cm. long, graduated on one side to centimeters, millimeters and 5ths of a millimeter; and on the other to inches, halves, quarters, eighths, 64ths and 100th. With these two appliances I can make measurements to within one-tenth millimeter or less. As to the manner of using them, whoever has the instruments will at once see the way, without my entering into a prolix explanation. The cost of the scale is trivial (25 cents); the dividers are more expensive. I believe they cost something more than a dollar,

NEW SPECIES OF COLEOPTERA, CHIEFLY FROM THE  
SOUTHWEST.

BY H. C. FALL, PASADENA, CAL.

The following [species of Coleoptera are sufficiently isolated or conspicuous to warrant their description apart from any monographic treatment of the genera to which they belong. The types of the three species sent by Prof. Snow remain in his collection, or rather that of the University of Kansas; the types of the remaining species are in the writer's collection.

*Cardiophorus Arizonicus*, n. sp.—Form rather slender, black, moderately shining, elytra each with a humeral stripe, and the apex testaceous, antennæ and legs pale, the thighs dusky; pubescence short, recurved, yellowish brown, becoming paler on the pale areas of the elytra. Second joint of antennæ three-fourths longer than wide (following joints missing); frontal margin simple. Prothorax just visibly longer than wide, sides parallel and very feebly arcuate in basal four-fifths, surface shining and finely punctate with scattered larger punctures; fine punctures separated on the average by their own diameters or slightly less; basal striæ long, their length slightly greater than their distance from the side margin. Elytra a little wider than the thorax, moderately convex, sides parallel, gradually narrowed behind the middle, apex not acuminate, intervals a little convex, finely sparsely punctulate, moderately shining; humeral stripe extending from the base two-fifths the length of the elytra, and from the fourth stria to the margin; apical pale area about as long as the basal laterally, but shorter at the suture. Beneath finely but more densely punctured than above, submarginal line of prothorax cariniform, reaching beyond the middle. Prosternal process feebly ascending, the impressed marginal lines finer posteriorly, but reaching nearly to the tip.

Length, 7.5 mm.; width, 2.2 mm.

Arizona (Oak Creek Canon, 6,000 feet, July). A single male specimen sent by Prof. Snow.

By Blanchard's table—"Trans.," XVI (1889), p. 4—this species would fall near *longior*, from which and all our other species it differs in the elytral coloration.

*Agrius Snowi*, n. sp.—Very robust, black, feebly shining, thorax bronzed, head greenish; pubescence short, white, rather sparse and evenly distributed, with dense white efflorescence at the sides of the pronotum, in

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the basal depressions of the elytra and throughout the wider surface. Antennæ slightly longer than the vertical diameter of the eye, serrate from the fourth joint, outer joints transverse. Head coarsely punctate, feebly concave, with fine median impressed line; front with a shallow rounded impression each side the median line. Prothorax wider than long, sides as viewed from above straight and parallel in basal half, then narrowed and nearly straight to apex; anterior margin broadly arcuate at middle, hind margin deeply sinuate each side, the median lobe truncate and a little emarginate; surface uniformly feebly convex, without costæ or depression except the carinæ of the hind angles, which are well defined and nearly half the length of the thorax; punctuation similar to that of the head, and not forming rugæ or strigæ. Scutellum not carinate. Elytra parallel, sides moderately sinuate at middle, surface evenly convex except for the basal depressions, rather finely imbricate, apices separately rounded and minutely serrulate; pygidium not carinate. Body beneath with dark greenish lustre, except the legs, which are bronzed; pubescence more abundant than above, and with the dense efflorescence nearly concealing the surface; prosternum broadly arcuato-truncate in front, the intercoxal process broad and subtruncate at tip; first ventral suture visible from side to side, margin of last ventral not distinctly serrate. Front tibiæ arcuate, inner apical angle mucronate; middle tibiæ slightly arcuate, and with a small mucro at tip; hind tibiæ straight, simple; claws with a moderate tooth, which is not inflexed, and is a little longer in the anterior pair.

Length, 9.5 mm.; width, 3 mm.

Arizona, "Bill Williams Fork" (Snow).

The type is a male, judging from the arcuate and mucronate tibiæ, but there are no prosternal or ventral characters to support this view. The very broad form gives it a facies entirely different from any of the known species of our fauna, nor is there anything like it in the "Biologia," as I am informed by Mr. Blanchard, who kindly investigated this point for me. By Horn's table the present species would be associated with *Wal-singhami* and *pulchella*, in which the first ventral suture is better developed than elsewhere. Notwithstanding the decidedly *outré* appearance of *Snowi*, there appear to be no grounds for generic separation. It may be noted that the submarginal carina of the protharacic flanks is more nearly parallel to the margin than in any other species known to me.

*Cheiroplatys verticalis*, n. sp.—Black above, castaneous or blackish-castaneous beneath. A little smaller than *clunalis*, from which it differs chiefly as follows: Body more distinctly wider behind, cephalic tubercle very obviously more posterior in position; prothorax much more sparsely and finely punctate in front, side margins a little stronger, front margin without trace of median prominence, basal marginal groove deeper, and nearly equally strong throughout; ventral segments more punctured, apex of middle and hind tibiae strongly crenulate and with fewer spinules; front tibiae acutely tridentate. There are some other small differences which may or may not be specific in nature.

Length, 22–23 mm.; width, about 13 mm.

Las Vegas, New Mexico.

Two examples, both apparently females, sent by Prof. Cockerell. It is not unlikely that specimens of this species will be found mixed with *clunalis* in collections; if so, the characters given above are amply sufficient for its recognition. I have compared with Fairmaire's descriptions of Mexican species, and do not find any mention of the points which I rely upon here. Bates, in the "Biologia," gives four Mexican species, viz., *cutripes*, *clunalis*, *Fairmairei* and *isodonoides*. The first, he says, is "barely distinguishable from *clunalis* by the immarginate base of the prothorax. Under *clunalis* he places Fairmaire's *Sallei* and *marginatus*, and a study of the descriptions convinces me that this course is correct. Both *Fairmairei* and *isodonoides* are distinctly smaller species than *verticalis*.

*Gymnetis impius*, n. sp.—Smaller and less robust than *Sallei* or *cretacea*, upper surface in typical specimens uniformly velvety black, without sculpture or markings; lower surface shining black, with greenish reflections. In many examples the prothorax and elytra are entirely brownish yellow, in which case the velvety aspect is less pronounced, and there are visible faint lines of minute punctures on the elytra, and very fine scattered punctures toward the sides of the prothorax. These examples may or may not be fully mature. Clypeus widely reflexed, front concave and acutely longitudinally carinate; basal lobe of thorax acutely rounded, lateral marginal bead strong; mesosternal epimera punctured and hairy above; sutural angles of elytra divergent and a little prominent; metasternum rather densely punctured at sides, smooth at middle, its intercoxal process flat and obtusely rounded in front.

Length, 17–18 mm.

Fort Huachuca, Arizona.

*Euphoria limbalis*, n. sp.—Smaller than *fulgida*; upper surface polished; entire disk of thorax and elytra of a uniform green, rather less brilliant than in *fulgida*; side margins of thorax and elytra brownish testaceous, legs in great part testaceous. Head as in *fulgida*; prothorax with the sides distinctly less strongly convergent from base to apical third, disk more coarsely and numerous punctate, the punctures nearly even in size and distribution throughout; lateral bead slightly stronger than in *fulgida*. Elytra rather more coarsely punctate than in *fulgida*, and with numerous small cretaceous spots. Pygidium entirely testaceous, with four cretaceous spots; ventral segments more or less tinged with testaceous, the terminal segment entirely of this colour; first five segments with a cretaceous spot at the lateral margin. Sculpture beneath and legs nearly as in *fulgida*, except that the ventral segments are more evidently though very sparsely punctate.

Length, 12 mm.

Enterprise, Florida. A single female specimen given me by Mr. Schwarz.

*Euphoria holochloris*, n. sp.—Moderately brilliant green above, slightly darker at sides of elytra and beneath, surface lustre feebly bluish in certain lights, the under side and legs distinctly blue-green, tarsi black; cretaceous spots entirely wanting. Prothorax a little less strongly narrowed from the base and scutellum, less elongate than in *fulgida*; otherwise nearly as in the latter species.

Length, 16-17 mm.

Fort Huachuca, Arizona, 2 ♂'s, 1 ♀. Kindly given me by Mr. F. S. Daggett, in whose collection are numerous examples.

I have seen examples of this species in both the LeConte and Horn collections; in the former it is properly separated, but in the latter it stands with *fulgida*. Aside from the differences mentioned above, it should be noted that in the male of *fulgida* there is a group of very fine punctures at the middle of the first three or four ventral segments, no trace of which appears in *holochloris*.

The statement made by Horn that the upper surface in *fulgida* is "entirely void of pubescence," is not strictly true, there being, especially on the elytra, numerous very short suberect hairs, which are distinct enough in well-preserved specimens of all the above mentioned species, which may be separated as follows:

Legs in great part pale; pygidium, sides of the abdomen, and frequently the elytra with cretaceous spots.

Prothorax nearly as strongly punctured at middle as at sides; less strongly narrowed from base; elytra green, with testaceous margin . . . . . *limbalis*.

Prothorax much more sparsely and finely punctate at middle than at sides; more strongly narrowed from base; elytra uniform in coloration, varying from green to brownish yellow. . . . . *fulgida*.

Legs concolorous with the lower surface; cretaceous spots lacking; scutellum less elongate . . . . . *holochloris*.

*Prionus heros*, n. sp.—Nearly black, the under surface and legs tending to castaneous in the female. Form very robust, prothorax nearly as wide as in *laticollis*, but distinctly more coarsely and densely punctate than in that species, sex for sex; lateral teeth more acute than in *laticollis*, but less so than in *Californicus*. Elytra moderately shining, the raised lines sharply defined in the male, feeble in the female, punctuation nearly as in *Californicus* in the female, coarser in the male, but not at all rugose. Antennæ 12-jointed, of the usual form. Prosternal process strongly ascending at tip when viewed laterally, more inflated apically and subhorizontal in *laticollis*. Metasternum moderately hairy in the male, nearly glabrous in the female. Soles of hind tarsi densely spongy pubescent, with a distinct median channel which is wider on the basal joint, and evidently wider on all the joints than in *laticollis*. In the female the median channel is still wider, and is well marked in the middle tarsi, scarcely so in *laticollis*.

Length, 40 (♂); 48 mm. (♀).

Described from a single pair taken in Southern (?) Arizona.

*Heros* should stand between *laticollis* and *Californicus*, differing from the former in its larger size, more coarsely punctate prothorax, with more acute lateral teeth, smoother elytra, strongly ascending prosternal process, and less completely pilose tarsal soles. From *Californicus* it differs in its more robust form, wider prothorax and glabrous metasternum in the female. There do not seem to be any Mexican species with which the present one can be confused, both *Flohri* and *Mexicanus*, the only species accredited to that region in the "Biologia," differing in the number of antennal joints, thirteen in the former and fourteen in the latter.

*Alaphus nitidipennis*, n. sp.—Elongate, rufo-testaceous, head and thorax opaque, elytra strongly shining; pubescence very fine, sparse, pale in colour, and extremely inconspicuous. Eyes rather large, plainly more prominent than the sides of the front, separated beneath by a distance not much less than twice the length of the second antennal joint.

Antennæ slender, filiform, two-fifths the length of the body, the eighth joint reaching the hind angles of the prothorax; fourth joint very nearly four times as long as wide; outer joints decreasing a little in length, the ninth and tenth feebly obconical, the eleventh fusiform, pointed, and equal in length to the tenth. Prothorax one-third wider than long, sides parallel in basal half, then rounded and moderately convergent to apex; margin barely perceptibly sinuate before the hind angles, the latter right and not rounded at vertex; disk rather feebly longitudinally impressed, the impression deeper behind; flattened at sides posteriorly; surface of head and prothorax densely, finely reticulate punctate. Elytra scarcely one-fifth wider, and a little more than three times as long as the prothorax; sides parallel in rather more than basal half, then gradually narrowed to apex; surface sparsely finely punctate. Under surface of prothorax more coarsely reticulate than the upper, mesosternum reticulate, abdomen sparsely, finely punctate. Basal joint of hind tarsus subequal in length to the entire remainder; second and third joints each more than twice as long as wide.

Length, 6.5 mm.; width, 2 mm.

Two examples, not differing perceptibly, from Palm Springs, California. Others are in the collection of Dr. Fenyès, from whom I received my specimens. As compared with the present species, *pallidus* is distinctly larger (8 to 9 mm.), of rather stouter form, with the elytra nearly one-half wider than the prothorax, the latter one-half wider than long. The antennæ are shorter and stouter, the fourth joint barely twice as long as wide; eyes much smaller and scarcely more prominent than the sides of the front; basal joint of hind tarsus shorter than the remainder, the second and third joints less than twice as long as wide. The elytra are much less shining than in *nitidipennis*, and are apparently entirely devoid of pubescence. One of the two examples of *nitidipennis* is surely a male, but there is no trace of the small brush of hairs near the tip of the penultimate ventral segment mentioned in the description of *pallidus*.

*A. gracilis*, n. sp.—Rufo-testaceous, very elongate, pubescence excessively short, sparse and indistinct. Head and thorax opaque, elytra moderately shining. Antennæ nearly attaining the middle of the elytra, slender, filiform; fourth joint about three times as long as wide; eleventh about three-fourths as long as the tenth, the latter not at all obconical. Eyes very large, separated beneath by a distance which is scarcely equal to the length of the second antennal joint. Prothorax a little transverse, sides straight and parallel in basal three-fourths, just perceptibly sinuate before the hind angles, which are right and sharply defined; disc not impressed at middle, feebly flattened at sides posteriorly. Elytra fully one-half wider and four times as long as the prothorax; sculpture of surface nearly as in *nitidipennis*, except that the elytra are more closely punctate, the punctures separated on the average by little more than their own diameters, while in *nitidipennis* they are distant from two to three times their own diameters. Lower surface and legs nearly as in *nitidipennis*.

Length, 7 mm.; width, 2 mm.

Described from a single male specimen taken by Professor Snow in Oak Creek Canon (elevation, 6,000 ft.), Arizona.

The principal differences mentioned above are summarized in the following table:

Eyes small, very slightly more prominent than the sides of the front, separated beneath by a distance which is about three times the length of the second antennal joint; fourth joint of antennæ barely twice as long as wide ..... *pallidus*.

Eyes much larger; much more prominent than the sides of the front; fourth joint of antennæ three to four times as long as wide.

Eyes separated beneath by a distance which is nearly twice the length of the second antennal joint; tenth joint of antennæ obconical, eleventh not shorter; prothorax narrowed from the middle; elytra not much wider at base than the prothorax, strongly shining ..... *nitidipennis*.

Eyes separated beneath by a distance which is scarcely as great as the length of the second antennal joint; tenth joint parallel, eleventh shorter than the tenth; elytra much wider than the prothorax at base; moderately shining ..... *gracilis*.



## SYNOPSIS OF BEES OF OREGON, WASHINGTON, BRITISH COLUMBIA AND VANCOUVER.—IV.

BY H. L. VIERECK, ASSISTED BY T. D. A. COCKERELL, E. S. G. TITUS, J. C. CRAWFORD, JR., AND M. H. SWENK.

## CERATINIDÆ.

*Ceratina*, Latr.

*Ceratina submaritima*, Ckll.—Proc. Acad. Nat. Sci., Phila., p. 352, 1897.

Corvallis, Or., ♀ ♀, 29th May, 4th June, 1897; 24th, 25th May, 7th June, 1898; ♂ ♂, 15th May, 1897; 25th, 27th April, 7th May, 1898; 21st May, 3rd, 9th June, 1899. Elkton, Or., ♀ ♀ and ♂ ♂, 17th January, 1897.

## DUFOUREIDÆ.

*Halictoides*, Nyl.

*Halictoides campanule*, Ckll.—CAN. ENT., XXIX, p. 289, 1897.

Olympia, Wash., 30th June; 24th June, 1895 (T. Kincaid). Visits the flowers of *Campanula scouleri*.

## PANURGIDÆ.

*Panurginus*, Nyl.

*Panurginus atriceps* (Cress.)—(Calliopsis) Trans. Am. Ent. Soc., VII, p. 67, 1879.

Seattle, Wash., 1st July, 1899; 13th, 20th, 28th May to 2nd June, 1896. ♂, Seattle, Wash., 14th May, at flowers of *Rubus ursinus*.

*Perdita*, Sm.

*Perdita albipennis*, Cress.—Trans. Am. Ent. Soc., I, p. 386, 1868.

Wash. Received three, Mr. Lovell.

Prof. Cockerell says that this species follows the sunflower, and that its appearance in Washington is, for this reason, not astonishing.

*Calliopsis*, Sm.

Face entirely black; abdomen with a spot on each side of the first two segments, a broadly interrupted band on the third, and an almost continuous band on the fourth, white . . . . . *personatus*.

Face with an almost quadrate yellow mark between the eye and clypeus, this mark with a linear prolongation up along the eye margin to a point on a line with the insertion of the antennæ; first four abdominal segments with transverse bands, which are linear except laterally, where they are broad and sinuate . . . . . *obscurellus*.

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*Calliopsis personatus*, Ckll.—Proc. Acad. Nat. Sci., Phila., p. 349, 1897. ♀.

Pasco, Wash., May 25, 1896 (T. Kincaid).

*Calliopsis obscurellus*, Cress.—Trans. Am. Ent. Soc., VII, 201, 1878-1879.

Pasco, Wash., May 25, 1896 (T. Kincaid).

MELECTIDÆ.

*Bombomelecta*, Patton.

♀

Pygidial area with the sides parallel or nearly, usually elevated along the middle; 12 mm. long or more; abdomen not distinctly spotted, if at all, with pale pubescence on the first segment . . . . 1.

1. Dorsulum with a band of black hair extending from one wing to the other.

A spot of white appressed pubescence<sup>1</sup> on each side of abdominal segments 3 and 4 . . . . . *separata*, var. *maculata*.

Pubescence of dorsulum concolorous . . . . . 2.

2. Pubescence of dorsulum pale ochreous . . . . . *pacifica*.

Pubescence of dorsulum orange fulvous . . . . . *fulvida*.

♂

First joint of the flagellum distinctly longer than the second; pubescence from almost white to pale ochraceous and yellow ochraceous. . *pacifica*.

*Bombomelecta separata*, var. *maculata*, Vier.—Trans. Am. Ent. Soc., XXIX, p. 181, ♀, 1903.

Condon, Or., 23rd July, 1899 (Cordley).

*B. pacifica*, Cress.—Ibid., VII, p. 204, 1879, ♀, not ♂. First described as a variety of *thoracica*.

Vernon, B. C., 24th May, 1903 (Venables), received through Mr. Titus.

*B. fulvida*, Cress.—Ibid. First described as a variety of *thoracica*.

Vernon, B. C., 3rd May, 1903 (Venables), received through Mr. Titus.

*Tripeolus*, Robt.

*Tripeolus pæncpectoralis*, Vier, n. sp.

Related to *T. pectoralis*, from which it differs in having the pectus closely coarsely punctured, and in the different coloration,

♀ 9 mm. Head rather dullish; cheeks, vertex, occiput and front almost uniformly closely rugulosely punctured, the cheeks less coarsely so than the vertex and front, a distinct keel from a point on a line with the anterior edge of the antennal fossæ to the middle of the front, from there on continued close to the anterior ocellus as a raised line; supraclypeal space and clypeus minutely tessellate, the former with a few indistinct punctures, the latter with sparse, rather distinct punctures; labrum closely rugulose, with two rather distinct, well-separated longitudinal raised lines in the middle of the anterior half; malar space completely obliterated; scape as long as the pedicellum and first two joints of the flagellum combined, first joint of the flagellum about two-thirds the length of the second; middle third of the face transversely covered more or less with whitish appressed pubescence; upper part of front, vertex and occiput with brownish, more or less erect pubescence, cheeks with inconspicuous appressed whitish and brownish pubescence.

Thorax dullish, almost uniformly closely rugulosely punctured like the cheeks; dorsulum with inconspicuous appressed brownish pubescence, with a short longitudinal stripe of yellowish pubescence on each side of the middle, the edge of the tegulæ and the posterior edge of the dorsulum with a narrow border of yellowish pubescence; prothorax with inconspicuous pubescence except the pronotum, which is covered with yellowish appressed pubescence; scutellum with inconspicuous appressed brownish pubescence, the posterior margin with yellowish appressed pubescence; postscutellum with appressed yellowish pubescence; metanotum rather flat, the funnel shape area smooth and bare, rather shining and impunctate, remainder of the metathorax with brownish appressed pubescence except along the edge of the area, where there is some pale appressed pubescence; mesopleura to a great extent, and sternum, covered with appressed brownish pubescence, the mesopleura with a rather broad band of yellowish appressed pubescence on the anterior edge of the upper half of the sclerite; extending off from this band obliquely downward and backward is a short band nearly as wide as the band from which it springs; wings typical.

Abdomen dorsally nearly as in *pectoralis*, greater part of disc of pygidium covered with stiff brownish hairs; venter of abdomen minutely closely punctured with rather distinct brown appressed pubescence, almost entirely black, or very dark brown, basal joint of flagellum somewhat brownish, the second joint brownish at base.

Type Am. Ent. Soc., Phil.

Type locality, Vancouver I., Canada.

Species of *Tripeolus*, related to *occidentalis*, and represented only by the ♂:

First joint of the flagellum not much more than one-half the length of the second . . . . . 1.

1. Legs and labrum ferruginous . . . . . *occidentalis*, var. 1.

First joint of the flagellum nearly as long as the second . . . . . 2.

2. Femora, except anterior pair, largely black; anterior femora, all tibiae and all tarsi ferruginous; labrum reddish . . . *occidentalis*, var. 2?

Legs entirely black, excepting the pubescence and the tarsi, the former being white and the latter brownish . . . . . n. sp.?

*Tripeolus occidentalis* (Cress.).—Tr. A. E. S., VII, p. 87, 1879, ♀ ♂.

The co-types of this species are from Colorado, and have an almost entirely black labrum.

Var. 1. Oregon. (Received through the courtesy of Mr. J. H. Lovell.)

*Tripeolus occidentalis*, var. 2?

Oregon. (Through Mr. J. H. Lovell.)

*Tripeolus*, n. sp.?

Vernon, B. C., 12th Aug., 1904 (Harvey).

#### *Epeolus*, Latr.

Markings of abdomen white or pale or cream colour; mark on first abdominal segment a transverse band; bands on second to fourth segments interrupted in the middle line; size small; femora

black . . . . . *olympiellus*.

*Epeolus olympiellus*, Ckll.—Ann. & Mag., N. H., XIII, p. 41, 1904.

Olympia, Wash., 2nd July, 1896 (Kincaid).

*Epeolus tristicolor*, Vier., n. sp.

Related to *autumnalis*, from which it differs in size, structure and colour.

The italicized characters in *T. peneptoralis* occur in this species, and are not here repeated.

♀.—8.5 mm. Frontal keel originating as in *T. peneptoralis*, but not extending higher than the middle of the front even as a raised line, and not connected with the anterior ocellus by a shining line; clypeus and supraclypeal space sculptured nearly like the cheeks, somewhat shining; labrum sculptured much like the front, with two short teeth on

the anterior margin, these teeth being about as far apart as the pedicellum is wide; scape nearly as long as the pedicellum and first two joints of the flagellum combined; first joint of the flagellum as long as the second; upper part of front, vertex and occiput with less conspicuous whitish pubescence than on the middle third of the face; dorsulum with a more or less distinct margin of appressed dirty white pubescence, somewhat tinted with ochreous, this margin interrupted on the anterior edge of the dorsulum, the interruption as wide as the scape is long; on each side of the interruption the pubescent margin is prolonged back on the dorsulum at right angles to the anterior margin for a distance somewhat less than the interruption cited above; pronotum, pleura, except the lower half of the mesopleura, which is nearly bare, posterior margin of scutellum and postscutellum with appressed pubescence similar to that on the dorsulum, but paler, more whitish; the scutellar spines are distinctly shorter than the convexity of the scutellum; metanotum uniformly dull, with an indistinct median longitudinal rugulose impression; sternum uniformly pubescent like the superior half of the mesopleura, the pubescence of the sternum almost white.

Abdomen: The pubescence is rather rubbed off, but is nearly as follows: Anterior face of basal segment with appressed pubescence of much the same colour as the pale pubescence on the dorsulum, this pubescent area connected by a broad band of concolorous pubescence, with the apical band occupying the depressed portion of the segment, narrower than the connecting band, but also concolorous, succeeding segments with only the apical band, which is similar to the apical band of the first segment, the penultimate segment almost uniformly covered with appressed pubescence, otherwise the abdomen is clothed with brownish pubescence excepting the lunule and all of the venter but the apical segment; pygidium rather flat, and with lateral margins.

Almost entirely black; flagellum brownish, mandibles ferruginous except at extreme base and apex, where they are blackish; legs blackish, knees, apices of tibiae and tarsi ferruginous.

Two ♀♀. Paratype differs as follows: The frontal keel prolonged as a raised line higher than the middle of the front, and finally connecting with the anterior ocellus by a smooth shining line; the median longitudinal groove on the metanotum is here a distinct shallow channel.

Type Am. Ent. Society, Phila. Two specimens from type locality.

Type locality, Vancouver.

## NOMADINÆ.

*Gnathias*, Robt.

♀

- Length over 10 mm.; abdomen dark red; third submarginal cell narrowed almost to a point above; first abdominal segment with a black mark on each side . . . . . 1.
- Length under 10 mm.; third submarginal cell not so much narrowed, except in *Grayi eastonensis* . . . . . 2.
1. Second segment of abdomen with distinct yellow spots  
(9th May) . . . . . *perbella*, Vier, n. sp.
- Second segment of abdomen with no yellow spots  
(28th May) . . . . . *perbella*, var.
2. Two submarginal cells . . . . . *Grayi eastonensis*, var.  
Three submarginal cells . . . . . 3.
3. Orbits hardly converging below; third submarginal cell very high and narrow, but not much narrowed to marginal  
(Wash) . . . . . *Washingtoni*.  
Orbits conspicuously converging below . . . . . 4.
4. Abdomen dark red (April) . . . . . *rhodomelas* ?  
Abdomen light red (May) . . . . . 5.
5. Third submarginal cell narrowed nearly to a point above, broad below (Wash) . . . . . *Grayi eastonensis*.  
Third submarginal cell not thus narrowed above. . . . . *Grayi*

♂

- Scutellum black or red; tegulae ferruginous; clypeus with only the anterior margin yellow, though often broadly; second submarginal cell receiving the recurrent nervure beyond its middle; abdomen light red, with four large yellow spots; scape black in front; second submarginal cell narrow . . . . . *rhodomelas*.
- Species very like *rhodomelas*, scape almost entirely ferruginous, second submarginal cell broad, as broad at base as high; abdomen dark red; thorax, excepting scutellum, which is red, black: second and third abdominal segments with a conspicuous yellow spot on each side . . . . . *perbella*.  
*Gnathias perbella*, n. sp.

This is the species mistaken by Prof. Cockerell for a variety of *bella*. It can readily be distinguished by the characters given in the table. This species may prove to be a race of *maculata*. I wish to retract my state-

ment that *bella* is very likely the other sex of *maculata*, since my recent studies in this genus have convinced me that this is hardly possible, owing to the different habitus and entirely different colour of *bella*.

Type Acad. Nat. Sciences, Phila.

Type locality, Corvallis, Oregon.

Corvallis, Or., 9th May, 1898; 28th May, 1899 (Cordley); Hoquiam, Wash., 29th May, 1904, flying (Burke), received through the courtesy of Dr. A. D. Hopkins, Olympia, Wash.; Seattle, Wash., June 25th, 1897 (Kincaid); Glenora, B. C. (Wickham); Vancouver, received through the courtesy of Mr. J. H. Lovell.

*Gnathias Grayi*, Ckll.—Ann. & Mag., N. H., XII, 203, 1903, ♀.  
Corvallis, Or., 7th May, 1898 (Cordley).

*Gnathias Grayi eastonensis*, Ckll.

Easton, Wash. (K.), from U. S. N. M.

Var. with two submarginal cells. Wash. (A. E. S., Phila.)

*Gnathias Washingtoni*, Ckll.—Acad. Nat. Sci., Phila., LV, p. 598,  
1903, ♀.  
Wash. (Am. Ent. Soc., Phila.)

*Gnathias rhodomelas*, Ckll.—Acad. Nat. Sci., Phila., LV, 598,  
1903, ♂.

Corvallis, Or., 20th May, 1899, 15th April, ♀ (Cordley).

There is some doubt whether the ♀ placed here really belongs to *rhodomelas*.

#### *Centrias*, Robt.

Hind femora not arcuate; base of abdomen not red; antennæ with a pale annulus; hind femora with much black; no supraclypeal

mark..... *scitiformis*.

*Centrias scitiformis*, Ckll.—Acad. Nat. Sci., Phila., LV, 591,  
1903, ♂

Corvallis, Or., 2nd–8th June (Cordley).

#### *Holonomada*, Robt.

(Here belongs *intercepta*. See *Nomada*.)

First joint of the flagellum distinctly longer than the second; only about one-third of the pleura yellow.

Tegument shining; punctures nearly everywhere rather distinctly separated..... *suavis*.

Tegument dullish; punctures very close, rather rugulose..... *vinnula*.

First joint of the flagellum a little longer than the second; more than one-half of the pleura yellow . . . . . *Edwardsii*.

Similar to *Edwardsii* in the length of the antennal joints; only a spot of yellow on the pleura, the spot at the anterior inferior corner; very like *Hemphilli*, the yellow of the scutellum reduced to two spots; seventh segment entire . . . . . *vinnula* ♂.

*Holonomada vinnula* (Cress.).—Tr. Am. Ent. Soc., VII, 202, 1879, ♂ ♀.

May be only a race of *Edwardsii*, or perhaps only a mutation.

Corvallis, Or., 1-10 June. (Cordley.)

*Holonomada Edwardsii* (Cress.).—Tr. Am. Ent. Soc., VII, 72, 1879, ♂.

Corvallis, Or., 3rd April, 11th May, June (Cordley). Washington (A. E. S. P.).

*Holonomada suavis* (Cress.).—Tr. Am. Ent. Soc., VII, 74, 1879, ♀ ♂.

Oregon (A. E. S. P.).

#### *Xanthidium*, Robt.

Third joint of the antennæ subequal with the fourth; posterior orbital margin yellow, mesothorax black, with or without stripes; face broader than long; lateral face-mark receding from orbits above; end of flagellum black above . . . . . *citrina*.

Lateral face-marks not receding from orbits . . . . . *civilis*.

Joint three longer than four . . . . . *Cordleyi*.

Joint three shorter than four . . . . . 1.

1. Scutellum black . . . . . *modocorum*.

Scutellum red . . . . . *libatum*.

Scutellum yellow or spotted with yellow . . . . . 2.

2. Basal nervure meeting the transverse medial nervure . . . . . 3.

Basal nervure ending distinctly basad of the transverse medial nervure . 4.

4. Legs yellow and black, sometimes with a red suffusion, especially toward the base; apex of abdomen notched, though sometimes obscurely; legs with red if any . . . . . 5.

5. Pleura with a large transverse yellow patch . . . . . 6.

Pleura with a smaller yellow mark below tubercles . . . . . 7.

6. The yellow patch not divided in the middle; scutellum with two yellow spots; mesothorax all black . . . . . *rivale*.

7. Lateral face-marks continued narrowly to top of eye; flagellum not denticulate; tibiæ yellow, with a black spot behind . . . . . *civile*.



A separate genus may have to be erected for the reception of *Cordleyi*.

*Xanthidium?* *Cordleyi*, Ckll.—Ann. & Mag., N. H., XII, 445, 1903, ♂.

Corvallis, Or., 3rd June, 1899. (Cordley.)

*Xanthidium citrinum* (Cress.)—Tr. Am. Ent. Soc., VII, p. 79, 1879, ♀.

Wash. (A. E. S. P.).

*Xanthidium civile* (Cress.)—Tr. Am. Ent. Soc., VII, p. 78, 1879, ♂.

Corvallis, Or., 3rd June, 1899. (Cordley.)

*Xanthidium modocorum*, Ckll.—Ann. & Mag., N. H., XII, p. 445, 1903, ♂.

Corvallis, Or., June. (Cordley.)

*Xanthidium libatum* (Cress.)—Tr. Am. Ent. Soc., VII, 86, 1879, ♀ ♂.

Oregon. (Through Mr. Lovell.) ♂ differs from Colorado co-types as follows: Metathorax with a median black line as wide as the flagellum; abdominal bands yellowish-white.

*Xanthidium rivale* (Cress.)—Tr. Am. Ent. Soc., VII, 79, 1879, ♂.

Wash. (Am. Ent. Soc., Phila.)

*Nomada*, ♀ Fabr.; *Holonomada*, Robt. (*intercepta*), and *Nomadula*, Ckll. (*erythrochroa*).

- Abdomen with black bands (June)..... *nigrocincta*, Sm.  
 Abdomen with a black band at apex of first abdominal segment..... *Cressoni Trevoriana*, Ckll., n. subsp.  
 Abdomen without black bands..... 1.  
 1. Abdomen with yellow spots on the second and third abdominal segments; more or less of a band on the fourth, etc.; third antennal joint about equal with the fourth; a little yellow at lower corners of face. (May and June)..... 2.  
 Abdomen without yellow spots or with small spots..... 3.  
 2. Thorax almost entirely ferruginous..... *Lewisii*.  
 Thorax almost entirely black, including scutellum... *gibbosa*, Vier., n. sp.  
 Thorax almost entirely black; scutellum ferruginous; abdomen immaculate beneath..... *vicinalis infrarubens*, Ckll., n. subsp.  
 3. Abdomen without yellow spots..... 4.  
 Abdomen with yellow spots (4 or 6), yellow at lower corners of face; third antennal joint longer than the fourth..... 6.  
 4. About 10 mm. long..... 5.  
 About 8 mm. long..... 7.  
 August, 1905

5. Third antennal joint almost as long as fourth ; no yellow at corners of face ; sides of abdomen with suffused black marks. (April), *Clarkii*.  
Third antennal joint distinctly shorter than the fourth ; no yellow at corners of face ; sides of abdomen without black . . . . *Kincaidiana*.
6. Base of abdomen with a black mark in middle, or with black right across.

Third antennal joint not much shorter than fourth. (May, June) . . . . . *Oregonica*.

Third antennal joint distinctly shorter than the fourth, *Hoodiana*.

Base of abdomen without a black mark in the middle ; third antennal joint much shorter than the fourth. (May, June) . . . . . *ultima*.

7. Yellow at lower corners of face.

Third antennal joint not more than one-half the length of the fourth ; sides of abdomen inclined to be black spotted. (May, June) . . . . . *Astori*.

Third antennal joint nearly as long as fourth ; sides of abdomen not at all black spotted . . . . . *Fowleri*.

No yellow at lower corners of face.

Third antennal joint at least as long as fourth ; abdomen dark red, its sides without black marks. (May) . . . . . *Corvallisensis*.

Third joint distinctly shorter than fourth, but more than half as long . . . . . *erythrochroa*.

*Nomada nigrocincta*, Sm., new spec.—Hym. Brit. Mus., 99, ♂.

Corvallis, Or., 3rd June, 1899. (Cordley.)

*Nomada Cressoni Trevoriana*, Ckll., n. subsp.

No subdiscal cuneate spot on fourth abdominal segment.

Olympia, Wash., 22nd April, 1894. (T. Kincaid.)

*Nomada Lewisii*, Ckll.—Ann. & Mag., N. H., XII, 205, 1903.

Corvallis, Or., 7th May, 5th June. (Cordley.)

*Nomada gibbosa*, Vier., n. sp.

Type Acad. Nat. Sci., Phila. Type locality, Oregon.

Received through the courtesy of Mr. J. H. Lovell.

*Nomada vicinialis infrarubens*, Ckll.—Bull. 94, Colo. Expt. Sta.,

p. 84.

Labrum very hairy ; ends of linear upward prolongation of lateral face-marks slightly bending from orbits ; flagellum bright red, the last joint pointed, the first five joints black above ; hair of upper part of thorax (especially scutellum) strongly brownish ; tubercles reddish, with a

yellow spot; tegule, scutellum, two stripes on mesothorax, and a small mark on lower part of pleura, in front, red; first abdominal segment with basal half black, with two red marks; yellow bands on segments one to five, broadly interrupted by red in the middle; sixth segment with a short bilobed yellow band; apical plate very hairy. The antennæ remind one of *N. Pascoensis*, but the insect is otherwise very different.

Type Acad. Nat. Sci., Phila., Pa. Type locality, Corvallis, Oregon. June, 1899. (Cordley.)

*Nomada Clarkii*, Ckll.—Ibid, 203, ♀.

Corvallis, Or., 6th April. (Cordley.)

*Nomada Kincaidiana*, Ckll.—Acad. Nat. Sci., Phila., LV, 614, 1903, ♀.

Wash. (Am. Ent. Soc., Phila.)

*Nomada Oregonica*, Ckll.—Ann. & Mag., N. H., XII, 205, 1903, ♀ ♂.

Corvallis, Or., ♀, 21st May to 7th June; ♂, 27th April. (Cordley.)

*Nomada Hoodiana*, Ckll.—Acad. Nat. Sci., Phila., LV, p. 608, 1903, ♀.

Mt. Hood, Or. (Am. Ent. Soc., Phila.)

*Nomada ultima*, Ckll.—Ibid, 206, ♀.

Corvallis, Or., May to 7th June. (Cordley.)

*Nomada Astori*, Ckll.—Ibid, 206, ♀.

Corvallis, Or., ♀, June; var. a, 20th May. (Cordley.)

*Nomada Fowleri*, Ckll.—Ibid, 204, ♀.

Corvallis, Or., 15th April, 1897.

*Nomada Corvallisensis*, Ckll.—Ibid, 207, ♀.

Corvallis, Or., 24th May. (Cordley.)

*Nomadula erythrochroa*, Ckll.—Ibid, 203, ♀. Belongs to *Centrias* according to Robertson.

Pasco, Wash., 25th May, 1896. (T. Kincaid.)

*Nomada intercepta*, Sm., n. sp.—Hym. Brit. Mus., 100, ♂, is a *Holonomada*, Vanc.

Prof. Cockerell examined the type, with the following results: "Pleura black, with a large yellow mark in front. Head very hairy, supraclypeal area with a yellow spot, and metathorax with a yellow mark on each side. Apical plate of abdomen narrow, broadly rounded, entire. Third antennal joint longer than fourth. Basal nervure passing a little basad of transverse medial."

(To be continued.)

THE RED-HEADED ORCHELIMUM AND SOME OTHER NEW  
JERSEY ORTHOPTERA.

BY WM. T. DAVIS, NEW BRIGHTON, STATEN ISLAND, N. Y.

It seems quite certain in considering Redtenbacher's description of *Xiphidium agile*, DeGeer, which he considers the same as *Orchelimum vulgare*, Harris, that he took for his type of the species what is generally identified as *O. vulgare*. His figure (80) is also a typical *vulgare*. He says the elytra not at all or scarcely exceeding the hind femora, very little shorter than or equaling the wings. All the femora unarmed. These are characters of *O. vulgare*, Harris.

DeGeer's figure, however, shows a rather slender insect, in which the wings are longer than the elytra, and he says the wing-covers are transparent. Such an insect, with the hind femora spined on the under side, occurs in New Jersey, and has been identified by Prof. Lawrence Bruner as *Orchelimum agile*, DeGeer. I am indebted to Prof. J. B. Smith for specimens of this species, which agree very well with DeGeer's description and figure. They show no dark median streak down the face. In the Pine Barrens of New Jersey there is another *Orchelimum* much resembling *vulgare*, but which may easily be told from it at a distance by its very different song. Upon a nearer approach its most noticeable feature is its very red face, often the whole head being of a blood-red colour. It appears as if the insect had eaten of ripe cranberries and got its head stained with the fruit, for the colour is the same. The Red-headed *Orchelimum* appears to be undescribed, and may be more particularly characterized as follows:

*Orchelimum erythrocephalum*, sp. nov.—A medium-sized robust species, with the general colour green; there are occasional light brown examples. The face, if not wholly red, has usually a red band down the middle, which expands laterally. This area is not definite, and not chocolate brown as in some other species. There is a dark brown dorsal band upon the prothorax and head. The elytra and wings usually exceed the hind femora about 4 mm, and the wings are usually a little longer than the elytra. The hind femora are rarely without erect spines, but are armed with from one to several spines on the under side. The spines are on the outer carina, and are not always of the same number on both legs. The ovipositor is curved, but less so than in *Orchelimum vulgare*.

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Measurements: Male—Length of body, 20 mm.; of pronotum, 5 mm.; of tegmina, 20 to 24 mm.; of hind femora, 16 mm. Female—Length of body, 21 mm.; of pronotum, 6 mm.; of tegmina, 21 mm.; of hind femora, 17 mm.; of ovipositor, 9 mm.

A number of males and one female have been collected at Lakehurst, N. J., where it is far more common than *vulgare*. I have also collected the species at Tom's River, N. J. One female, from Ocean Co., N. J., was received from Prof. J. B. Smith.

In September, 1903, three male specimens of a large *Conocephalus* were collected at Lakehurst, N. J. I was first attracted to the spot in the abandoned cranberry bog by hearing the insect stridulate. The song was a slow *zip-zip-zip*, repeated many times, and much resembling the stridulation of *Conocephalus exiliscanorus*, of the salt meadows. However, when the first specimen was captured its resemblance to *C. robustus* was noted, and those to whom the specimens have been shown have suggested that it was *robustus*. The song, however, is very different, the fastigium is shorter, and bordered with a narrow black line on the lower surface extending from the tip to base, or nearly so. This species, which seems to be new, I take pleasure in naming after Mr. Andrew N. Caudell, to whom I am indebted for making comparisons with specimens in the National Museum.

*Conocephalus Caudellianus*, sp. nov.—A robust species, either green or brown, the brown specimens having the tegmina flecked with black. Fastigium obtuse, its sides with a faint yellow line, beneath which there is a black line extending from the apex to the base of the antennæ, or nearly so. The lower basal tooth blunt but distinct. Anterior and middle femora unarmed beneath; posterior femora armed beneath on both carinæ with numerous spines.

Measurements: Male—Length of body, 33 mm.; of fastigium beyond the eyes, 2.5 mm.; of pronotum, 8 mm.; of tegmina, 44 mm.; of hind femora, 24 mm.

Another interesting insect from Lakehurst, N. J., is what Mr. Caudell assures me is *Conocephalus Nebrascensis*, Bruner, a species usually reported from the upper Mississippi Valley and further west. Eleven specimens were collected in various cranberry bogs on the 20th of September, 1903, and many others were heard.

TWO NEW HOMOPTERA OF THE FAMILY CHERMIDÆ,  
ONE OF ECONOMIC IMPORTANCE.

BY G. W. KIRKALDY, HONOLULU, HAWAIIAN ISLANDS.

Fam. Chermidæ. (= Psyllidæ of some authors.)

*Trioza Koebelei*, sp. n. (Fig. 14).—The figures of the tegminal neurulation and of the male genital segment in profile, and the following brief description, will distinguish this destructive form from the three other

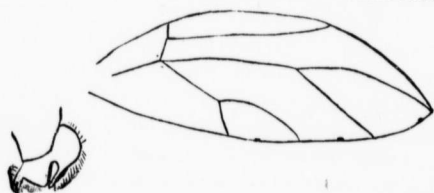


Fig. 14.

North American *Trioza* species. Head and thorax varying from dark fulvous to blackish, polished, shining. Antennæ testaceous, except apically. Tegmina and wings

hyaline, colourless, nervures brownish. Femora dark fulvous or blackish-brown, tibiæ and tarsi testaceous, except the apices of the apical tarsal segments. Abdomen smooth, polished and shining, black, with a dark bluish-green gloss.

Head and eyes wider than thorax; dorsum medio-longitudinally sulcate transversely, about as wide as the eyes, which are a little longer than broad (as seen dorsally) well rounded, and substylate. Frontal cones small, but well developed. Antennæ longer than head, pronotum and dorsulum together nearly, or quite, as long as posterior tibiæ, third segment very long. Dorsulum suboval. Anterior femora dilated.

♂.—Abdomen elongate; genital segment (fig. 14) pale fulvous.

♀.—Abdomen laterally angulate so that it is roughly diamond-shaped. Genital segments reddish-brown.

Length to apex of abdomen a little under 3 mm.; length to apex of tegmina in repose, about 6 mm.

Habitat: Mexico, Morelos (Koebele); forms large light brown coloured galls on leaves of *Persea gratissima* ("Alligator Pear") and is very destructive. The galls are ovoid, with truncate base, and are placed erect (usually) on the upper surface of the leaf. Height, about 6 mm.

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## CALLISTOCHERMES, gen. nov.

Belongs to that section of *Aphalarinæ*, F. Low, which James Edwards apparently includes in *Cherminæ* (= *Psyllinæ*), characterized by the frontal cones being well developed; the cubital petiole is about as long as the basal part of the subcostal nervure. The form of the dorsulum and mesonotum recalls the *Triozinæ* rather than either the *Cherminæ* or *Aphalarinæ*.

Head strongly declivous; dorsum strongly transversely impressed, about three times as wide as long, lateral margins diverging slightly anteriorly, posterior margin slightly angularly emarginate. The eyes are attached to the side of the head, and appear suboblique, posterolaterally they are on a level with the very short transverse, linear pronotum. Vertex and frons longitudinally sulcate very distinctly; frons very transverse, with an apical ocellus. Cones bullet-shaped, as seen anteriorly; from beneath they are seen to be narrow at their base and obliquely elongate, contiguous apically. The other ocelli are on the posterior margin of the vertex, subcontiguous to the eyes, which are prominent, transverse, substylate, together almost as wide as the vertex. Head and eyes much wider than thorax. Dorsulum\* octohedral, somewhat convex and declivous, much longer than the pronotum; mesonotum convex, a trifle longer than the dorsulum. Tegmina elongate, apically rounded, costa arched. Basal part of subcosta curved, about equal in length to petiole of cubitus, much longer than the part of the subcosta between basal part and radial forking. Stigma short, subtriangular. All the nervures more or less sinuate or curved.

*C. rubrovariegata*, sp. n.—Anterior half of vertex crimson, freckled with pale greenish and dark brown; posterior half of vertex, the pronotum and dorsulum dark greenish-brown, freckled with crimson and whitish. Frons pale greenish-white, cones obscure greenish. Eyes grayish-green. Ocelli red. Antennæ pale greenish-yellow, tip of each segment blackish-brown. Mesonotum pale greenish-white, freckled with black, with a linear median and broad lateral pale crimson bands longitudinally. Scutellum pale greenish, with a medio-longitudinal stripe, which at its middle has a very short line at right angles on each side. Abdominal tergites dark greenish-brown, posterior margin narrowly crimson. Tegmina subhyaline, colourless, freckled all over with blackish-

\*There is an unfortunate printer's error in Froggatt's paper in Proc. Linn. Soc. N. S. W., 1900, Pl. XIII., f. 2; 4 a should be mesonotum and 3 a dorsulum.

brown, especially apical third and the costa, a large blackish-brown transverse spot commencing just apical to the stigma, which lengthens on the next area and then splits into two, which continue separately to the interior margin, thus forming two narrow, transverse blackish-brown bands, uniting a little above the middle of the tegmen. Veins on apical half of tegmina, crimson. Wings hyaline, veins grayish-brown. Under-side bright green, tarsi and tibiae more or less reddish.

Length of body, 4 mm.; length to apex of closed tegmina,  $6\frac{1}{4}$  mm.

Habitat: Queensland, Brisbane (July, 1904, R. C. L. Perkins), on grasses in a mangrove swamp.

This is the most ornate Chermid yet described.

#### DR. HOLLAND'S MOTH BOOK.

The following corrections in the genus *Catocala* in Dr. Holland's Moth Book" should be made:

Plate XXXI.—Fig. 4, is a well marked form of *C. agrippina* and not var. *subviridis*. Fig. 8, is *C. luctuosa* and not *relecta*. Fig. 11, is *C. Angusii*, var. *lucetta*, and not *C. flebilis*. Fig. 14, is *C. obscura*, var. *residua*, and not *C. obscura*.

Plate XXXII.—Fig. 5, is *C. flebilis* and not *C. carolina*, subsp. nov. Fig. 6, is *C. relecta*, var. *clara*, and not *C. relecta*. Fig. 7, is *C. relecta* and not var. *bianca*.

Plate XXXIII.—Fig. 1. This poor figure looks like a very pale example of *C. irene* and is not *C. Californica*. Fig. 4, is *C. ultronia*, var. *adriana*, and not var. *celia*. Fig. 6, may possibly be *C. Meskei*, but the species is not recognizable from the figure. Fig. 7, is one of the many varieties of *C. ultronia* and not var. *mopsa*. Fig. 8, looks like *C. Californica* and is not var. *augusta*.

Plate XXXIV.—Fig. 7, looks like *C. ilia* and is not var. *osculata*, which has clear yellow hind wings.

Plate XXXV.—Fig. 7, is *C. gracilis*, var. *sordida*, and not *C. praeclara*. Fig. 1, is *C. sancta* and not *C. amasia*. Fig. 2, is *C. similis*, var. *aholah*, and not *C. similis*. Fig. 3, is *C. similis* and not var. *aholah*. Fig. 5, looks like *C. blandula* and is not *C. fratercula*, var. *jaquenetta*. Fig. 13, is *C. mariana* and not *C. Stretchii*. Fig. 14, looks like *C. Californica* and is not var. *cleopatra*. Fig. 15, looks like *C. Californica*, var. *cleopatra*, and is not *C. rosalinga*, which is a straight synonym of *C. Meskei*.

WM. BEUTENMULLER, New York.



## MANITOBA MICRO-LEPIDOPTERA.

BY W. D. KEARFOTT, MONTCLAIR, N. J.

(Continued from page 256.)

## PYRALIDINA.

- Diastictis argyralis*, Hbn.—Beulah, IX, 14.  
*Nomophila noctuella*, Schiff.—Cartwright.  
*Loxostege chortalis*, Grt.—Aweme, VI, 6, to VI, 19; Souris.  
*Loxostege sticticalis*, Linn.—Aweme, VII, 1; Souris; Wattsview.  
*Diasemia plumbosignalis*, Fern.—Aweme, VII, 21 to 27; Cartwright.  
*Perispasta ceculalis*, Zell.—Cartwright; Aweme, VI, 16 to 25.  
*Phlyctænia ferrugalis*, Hbn.—Cartwright.  
*Phlyctænia itysalis*, Walk.—Cartwright, VII, 18.  
*Phlyctænia tertialis*, Gn.—Aweme, VI, 9 to 25; Cartwright.  
*Pyrausta fodinalis*, Led.—Aweme, VII, 7 to 28; Souris.  
*Pyrausta unifascialis*, Pack.—Beulah, VII, 15.  
*Pyrausta submedialis*, Grt.—Rounthwaite, July.  
*Pyrausta perrubralis*, Pack.—Aweme, VII, 28 and 29; Beulah, VII, 15; Rounthwaite, July.  
*Pyrausta ochosalis*, Dyar.—Aweme, VI, 16, to VII, 2; Beulah; Cartwright, VI, 9.  
*Pyrausta signatalis*, Walk.—Rounthwaite, June.  
*Pyrausta nicalis*, Grt.—Aweme, VI, 13, to VIII, 15; Cartwright, VIII, 12.  
*Nymphula allionealis*, Walk.—Rounthwaite, July.  
*Nymphula maculalis*, Clem.—Cartwright.  
*Nymphula badiusalis*, Walk.—Cartwright.  
*Schænobius sordidillus*, Zinck.—Rounthwaite, July.  
*Schænobius unipunctellus*, Rob.—Cartwright.  
*Schænobius mellinellus*, Clem., and var. *albicostellus*, Fern.—Cartwright, VII, 6.  
*Schænobius Clemensellus*, Rob.—Cartwright.  
*Crambus perlellus*, Scop.—Cartwright.  
*Crambus pascuellus*, Linn.—Rounthwaite, June.  
*Crambus coloradellus*, Fern.—Aweme, VII, 22; Beulah, VII, 15.  
*Crambus murellus*, Dyar.—Rounthwaite, July.  
*Crambus mutabilis*, Clem.—Cartwright.  
*Crambus caliginosellus*, Clem.—Cartwright.  
*Crambus luteolellus*, Clem.—Beulah, VIII, 15.

- Crambus praefectellus*, Zinck.—Cartwright.  
*Crambus trisectus*, Walk.—Beulah, VIII, 15.  
*Thaumatopsis nortella*, Kearf.—Rounthwaite, June.  
*Chilo comptulatalis*, Hulst.—Cartwright ; Rounthwaite, July.  
*Diatraea idalis*, Fern.—Cartwright.  
*Argyria auratella*, Clem.—Aweme, VII, 31.  
*Tioga aplastella*, Hulst.—Aweme, VI, 31.  
*Wanda baptisiella*, Fern.—Rounthwaite, July.  
*Myelois obnupsella*, Hulst.—Aweme, VI, 10.  
*Myelois corniella*, Rag.—Aweme, VIII, 14 and 16.  
*Acrobasis carya*, Grt.—Cartwright.  
*Mineola tricolorella*, Grt.—Cartwright.  
*Ambesa latella*, Grt.—Cartwright.  
*Meroptera pravella*, Grt.—Cartwright.  
*Salebria basilaris*, Zell.—Rounthwaite, July ; Aweme, VI, 16 and 18.  
*Salebria carneella*, Hulst.—Aweme, VI, 16 and 18.  
*Myrlea delassalis*, Hulst.—Cartwright, VII, 40.  
*Laodamia fusca*, Haw.—Aweme, VII, 22 ; Rounthwaite, June.  
*Epischnia albiplagiata*, Pack.—Beulah, VII, 14.  
*Epischnia Boisduvaliella*, Gn.—Beulah, VIII, 15.  
*Megasis atrella*, Hulst.—Cartwright ; Rounthwaite, May.  
*Sarata perfuscalis*, Hulst.—Beulah, V, 18.  
*Hulstia undulatella*, Clem.—Rounthwaite, July ; Cartwright, VIII, 13.  
*Homæosoma uncauale*, Hulst.—Aweme, VI, 29 ; Cartwright.  
*Peoria approximella*, Walk.—Aweme, VI, 16, to VI, 23 ; Beulah, VII, 15, to VIII, 15 ; Rounthwaite, July.  
*Oxyptilus tenuidactylus*, Fitch.—Rounthwaite, July.  
*Platyptilia cosmodyctyla*, Hbn.—Rounthwaite, May.  
*Platyptilia pernodactyla*, Wlsm.—Aweme, X, 2.  
*Platyptilia albidorsella*, Wlsm.—Rounthwaite, May.  
*Platyptilia petrodactyla*, Walk.—Rounthwaite, July.  
*Alucita Belfragei*, Fish.—Rounthwaite, July.  
*Alucita cinerascens*, Wlsm.—Rounthwaite, July.  
*Pterophorus homodactylus*, Walk.—Rounthwaite, July.  
*Pterophorus Brucei*, Fern.—Aweme, VI, 16, to VIII, 4 ; Beulah, VII, 15, to VIII, 15.

- Pterophorus sulphureodactylus*, Pack.—Rounthwaite, July.  
*Pterophorus paleaceus*, Zell.—Aweme, VI, 28.  
*Pterophorus Baroni*, Fish.—Rounthwaite, July; Aweme, VIII, 3.  
*Ornecodes hexadactyla*, Linn.—Aweme, V, 29.

## TINEINA.

- Harpipteryx canariella*, Wlsm.—Rounthwaite, July; Cartwright; Aweme, VII, 31.  
*Harpipteryx frustella*, Wlsm.—Rounthwaite, July; Cartwright.  
*Trachoma instabilis*, Wlsm.—Rounthwaite, April.  
*Plutella maculipennis*, Curt.—Rounthwaite, Sept.; Aweme, V, 25-28.  
*Telphusa quinquecristata*, Cham.—Aweme, VI, 6.  
*Aristotelia fungivorella*, Clem.—Rounthwaite, July.  
*Recurvaria quercivorella*, Cham.—Aweme, IV, 21, to V, 31.  
*Recurvaria obliquestrigella*, Cham.—Aweme, V, 1 to 28.  
*Gnorimoschema gallicasteriella*, Kell.—Rounthwaite, July; Beulah, VIII, 15; Aweme, X, 23.  
*Aproerema nigratomella*, Clem.—Aweme, VI, 25.  
*Anacampsis tristigella*, Wlsm.—Rounthwaite, Aug.  
*Anacampsis niveopulvella*, Cham.—Aweme, VII, 23 to 31.  
*Gelechia lugubrella*, Fabr.—Aweme, VI, 7 to 14, VII, 31.  
*Gelechia dentella*, Busck.—Aweme, VI, 6 to 25.  
*Gelechia grisella*, Cham.—Aweme, IV, 18-V, 1-VI, 8-VII, 31 and X, 22. Agrees with Chambers' brief description, *Ante* IV, 171, 1872. Mr. Busck, in his revision of the Gelechiid family, places this species among those of which the types are missing, and no authentic examples are in existence. The specimens agree exactly in venation and structure with Busck's definition of the genus *Gelechia*. The species should follow *discoocellella*, Chamb., in the list.  
*Gelechia variabilis*, Busck.—Rounthwaite, July; Beulah, VIII, 15.  
*Gelechia ornatifimbriella*, Clem.—Rounthwaite, July; Aweme, VI, 16, to VII, 9.  
*Gelechia nigrimaculata*, Busck.—Rounthwaite, Aug.; Aweme, VI, 6 to 16.  
*Gelechia pseudoacaciella*, Cham.—Beulah.  
*Gelechia mediofuscella*, Clem.—Aweme, IV, 8, to VI, 8.  
*Trichotaphe flavocostella*, Clem.—Cartwright.  
*Trichotaphe purpureofusca*, Wlsm.—Rounthwaite, July.

- Trichotaphe setosella*, Clem.—Rounthwaite, Aug.; Aweme, VI, 8.  
*Ypsolophus ligulellus*, Hbn.—Rounthwaite, Sept.; Aweme, V, 23 to VI, 3, and X, 13.  
*Depressaria arnicella*, Wlsm.—Cartwright; Aweme, IV, 24.  
*Depressaria argillacea*, Wlsm.—Aweme, IV, 14, to V, 2.  
*Depressaria novimundi*, Wlsm.—Aweme, VI, 27.  
*Depressaria psoralicella*, Wlsm.—Rounthwaite, Aug.  
*Depressaria sabulella*, Wlsm.—Beulah, VI, 15.  
*Depressaria Canadensis*, Busck.—Rounthwaite, Aug.; Cartwright, IV, 11 to 17, and X, 11.  
*Semioscopsis aureorella*, Dyar.—Aweme, IV, 16. One specimen identical with "Topotype" from Mr. Merrick.  
*Semioscopsis Merricella*, Dyar.—Aweme, V, 2 to 16. Two specimens very close to Dyar's type.  
*Semioscopsis inornata*, Wlsm.—Rounthwaite, April; Cartwright.  
*Ethmia fuscipedula*, Wlsm.—Rounthwaite, June; Cartwright.  
*Borkhausenia pseudopretella*, Staint.—Aweme, V, 16 to 31; Cartwright, X, 30; Beulah.  
*Holcocera modestella*, Clem.—Rounthwaite, July; Aweme, VI, 16 to 25.  
*Scythris impositella*, Zell.—Rounthwaite, July.  
*Walshia amorphella*, Clem.—Rounthwaite, July; Beulah, VII, 15.  
*Gracilaria elongella*, Linn.—Aweme, V, 10 to 15.  
*Gracilaria stigmatella*, Fabr.—Aweme, V, 27; Cartwright, XI, 1.  
*Argyresthia andereggiella*, Dup.—Rounthwaite, July; Aweme, VII, 31.  
*Tineola bisselliella*, Hum.—Aweme, IV, 19.  
*Monopis biflavimaculella*, Clem.—Rounthwaite, Aug.; Cartwright; Aweme, V, 29, to VI, 16.  
*Monopis monachella*, Hbn.—Cartwright; Aweme, VI, 16.  
*Amydrya effrenatella*, Clem.—Cartwright.  
*Adela purpura*, Walk.—Aweme, IV, 25, to V, 20.

I have between thirty and forty additional species of *Tineina*, which I hope to be able to work up and record in a supplementary article early next year. Owing to space limitations, it has been thought best to publish the new species of the *Tortricidae* in the proceedings of the U. S. Natl. Museum. Due notice will be given when this appears, so that copies may readily be obtained by any one interested, either from the Museum direct or from me.

## BEETLES FROM NORTHERN BRITISH COLUMBIA.

BY J. H. KEEN, METLAKATLA, B. C.

About ten years ago (see CAN. ENT., Vol. XXVII, Nos. 7 and 8) I published a list of beetles taken by me on the Queen Charlotte Islands. The beetles enumerated below were, except where otherwise designated, taken on the mainland of British Columbia, on the coast between the mouths of the Naas and Skeena Rivers. Some of them were determined for me through the kindness of Dr. James Fletcher, the Dominion Entomologist, whose valuable help and advice I have now for many years enjoyed; the remainder by Professor H. F. Wickham, of Iowa University, to whose skill and courtesy I am deeply indebted.

## CARABIDÆ.

- |                                 |                                |
|---------------------------------|--------------------------------|
| Elaphrus pallipes, <i>Horn.</i> | Bembidium cautum, <i>Lec.</i>  |
| Bembidium breve, <i>Mann.</i>   | " iridescens, <i>Lec.</i>      |
| " quadriveolatum, <i>Mann.</i>  | Harpalus innocuus, <i>Lec.</i> |

## AMPHIZOIDÆ.

Amphizoa insolens, *Lec.*

## DYTISCIDÆ.

- |                                      |                                   |
|--------------------------------------|-----------------------------------|
| Hydroporus vilis, <i>Lec.</i>        | Rhantus divisus, <i>Aube.</i>     |
| Ilybius quadrimaculatus, <i>Lec.</i> | Colymbetes strigatus, <i>Lec.</i> |
| Agabus anthracinus, <i>Mann?</i>     |                                   |

## GYRINIDÆ.

Gyrinus minutus, *Fab.*

## HYDROPHILIDÆ.

- |                                     |                                     |
|-------------------------------------|-------------------------------------|
| Ochthebius Holmbergi, <i>Makl.</i>  | Creniphilus subcupreus, <i>Say.</i> |
| Philhydrus conjunctus, <i>Fall.</i> |                                     |

## STAPHYLINIDÆ.

- |  |                                  |
|--|----------------------------------|
| Thinopinus pictus, <i>Lec.</i>             | Orobanus rufipes, <i>Casey.</i>  |
| Tachinus debilis, <i>Horn.</i>             | Eunonia Keeniana, <i>Casey.</i>  |
| Homalium segmentarium, <i>Fauvel,</i>      | Trigonurus Crotchii, <i>Lec.</i> |
| n. sp.*                                    |                                  |
| Massetia tetramera, <i>Fauvel,</i> n. sp.* |                                  |

## PSELAPHIDÆ.

Actium testaceum, *Casey.*

\*From Queen Charlotte Islands, B. C.

	CRYPTOPHAGIDÆ.
Atomaria, <i>near fallax</i> , Casey.	Atomaria, <i>near oblongula</i> , Casey.
	LATHRIDIDÆ.
Melanophthalma gibbosa, <i>Hbst.</i>	Lathridius lardarius, <i>DeGeer.*</i>
	DERODONTIDÆ.
Derodontus trisignatus, <i>Mann.</i>	
	PARNIDÆ.
Elmis concolor, <i>Lec.</i>	
	DASYLLIDÆ.
Cyphon concinnus, <i>Lec.</i>	Cyphon variabilis, <i>Thunb.</i>
	ELATERIDÆ.
Elater apicatus, <i>Say.</i>	Athous scissus, <i>Lec.</i>
Agriotes fucosus, <i>Lec.</i>	Corymbites sagitticollis, <i>Esch.?</i>
	LAMPYRIDÆ.
Ellychnia Californica, <i>Mots.</i>	
	CLERIDÆ.
Laricobius, <i>near Erichsonii</i> , <i>Rosenh.</i>	
	PTINIDÆ.
Ptinus, <i>sp.</i>	
	CICIDÆ.
Xestocis biarmata, <i>Mann.</i>	
	SCARABAEIDÆ.
Aphodius congregatus, <i>Mann.</i>	
	CERAMBYCIDÆ.
Criocephalus asperatus, <i>Lec.</i>	Ulochætes leoninus, <i>Lec.</i>
	CHRYSOMELIDÆ.
Donacia emarginata, <i>Kirby.</i>	Chrysomela multipunctata, <i>Say.</i>
Syneta hamata, <i>Horn.</i>	Galerucella nymphææ, <i>Linn.</i>
"    albida, <i>Lec.</i>	
	PYTHIDÆ.
Boros unicolor, <i>Say.</i>	
	CEDMERIDÆ.
Ditylus cæruleus, <i>Rand.</i>	
	CEPHALOIDÆ.
Cephaloon tenuicorne, <i>Lec.</i>	

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\*From Queen Charlotte Islands, B. C.

## SOME MAINE SPECIES OF HALICTUS.

BY JOHN H. LOVELL, WALDOBORO, MAINE.

This paper continues the enumeration of the species of *Halictus* found in Maine, begun in the *CANADIAN ENTOMOLOGIST* for February, 1905, page 40.

*Halictus similis*, Smith, ♀ ♂.—A very common species in this locality, taken from June 19th to August 24th. It visits a great variety of flowers, as the blackberry, *Iris versicolor*, *Sagittaria latifolia*, *Aralia hispida*, *Cornus Canadensis*, and the thistles and goldenrods. Professor Cockerell, who has examined Smith's type in the British Museum, states that the Maine specimens agree with it in all the more important characters. It is a broad, thickset bee, with the mesothorax closely punctured; the metathorax is sharply truncate, with the basal area not well defined, and coarsely sculptured or ridged; the first segment of the abdomen is distinctly punctured, and there are lateral fasciæ, sometimes entire, on the second and third segments. It differs from Smith's type in the lighter brown colour of the stigma; and the apical fimbria, which, in the type light fulvous, is brown in the Maine form.

*Halictus pectoralis*, Smith, ♀ ♂.—Collected on the blackberry, rose, goldenrod, etc. The specimens are typical, not very common.

*Halictus Foxii*, Robt., ♀ ♂.—Taken on *Diervilla trifida* and the wild rose. Agrees with authentic material of *H. Foxii* in the produced clypeus, absence of hair patches at base of abdominal segments, and in the sculpturing of the metathoracic area. The differences are slight.

*Halictus divergens*, n. sp., ♀.—This species is very closely allied to *H. quadrimaculatus*, Robt.; but the head in that species is nearly round viewed from in front, while in *H. divergens* it is decidedly longer than broad; the wings are darker and the nervures a dark brown. Length, 6 mm. In other characters it agrees with *H. quadrimaculatus*; the mesothorax is finely punctured; the metathorax is rounded, with numerous raised lines not extending to the apex; and at the extreme sides of abdominal segments 2 and 3 there are patches of white pubescence.

*Halictus nelumbonis*, Robt., ♀.—I have taken this species only on the flowers of *Nymphaea* (*Nuphar*) *advena*, not common. It agrees with the description, and was also a few years ago determined for me by Dr. Ashmead.

*Halictus pilosus*, Smith, ♀ ♂.—A common species. Collected on the flowers of *Salix Bebbiana*, *Clematis Virginiana*, and *Epilobium angustifolium*.

*Halictus viridatus*, n. sp., ♀.—Length, 5–6 mm. Head and thorax green, abdomen black, with apical margins of the segments testaceous. Head broad, length and width about equal; face finely and densely punctured, clypeus purple, with few rather coarse punctures; mandibles dark at base, with apices rufous; antennæ black, testaceous behind. Mesothorax with punctuation sparse and fine, nearly bare, the pubescence short and thin; metathorax rounded, the disc coarsely sculptured, the raised lines prominent, rather far apart and reaching to the apex. Wings yellowish hyaline, the stigma and nervures yellowish brown, the tegulæ testaceous. Abdomen impunctate, first and second segments smooth and shining, apical segments with thin appressed pale pubescence.

♂.—Length a little over 5 mm., more slender than the female. The sides and lower half of face clothed with dense whitish pubescence, apex of clypeus, labrum, and tips of mandibles yellow; antennæ with flagellum testaceous behind, long, reaching beyond the tegulæ, joint 4 as long as 2 + 3; disc of metathorax coarsely rugose; apical margins of abdominal segments testaceous; tarsi and tibiæ, except an oblong spot along the centre, yellow.

The female is distinguished by the broad head, the coarsely rugose area of the metathorax, and the robust form. Collected on the cultivated blackberry and rhubarb in June; the males were taken in August on Solidago. Mr. Henry L. Viereck has compared specimens of this species with various types in the collection of the Academy of Natural Sciences at Philadelphia. Professor Cockerell writes: "It is not a Smithian species; I do not know of any to which it is even closely allied."

*Halictus planatus*, n. sp., ♀.—Length, 6 mm. Head and thorax green, abdomen black, pubescence sparse, whitish. Head nearly round, slightly longer than broad, face very finely and closely punctured above the insertion of the antennæ, below the punctures are fewer and coarser; antennæ black, flagellum testaceous behind. Mesothorax with very fine, rather remote punctures; metathorax narrowly truncate, disc with few fine raised lines at the sides, in the centre nearly smooth except for a median line. Wings hyaline, slightly darkened, stigma and nervures pale brown, tegulæ brown-black. Abdomen impunctate, apical segments clothed with a thin whitish pubescence, margins not testaceous, or very narrowly so.

Collected on willows, May 6–12, and on *Aralia trifolia*, May 21–23. It differs from *H. viridatus* in having the area of the metathorax much smoother, the abdomen blacker, less convex, and the head and thorax have a more bluish tinge.



## NEW SPECIES OF COLLETES.

BY MYRON H. SWENK, UNIVERSITY OF NEBRASKA, LINCOLN.

*Colletes Vierecki*, n. sp.—♀. Length, 11–12 mm. Shining black, form stout, body almost bare. Clypeus slightly convex, not sulcate, closely striato-punctate, sparsely clothed with short, pale pubescence. Supraclypeal area convex, shining and impunctate medially, and with crowded punctures on the margins. Face crowded with good sized punctures, and with very short, erect, pale pubescence. Antennæ black, the flagellum more or less dull brownish beneath, the scape deeply punctured, joint 3 a shade shorter than 4, decidedly shorter than 5 and the following, which are shorter than wide. Malar space practically lacking, at most a mere line. Mandibles rufous beyond middle, tip very acute, notch large and nearly one-fourth its length from tip. Labrum shining, concave, a large, round, median excavation bounded on each side by a subtriangular one, which occupies most of the remaining space, and is indistinctly crossed by some weak ridges. Cheeks rather coarsely and closely punctured except around the orbits, their pubescence very sparse and whitish. Vertex shining and polished, anteriorly depressed by elongated foveæ, finely and sparsely double punctured, its pubescence fairly long, pale and black intermixed, the former predominating posteriorly, the latter between ocelli.

Prothoracic spine distinct, sharp, broadly subtriangular. Pubescence of a broad anterior thoracic border, mostly grayish-white, and very short and thin, dense on a grayish mat on tubercles; that on entire disc mostly black, of very scattered, short, bristle-like hairs not nearly concealing the surface; a black scutellar fringe followed by a pale one, and longer pale grayish hairs on postscutellum and down the sides of metathorax. Mesothorax anteriorly with a median impressed line and coarse, very close punctures, becoming more separated posteriorly, decidedly more so on a very small disc. Scutellum shining, very coarsely and quite closely studded with round punctures, postscutellum with fine cancellate punctures. Pleura with very large, coarse, striate punctures. Superior face of metathorax well defined by a rimmed angulation, and with the usual shining pits square medially, enclosure polished, approaching the T shape because of the very wide base and narrow bowl, the former of these convex with lateral ridges, and the latter with indistinct transverse rugæ, the surrounding areas shiny, sparsely punctured and irregularly feebly

reticulated. Tegulae shining deep black. Wings deeply infuscated except at base, where they are subhyaline, nervures black, stigma dark brown.

Legs stout, black, with apex of claw joint and claws ferruginous, the latter medially toothed, their pubescence longest on posterior femora and tibiae, wholly grayish white except for the ferruginous tufts on the inner tarsal apices. Anterior coxae with small short spines, tibial spurs dusky testaceous, at most but very finely pectinate. Abdomen stout, subconical, the first segment polished, its basal truncation impunctate, elsewhere with rather fine but distinct and very well separated punctures, becoming very fine and close on apical margins, following segments less polished but still shiny, more finely and closely punctured, apex finely rugose. Apical margins of segments 1 and 2 constricted and depressed, of 3 and 4 merely depressed. Segments 1-5 have narrow white fasciae continued on the ventral fringes, but otherwise the abdomen is almost bare, having but short scattered hairs at base and down sides of first segment, the other segments with minute scattered pale pubescence and some longer black hairs on three apical segments.

Types: Four ♀ specimens, Anglesea, New Jersey, August 8th, 1901, on "white umbellifer" (H. L. Viereck). Collection Acad. Nat. Sci., Philadelphia.

I take pleasure in dedicating this fine species to its discoverer, Mr. Viereck, to whom I am indebted for many favours. In its bare appearance it resembles *C. nudus*, Rob., but is easily separated by lacking the postscutellar pits. Its size, dark thoracic hairs, dark wings and peculiar abdominal punctation easily separate it from any other North American species.

*Colletes intermixtus*, n. sp.—♀. Length, 9½ mm. Black. Clypeus flat, shiny, medially slightly but broadly sulcate, apex transverse, its punctures coarse but widely separated, and not forming distinct striae, laterally with sparse pale pubescence. Supraclypeal area shining and impunctate, except for a very few marginal punctures. Face closely punctured, clothed with short gray pubescence. Sides of vertex shining, minutely sparsely punctured. Antennae black, the flagellum brownish fuscous beneath beyond second joint, which is just a shade shorter than first, all the median joints shorter than wide. Labrum convex, shining, medially with a long linear depression. Malar space very short, linear, finely striate. Mandibles dark, tips rounded, tooth prominent and near tip.

Cheeks shiny, finely sparsely punctured, clothed with long sparse white pubescence. Vertex with long sparse hairs, pale and black intermixed, occiput with a short, dense pale fringe.

Prothoracic spine present, short and sharp. Mesothorax with small, round, deep punctures, crowded but distinct anteriorly, along sides and posteriorly well separated, a very few on a good-sized shining disc. Pleura similarly but striately punctured. Scutellum with anterior one-third shining and impunctate, the remainder coarsely, sparsely punctured, and with a median depressed line. Postscutellum densely punctured. Superior face of metathorax fairly well defined, its pits shining, somewhat irregular, longer than broad. Enclosure perfectly funnel-shaped, shining, the bowl convex, with a median and several lateral ridges, the neck concave and perfectly smooth. Surrounding areas shiny, with sparse but very distinct punctures. Pubescence of thorax white, tinged with gray above and sparingly mixed with black on mesothorax and scutellar fringe. Tegulae black, edged with testaceous. Wings subhyaline, nervures dark brown, stigma paler.

Legs stout, black except for apical tarsal joints, which are brownish, clothed with short, dense, white pubescence, that fringing anterior borders of intermediate and posterior tarsi short, stiff and black, that on under surface of posterior femora and tibiae largely black. Basal joint of hind tarsus three times as long as broad, and hind tibiae very stout. Tibial spurs short, dark testaceous, not distinctly pectinate. Claws ferruginous, medially toothed. Anterior coxae with very short blunt spines. Abdomen stout, distinctly subconical, shining black, first segment subimpunctate, or at most indistinctly and scatteringly punctured, second and following segments indistinctly but rather closely punctured, the apical margins perfectly smooth and impunctate under the fasciae, which are broad and pure white on segments 1-5. Basal segment with long, erect, white hairs on the basal truncation, becoming shorter, sparser and subdepressed on the convexity, and forming a short, dense fringe down the sides, uniting with the apical fascia. The following segments have short scattered pale hairs, becoming longer, denser and more bristly in a fringe just before the fasciae, and also intermixed with similar dark ones on the last three segments, especially the apex. Ventral segment 5 deeply emarginate on apical margin. Apical margin of first two segments and base of second segment depressed and constricted.

Type: Fedor, Lee County, Texas, April 22nd, 1904 (G. Birkmann), one ♀ specimen. Collection University of Nebraska.

This species is very distinct in its subimpunctate basal abdominal segment, and sparsely punctured clypeus, from all the other species with black thoracic hairs.

*Colletes tegularis*, n. sp.—♀. Length, 11 mm. Allied to *C. armatus*, but differing in the following well marked characteristics: Black hairs on dorsum very few and scattered, confined to the disc, and a fringe of longer ones placed in a spaced row around posterior border of scutellum; pubescence of vertex and both anterior (broadly) and lateral (narrowly) borders of mesothorax pale grayish ochraceous, the vertex with a very few, scattered, short and inconspicuous dark brown to black hairs laterally; pubescence of whole face whitish, long and silvery on the cheeks; mat on tubercles tinged with ochraceous; head and thorax, especially the former, somewhat smoother and more shiny; prothoracic spine rather shorter and stouter; tegulae pale testaceous; wings clear, nervures and stigma dusky ferruginous.

Types: Two ♀ specimens, Gering, Scott's Bluff County, Nebraska, August 14, 1901, on *Solidago* (M. A. Carriker, Jr.). Collection University of Nebraska.

This species is closely related to *C. angelicus*, Ckll., but is easily separated by its paler pubescence.

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The Forty-second Annual Meeting of the Entomological Society of Ontario will be held, by kind invitation of President Creelman, at the Ontario Agricultural College, Guelph, on Wednesday and Thursday, October 18th and 19th.

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In reply to numerous enquiries, we beg to say that the Annual Report of our Society for 1904 was presented to the Legislature of Ontario at the beginning of last session, and for some months has been in the hands of the King's Printer in Toronto. Eight weeks ago the galley proofs were corrected, but the completion of the work is still most unaccountably delayed.

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GENERA INSECTORUM.—We are informed by M. P. Wytzman, the publisher (43 Rue St. Alphonse, Brussels, Belgium), that most of the parts of this work are sold separately, and that a price-list will be furnished on application.

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Mailed July 31st, 1905.