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Contributions to the Coleopterology of the United States

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## Contributions to the COLEOPTEROLOGY of the United States.

BY GEO. H. HORN, M. D.

## CALOSOMA, Fabr.

**C. Haydeni**, n. sp.

The above name is proposed for a species in which the first three joints of the anterior tarsi of the male are spongy pubescent beneath, the base of thorax truncate. It is therefore allied to our *triste* and *obsoletum*, but differing from them in having the elytra connate and the body apterous. The head is large, as in *triste*, and the frontal impressions deep, rather finely punctured and wrinkled; vertex with but few punctures, occiput smooth. Thorax as in *triste*, but with the basal impression deeper and the lateral margins at base more strongly reflexed, nearly as much as in *semilaeve*. Disc with distinct coriaceous sculpture and feeble median line, margins coarsely but distantly punctured, becoming more dense near the hind angles and basal region. Elytra elongate oval, humeri strongly rounded, and as distinctly margined as the sides. Surface very convex in both directions and with striæ of fine distinct punctures feebly impressed. Basal region with distant sub-muricate punctures. Margins distinctly muricately punctured, more dense at the humeral region, almost disappearing at the apex. Metathoracic parapleuræ and sides of abdomen with coarse punctures. Its color above and beneath is shining black. Length .84 inch; 22 mm.

Collected in Southern Colorado, by C. Thomas, of the U. S. Geolog. Survey, under Dr. F. V. Hayden.

This species must be referred to the same group with *C. politum*, Chaud., which I have had an opportunity of examining, through the kindness of M. A. Sallé, of Paris, from which it differs (besides the sculpture,) in its greater general convexity, broader and more strongly reflexed thoracic and elytral margins. In *politum* the basal thoracic impressions are scarcely at all evident. In accordance with the arrangement of our species published by Dr. Leconte, Proc. Acad. 1862, p. 52, this species should be placed as a subdivision of group IV. Both sexes are known to me, the female having slightly broader elytra.

**C. tepidum**, Lec.

Specimens collected by me at Sacramento, Cala., differ from the Oregon type in being entirely black. The thoracic and elytral sculpture is rougher, and in many specimens the large punctures usually golden or bronzed, seen in the Oregon specimens, are here totally obliterated.

This species has been redescribed as *C. irregulare*, by Mr. Walker, Naturalist in British Columbia, Lord, Vol. II., p. 312.

*Callisthenes pimelioides*, Walker, loc. cit.=*Calosoma luxatum*, Say, var. *Zimmermanni*, Lec.

Very many specimens of the varieties of *luxatum* forming a fine series, are known to me. The form named by Walker is probably that in which the tuberculiform elevations of the elytra are more prominent; the variety has been known to us for many years.

**C. latipenne**, n. sp.

Allied so *luxatum* Say, but differs from all the races of that species in having a proportionately smaller head, broader thorax with more rounded sides and more broadly reflexed margin, apex less deeply emarginate, basal angles more broadly rounded; elytra more broadly oval, marginal groove deeper from the more strongly reflexed margin.

Color black and shining, head sculptured as in the smooth forms of *luxatum*; thorax moderately convex, disc smooth with the median line distinct, with the sides coarsely punctured and wrinkled. Elytra broadly oval, smooth and shining, disc with approximate striæ of very fine punctures, margin broad as compared with *luxatum* and equal in its entire length except at base where it is narrower, rather densely muricately punctured and in well preserved specimens of a greenish bronze color. Under surface and legs black and shining, almost entirely smooth and impunctured. Length. 54—68 inch; 14—17 mm.

In most of the specimens before me the margins of the elytra immediately behind the humeri have three or four very distinct serrations. This character is quite common in the species of the *triste* group, but not seen in any of our species of the group *Callisthenes*.

On comparison the male of this species is found to be as broad as the female of *discors* Lec., the elytral margin broader and the surface sculpture of a different order.

Collected by Mr. Wm. M. Gabb and myself, in the elevated regions of the South Sierras of California.

**Calosoma peregrinator**, Guerin. Rev. Zool, 1844, p. 255.

This is probably identical with and has priority over *prominens* Lec. (*angulatum* || Lec.).

**Carabus gladiator**, Motsch.=*C. tædatus* Fabr., var. *baccivorus* Fisch.

**C. hudsonicus**, Motsch.=? *C. maeander*, Lap.

**C. tatumi**, Motsch.=*C. serratus*, Lap.

The three species above noted are described by Motschulsky in Bull. Imp. Soc. Nat. Moscou, 1865, pp. 285 and 293.

**Diachila subpolaris**, Lec. New. Spec. p. 2, 1363.=*D. americana* Motsch. Bull. Mosc. 1864, iii, p. 195.

**Trachypachys Gibbsi**, Lec. Proc. Acad. 1861, p. 339.—*T. californicus*, Motsch. loc. cit. p. 194.

### OMOPHRON, Latr.

Several new species of *Omophron* being in my cabinet, I have thought it advisable to define our species by means of short descriptions, so that the student may be enabled to determine them; for although our species are comparatively few in number, their descriptions are so widely scattered as to be inaccessible to many.

Our species divide themselves into two groups:

*Group I.*—Species broadly oval, shining, elytral striæ almost entirely effaced at apex and indistinct at the sides median thoracic line scarcely evident. Two species are known *labiatum* and *nitidum*.

*Group II.*—Species less broadly oval, less convex and shining, elytral striæ attaining (very nearly) the apex, lateral striæ as distinct as the discal.

Elytra, 14—striate.

Striæ deep, finely and closely punctured.....**gilae**.

Striæ moderate, punctures rather distant and obliterated at apex.....

.....**obliteratum**, n. sp.

Striæ faint, punctures large, distant.....**robustum**, n. sp.

Elytra 15-striate.

Broadly oval.

Punctures of elytral striæ obliterated at apex.....**dentatum**.

Punctures distinct at apex.

Lateral margins only, of thorax, pale.....**americanum**.

Lateral, basal and apical margins pale.....**tesselatum**.

Elongate oval.

Elytral striæ not deeply impressed, finely and closely

punctured.....**ovale**, n. sp.

**O. labiatum**, Fabr. (Scolytus) Syst. El. I. p. 248: Say (Omophron) Trans. Am. Phil. Soc. vol. II, p. 79, 1828; Dej. Sp. 2. 261, 1826.—Broadly oval, convex, shining; color dark brown or nearly black, lateral margin of thorax and elytra pale, the latter broader at apex. Elytral striæ moderately deep at their basal third with rather large but distant punctures; as the striæ approach the middle the punctures become effaced and near the apex the striæ themselves are totally obliterated, scarcely any trace remaining; toward the sides the striæ become also effaced. The pale limb of the elytra in most specimens gradually shades into the darker color of the disc, but little tendency being shown to the formation of branches or processes as in all our other species. The under surface is dark piceous with the sides and apex of abdomen paler. The prothorax is nearly black with the lateral margins pale silvery-white, with coarse sparsely placed punctures more closely approximated at the apical and basal regions. Head black with a metallic lustre near the eyes, anterior margin of front and clypeus brownish, labrum silvery-white. Length .24 inch; 6 mm.

Middle & Southern States.

*O. nitidum*, Lec. Am. Lyc. IV, p. 347; *nitens* Chaud. Rev. Mag. Zool. 1868, p. 7; not *nitidum* Chaud. coll.

Our most broadly oval, convex and shining species. Differs from *labiatum* in having the striæ of the elytra less impressed, the punctures larger, more distant and extending fully two thirds the distance from the base to the apex. The punctures forming the lateral striæ are also well defined. The color of the entire upper surface is metallic green, the elytral pale border narrow, broader at the humeri; from this border slightly behind the humeri a small process enters, at right angles to the border, to the eighth stria and becomes gradually narrower to the apex; behind the middle another process extending obliquely forward to the sixth stria gradually narrowing and with sinuous margins; near the apex a subquadrate process parallel with the suture but separated from it by the first interval, and with its tips emarginate. Thorax similar to *labiatum*, pale margin impunctured, basal and apical regions coarsely but not densely punctured. Head metallic green, coarsely and very sparsely punctured, with the frontal spot and clypeus pale; labrum silvery-white. Under surface somewhat paler than *labiatum*. Length, .20—.24 inch; 5—6 mm.

Occurs in Illinois, Kansas, Indian Territory and Texas.

The synonyms have been suggested to me by Dr. Leconte in a late letter from Paris, where he had an opportunity of inspecting that portion of the cabinet of Chaudoir containing *Omophron*. He also states that *O. nitidum* † Chaud. (cabinet) is still undescribed and is from Louisiana.

*O. gilæ*, Lec. Ann. Lyc. V, p, 201.

The characters given in the preceding table render any detailed description unnecessary. The prevailing color of the upper surface is pale yellowish. Head coarsely and sparsely punctured between the eyes; vertex somewhat darker. Thorax very coarsely but sparsely punctured over its entire surface, with the median line distinctly impressed, and with a transverse greenish metallic spot equalling in length about half the width, and in its width about half the length of the thorax. The elytra have on each side of the scutellar region a short greenish space extending along the basal margins sending three short processes backward, the first on the interspaces 7—8, second on interspace 10, third on interspace 12. The space between the suture and first stria is dark and near the apex expands into a small rhomboidal spot. From the suture outward on each side, at the anterior third a triangular dark spot, apex at suture, base at stria 6; between the latter spot and the margin a small subquadrate spot between striæ 8—12; at the posterior

third are two spots similar to the last, the first between striæ 3—6 the second between striæ 9—13, these are united by a narrow band arching forwards. The under surface is pale brownish with the sides and apex of abdomen paler. Length .28 inch; 7 mm.

From the margins of the Gila River, Arizona.

**O. robustum**, n. sp.

Similar in form to the preceding species but rather more convex, robust and shining. The length of the elytra as compared with the breadth is shorter than any other of our species. The thorax is comparatively shorter than in *gilæ*, the punctures coarse but with the marginal and the dark discal space almost free from punctures. Head with but few punctures, front pale yellowish, vertical and post ocular regions and a narrow line above the eyes brownish; clypeus pale; labrum silvery-white. The thorax has a narrow transverse band of metallic green color slightly extending forwards and backwards on the median impressed line and an oval brownish spot on each side between the metallic band and the margin. The elytral sculpture consists of striæ of rather coarse punctures distantly placed, the striæ themselves very feebly impressed. The ornamentation is similar to that seen in *gilæ*, but the narrow black basal line is absent as also the dark sutural line between the scutellar region and the position of the second row, and also that posterior to the third row of spots. The color of the under surface is similar to *gilæ*. The specimen is perfectly mature. Length .26 inch; 6.5 mm.

A single specimen in the Cabinet of Dr. Leconte from the Nova Scotia' region.

This species at first glance might be mistaken for *tesselatum* but the latter has fifteen rather deeply impressed, closely and rather finely punctured striæ.

**O. oblitteratum**, n. sp.

This species also has but fourteen elytral striæ, but with a close resemblance to *americanum*. The thorax is longer and rather more narrow in front. Head similar in color and sculpture. Thorax with the entire surface, even to the margins coarsely and sparsely punctured, less densely on the disc, median line feebly impressed; pale margins narrow and extending inwards by a rather broad band, a short distance along the apical margin. The elytral coloration is almost identical with *americanum*, but the punctures of the striæ which extend very distinctly to near the apex in the latter species are almost entirely obliterated in this and the striæ are also much fainter. Under surface

piceous; abdomen, especially at the sides and tip, paler. In this species, as in *americanum*, the dark spaces of the elytra are but faintly tinged with metallic green. Length .27 inch; 7 mm.

A single specimen collected at Camp Grant on the San Pedro River, a tributary of the Gila, Arizona.

**O. dentatum**, Lec. Ann. Lyc. V, p. 200.

Resembles *gilæ* in form and markings. The thorax is however longer and with the pale margin and a discal transverse space scarcely punctured, and the median line more feebly impressed. The metallic discal transverse band is longer and approaches more nearly the margin. From the other species of the group it differs by having the punctures of the striæ at the apical third of the elytra almost entirely obliterated. Length .28 inch; 7 mm.

Occurs on the banks of the Gila in Arizona, Fort Yuma, Temecula, Posey Flat, Owen's Valley, and other regions bordering the Colorado Desert of California.

**O. americanum**, Dej. Sp. 5, p. 583; *Sayi* Kirby, Fauna Bor. Am. IV, p. 65.

This species is so widely distributed as to need no description. The elytral interspaces are here more convex than in any other of our species, the punctures of the striæ rather fine and approximated and distinctly visible almost to the apex. The median thoracic line is faint. The disc of the thorax is dark brownish, slightly tinged with metallic green. The lateral margins pale, narrow, suddenly dilated at apical end, and with a narrow extension along the base, for a short distance. Length .24—28 inch; 6—7 mm.

Occurs in Canada, New England, Middle and Western States.

**O. tessellatum**, Say. Journ. Acad. III, p. 52; *Lecontei* Dej. Spec. V, p. 582.

Resembles *gilæ* and *dentatum* by the elytral ornamentation. The striæ are very distinct at apex and the punctures closely placed in the discal region are more distant near the apex, but still quite strongly impressed. The dark rhomboidal spot formed by the dilatation of the dark sutural line, seen in the two species above mentioned, is here absent. The thorax coarsely but sparsely punctured, the discal space and the lateral marginal region with but few punctures. The median line is moderately impressed. The discal metallic spot is short equaling about one-third the width of the thorax and with narrow processes extending to the basal and apical margins along the median line. Under surface ferruginous, margins and apex of abdomen paler. Length .26 inch; 6.5 mm.

Canada and Middle States.

**O. ovale**, n. sp.—Elongate oval, sides of thorax subparallel behind the middle. Elytra oval, finely 15 striate, punctures small rather close, interspaces flat. Head above the eyes sparsely punctured, vertex shining metallic green, margin of front along the suture, clypeus and labrum pale. Thorax coarsely punctured over its entire surface, more densely near the base and apex, median line moderately impressed; with a transverse nearly black faintly bronzed band extending nearly to the lateral margin and broadly along the median line to base and apex; the pale spaces therefore consist of a subquadrate spot at each angle united by a narrow line along the lateral margin. Elytral disc brownish black with feeble lustre and scarcely at all bronzed; margin pale with three processes on each side extending inwards, the first behind the humerus broadly triangular extending to the 11th stria, the second behind the middle, narrower and with irregular borders extending slightly obliquely forward to the 10th stria, the sub-apical process is sub-quadrate, parallel with the suture and emarginate at its inner and front sides; in addition a small, badly defined oblique spot on each side near the scutellar region, a rhomboidal spot near the apex of the first lateral process and an irregular feebly sinuous band near apex of the second process and extending toward the suture. Scarcely any metallic lustre is seen excepting at the basal region and along the anterior third of the suture. Under surface ferruginous brown, apex of abdomen paler. Length .26 inch; 6.5 mm.

Easily known from any other of our species by its more elongate form, finely striate elytra with flat interspaces. In one specimen before me the thorax is subparallel behind the middle, the other has the sides distinctly divergent to the base.

Two specimens, ♀ ♂, Fort Crook, California.

In glancing over our species two forms of elytral marking are seen. In one group the dark or metallic spaces resolve themselves into three transverse rows of spots, basal, submedian, and sub-apical. The margins are pale and the darker spots occupy much less space than the pale portions. In the second group the margin alone is pale with three branches extending inwards, invading for a very short distance the darker color of the disc; an occasional pale spot may be found in the dark discal space. In accordance with the extent of the dark discal space, our species may be arranged as follows;

1. *labiatum*; 4. *obliteratum*; 5. *americanum*;
2. *nitidum*; 3. *ovale*;

while those in which the pale colors prevail;

1. *robustum*; 3. *dentatum*;
2. *gilæ*; 4. *tesselatum*;

the first being the paler, while the groups approach each other through *americanum* and *tesselatum*. The species all vary somewhat in the extent of their markings and the preceding remarks apply only to a general view of several specimens of each.

**PSEUDOMORPHA**, Kirby.

**P. Behrensi**, n. sp.—Oblong parallel, moderately depressed, piceous black, shining. Head smooth, with but few distant punctures each bearing an erect yellow hair. Thorax moderately convex, nearly twice as broad as long, apex feebly emarginate, angles obtuse, sides strongly rounded, slightly converging to apex, hind angles broadly rounded, base truncate; sparsely muricately punctured, each puncture with an erect hair, margin slightly reflexed and sparsely fimbriate. Elytra parallel, nearly twice longer than broad, feebly convex, sparsely muricately punctured, each puncture with a yellowish erect hair, margin sparsely fimbriate with yellow hairs. Body beneath ferruginous brown, abdomen punctured and pilose. Legs ferruginous, femora very robust. Length .38 inch; 9.5 mm.

This species differs from *Cronkhitei*, Horn, in having the form more parallel and more convex. The thorax is much more convex and not as broad and the sides are more broadly rounded and converge less to the apex; the lateral margin is more broadly reflexed and the impression within, consequently deeper and extending faintly within the hind angles. In this species the disc of thorax has a median faintly elevated ridge which is scarcely at all evident in *Cronkhitei*. The elytra of *Behrensi* are parallel on the sides while, in *Cronkhitei* they converge toward the apex, in the latter species the elytra are nearly smooth with scarcely any traces of punctures, in the latter species the muricate punctures are quite strong and though confusedly arranged at base are in striæ beyond the middle. The femora of *Behrensi* are much more robust than those of the other species.

For this interesting addition to the fauna of California, science is indebted to Mr. James Behrens of San Francisco, by whom a single specimen was collected and kindly placed at my disposal. I am not informed of the precise locality from which it was obtained. It must however belong to the fauna west of the Sierras.

**BYRRHUS**, Linn.

**B. Pettiti**, n. sp.—Oblong oval, similar in form to *geminatus* Lec. Sides of thorax nearly straight surface clothed with silvery hairs, with the sides, median line, anterior apical angles and basal spot on each side black. Elytra densely clothed with brownish black hair, with short velvety lines irregularly disposed, and a crescentic band convex backwards clothed with silvery hairs. Body beneath rather coarsely punctured and sparsely cinereo-pubescent. Scutellum black. Length .34 inch; 8.5 mm.

The form of the species is similar to *geminatus* Lec., but rather less convex. The larger portion of the thorax is clothed with silvery pubescence with a slight yellowish tinge, with black spaces arranged in the following manner; a median black line sometimes divided so as to form an apical triangular and basal linear spot; at apex a small triangular black spot joining the black margin which is not seen when

viewed directly from above; a basal triangular black spot on each side equally distant from scutellum and angles, larger than the apical spot but not joining the margin. The scutellum is velvety black. The elytra are clothed with brownish black hair with short lines of velvety black rather irregularly placed. At the middle of the elytra and common to both is a moderately wide crescentic band (of which the ends are obtuse) with the concavity forwards; extending three fourths of the width of each elytron, and clothed with silvery white hairs. Body beneath densely punctured and sparsely clothed with short cinereous hairs.

This species appears to be rare in Canada West. For two fine specimens in my cabinet I am indebted to Mr. Johnson Pettit, of Grimsby, Ontario, to whom I take pleasure in dedicating it, as an evidence of appreciation of the services he has rendered science in the investigation of the fauna of his neighborhood.

*Lichnanthe Edwardsi*, n. sp.—Body black, head and thorax greenish metallic, elytra pale brownish testaceous. Head densely and coarsely punctured, Thorax as broad as long, sides rounded in front, sub-parallel behind, base rounded, disc densely and coarsely punctured except at the hind angles, and rather densely clothed with long black-brown hairs. Elytra longer than their conjoined breadth, brownish testaceous, rather coarsely and densely punctured, and sparsely clothed with short black recumbent hairs. Body beneath black, faintly metallic and sparsely clothed with hairs. Abdomen more shining very finely punctured and with fewer hairs; the last two segments are brownish ferruginous. Legs black, femora and tibiae hairy. Length .62 inch; 15.5 mm.

The elytra are contiguous along the anterior three-fifths of the suture then strongly divergent. It may be known from all our species by the hair of the thorax being long and black, the hair of the under surface is somewhat paler and very much less dense. The last joint of the maxillary palpi is very distinctly excavated as in *Dasydera*, and by the increase of the number of species the differences between it and *Lichnanthe* appear to be vanishing.

For the unique in my cabinet, I acknowledge great indebtedness to Mr. Henry Edwards, of San Francisco, to whom I take pleasure in dedicating it. Occurs in "Oregon" without more specific designation of locality.

*Serica elongatula*, n. sp.—Castaneous, or testaceous, brown, elongate oval; sides parallel; sub-opaque, faintly sericeous. Head rather densely punctured in front, sparsely on the vertex, clypeus faintly emarginate, angles broadly rounded, margin reflexed. Thorax convex, neither coarsely nor sparsely punctured, rather more than twice broader than long, sides strongly rounded and fimbriate with long hairs. Elytra elongate sub-parallel, fimbriate on the margin, very convex transversely, faintly striate and with punctures irregularly

placed. Beneath very sparsely punctured, clothed with long yellow hairs sparsely placed, longer and more numerous on the pectus than abdomen. Length .30—.32 inch; 7.5—8 mm.

Differs from all our species by its more elongate form, parallel sides, more transversely convex thorax and elytra. The surface is very faintly sericeous.

Occurs rather abundantly in Owen's Valley California.

*Serica crassata*, Walker, Naturalist in Brit. Col. II, 1866, p. 323.

This appears to be *anthracina* Lec.

*Serica robusta*, Lec.=*valida* Harold, Cat. p. 1121; Col. Heft. V, 1869.

*Dynastes Tityus*, (Linn.).

A specimen in my cabinet from Fort Grant, Arizona, has the thoracic horn very nearly twice as long as in our eastern specimens, the tip is broader and deeply emarginate, and the two small horns usually seen below the base of the larger are here reduced to small tubercles and are placed on the base of the horn itself. The frontal horn is also proportionately longer, distinctly grooved on its upper edge and with a tooth about one fourth from the tip limiting the groove in front. From the base of thorax to tip of thoracic horn the length is 1.30 inch, in our eastern form a similar measurement gives .86 inch. The specimens have otherwise similar size and appearance. For this variety the name of *Dynastes Grantii* is proposed.

*Valgus californicus*, n. sp.—Piceous-black, head coarsely punctured, vertex moderately concave. Thorax longer than broad, coarsely but sparsely punctured, with a broad shallow impression on the median line near the apex and a moderately deep impression near the middle of the lateral margin. Disc of elytra flat with moderately deep striæ with convex intervals, irregularly disposed. Pygidium oblique, moderately convex and styliferous at apex. Under surface rather shining and coarsely punctured. Length .35 inch; 9 mm.

This specimen is in rather imperfect condition, being almost entirely deprived of vestiture the few scaly hairs that remain being black. It differs from either of our species in the absence of any denticulation of the sides of the thorax in front; the median sulcus is very faint and the lateral impressions deep so that the sides appear to be slightly emarginate when viewed from above. The entire surface although deprived of vestiture is feebly shining; the last two dorsal segments of the abdomen have more lustre and are rather densely punctured. The teeth of the anterior tibiæ are short, the apical and third alone being at all acute. The style (tariere) is short, flattened and rounded at tip.

A single specimen was found at Fort Crook, Cal., during July, caught in a spider's web.

**ACMEODERA**, Esch.**A. quadrivittata**, n. sp.

Similar in form to *A. tubulus* and agrees with that species in the absence of any transverse carina and marginal groove to the last abdominal segment, differing in the following particular:—

Thorax slightly more elongate, median sulcus more distinct. Elytra striate, striæ coarsely punctured, intervals flat or feebly convex, and with a single row of fine punctures, each bearing a very short yellowish hair; color piceous, with two yellow stripes on each elytron, the inner occupying the third, fourth and fifth intervals, the outer the ninth and tenth, the two stripes united at apex. Body beneath black, with a slight greenish tinge, sparsely punctured, each puncture bearing a short pale hair. Length .22 inch; 5.5 mm.

One specimen collected in Utah by Dr. Palmer, placed at my disposal by Mr. Townend Glover.

**CORYMBITES**, Latr.

**C. longicornis**, n. sp.—Form slender, elongate. Head piceous, coarsely punctured; antennæ  $\frac{5}{8}$  equalling four-fifths the length of body. Thorax moderately convex, piceous, shining, coarsely not very densely punctured, more densely at the hind angles; form elongate, nearly twice as broad as long, sides straight, slightly converging in front, hind angles slightly divergent, sub-acute and tipped with yellow. Elytra elongate, slightly narrower behind, moderately convex and shining, brownish, with broad discal yellow stripe; surface moderately striate, striæ punctured, intervals moderately convex, punctured and more rugose at scutellar region. Body beneath piceous, abdomen and legs paler. Entire surface very sparsely clothed with greyish hairs, rather dense beneath. Length .54 inch; 13.5 mm.

Allied to *C. bivittatus*, Mels., differing in the much less densely punctured and more shining thorax, and the less acute and less divergent hind angles. The antennæ are also much longer.

For the unique in my cabinet I am indebted to Mr. Townend Glover, of Washington. Collected by Dr. Parry in the mountains of North Carolina.

**COLLOPS**, Erichs.

Our species of *Collops* have become quite numerous and it has been thought useful to present to the American students the results of a short study of our species, and without desiring to prolong the present paper unnecessarily, neither bibliography or description of each species will be given except when found necessary to carry out the object of the present sketch which is to present a table by which our species may be readily determined without recourse to the various publications in which they are now scattered.

In examining the antennæ of our largest species (*validus*) there will be found a curious articulated appendage arising from near the

base of the second (really the third) joint of the antennæ, and extending forward, usually concealed in the deep cavity on the upper surface of the joint. This appendage resembles an elongate inner maxillary lobe, is slender and furnished at tip with a brush of stiff curved hairs. When this appendage is raised so as to become distinctly visible the entire joint resembles somewhat the large mandible of a crustacean. All the species exhibit this appendage varying in size and development according to the species. I find no mention of this in any authors who have written on this subject. Its use is probably for grasping the antennæ of the female in copulation. In capturing these insects during the act, I have found the male holding the female rather tightly by the antennæ, but without any examination inferred that this was done rather by the bending of the outer joints backward upon the second.



Our species may be arranged in the following manner:

*Elytra unicolorous.*

Thorax yellow or reddish-yellow, immaculate.

Elytra very densely punctured; abdomen rufous..**tricolor** (Say).

Elytra less densely but more coarsely punctured;  
abdomen black.....**punctatus**, Lec.

Thorax with discal black spot of greater or less extent; sometimes entirely black.

Elytra finely and densely punctured, surface more densely pubescent.

Abdomen and anterior legs rufous..... { **eximius**, Er.  
**marginecollis**, Lec.

Abdomen and legs black.....**nigriceps**, (Say)

Elytra more sparsely and coarsely punctured, surface sparsely hairy; thorax almost entirely black, shining.....**cribrosus**, Lec.

Thorax rufous with two elongate, oblique black spots.....**bipunctatus** (Say).

*Elytra with entire limb and suture rufous.*

Elytra with apical and basal spot blue or bluish black.

Thorax rufous with two oblique black spots.....**validus**, Horn.

Thorax rufous, immaculate.

Abdomen and legs black.

Thorax smooth scarcely punctured.....**quadrimaculatus**, Fab.

Thorax densely and finely punctured opaque..**histrion**, Er.

Abdomen and legs red.....**pulchellus**, Horn.

Thorax with discal black spot.

Elytra densely and coarsely punctured; larger species.....**balteatus**, Lec.

Elytra finely and sparsely punctured; small species .....**insulatus**, Lec.

Elytra with broad bluish vitta sometimes narrowed at middle.

Thorax rufous, immaculate.

Rufous margin of elytra narrow, blue vitta scarcely narrowed at middle.....*limbellus*, Gemm.

Rufous margin broad, vitta, narrow at middle.

Sides of thorax strongly rounded.....*laticollis*, Horn.

Sides of thorax feebly rounded.....*confusus*, Lec.

Thorax with discal black spot.

Elytra alutaceous, unequally punctured.....*punctulatus*, Lec.

Elytra scabrous, densely punctured..... { *vittatus*, (Say).  
*marginellus*, Lec.

*C. tricolor* and *punctatus* resemble each other very closely. The characters given in the table being the only ones in which they differ. In color the head is nearly black; thorax rufous immaculate; elytra æneous or bluish black. Two specimens before me of *tricolor* have a short narrow space at the middle of the lateral margin of the elytra, rufous. The former spaces is widely diffused, occurring from Canada and the Middle States to Kansas, the latter is from Kansas. Additional collections may show them to be identical.

*C. eximius* and *nigriceps* resemble each other, differing scarcely as much as the two preceding species. Their colors are similar to the above species, the thorax having in addition a discal black spot varying from a longitudinal broad band to a size covering all but a narrow margin. Occurs in the Middle and upper Southern States.

*C. marginicollis* is larger than *eximius*, the anterior margin of the front not rufous, thorax with only a narrow pale margin, and the elytra much more densely punctured and opaque. Occurs in California.

*C. cribrus* is a somewhat variable species. The typical and most abundant form has the thorax almost entirely black with a very narrow rufous margin reduced at times to a narrow space at each angle. The elytra are æneous black or nearly blue and unicolorous rather coarsely and densely punctured. Specimens occur with the anterior legs and middle femora fuscous and others with the legs entirely black. In several specimens from Owen's Valley, a narrow, short space at the lateral margin and a similar space at the middle third of the elytra, are rufous. Specimens with well developed wings have the humeri more distinct, several specimens without wings have the elytra nearly oval. These cannot be properly separated as the transition is gradual from those in which well developed wings occur through others with imperfect wings to those with none at all. This species occurs along the sea coast of California. The better developed are

those from the salt marshes of Owen's Valley, a region which has in many instances shown itself to be more closely allied in its fauna to San Diego than the circumjacent desert regions.

*C. bipunctatus* is a large species similar in its coloration to *tricolor*. There are on the disc of the thorax two small elongate black spots placed obliquely like the pale spots of the thorax of *Hippodamia convergens*, but diverging toward the base. In our series of this species may be found specimens varying in a manner similar to that between *tricolor* and *punctatus* and between *eximius* and *nigriceps*, that is, while many specimens have dusky abdomen and legs almost entirely black others again have the anterior and sometimes the middle legs rufous and the abdomen pale. Occurs from Kansas to Arizona.

*C. marginicollis* must be associated with *nigriceps* and *eximius*. The discal black spot is very large having but a narrow pale line which extends around the entire margin. As compared with either of the above mentioned species the thorax will be found more transverse but less rounded on the sides. The anterior legs and middle femora are rufous. *C. cribrus* has a narrower thorax than either of those mentioned. Occurs at San Diego, Cal.

*C. validus*, n. sp.—Head in front of the eyes pale rufous, vertex and occiput black, finely and sparsely punctured. Thorax rufous with a black spot on each side of middle; twice broader than long, sides moderately rounded, broader behind the middle; surface smooth, shining with but few fine distant punctures. Elytra robust, pale rufous with a basal blue spot on each attaining the epipleura at humerus, narrowly separated at the suture, and a sub-apical larger spot equally distant from suture and apex but nearer the lateral margin; surface densely punctured. Body beneath, legs and antennæ pale rufous; meso-, meta-sternal and gular regions black. The entire surface of the body is sparsely clothed with cinereous hair and the upper surface with few erect short black hairs. Length .30 inch; 7.5 mm.

A large species with head and thorax resembling *bipunctatus* and elytra marked as in *quadrimaculatus*.

This species is rather larger in size and more robust than any at present known to me. It may be known at once from any of our four-maculate species by the pale legs and thoracic spots.

A very few specimens were collected by Dr. Palmer near the mouth of Yaqui River, Sonora.

*C. quadrimaculatus* and *histris* resemble each other very closely, having exactly similar colors. The thorax of the former is smooth and shining, the latter sub-opaque, densely and very finely punctured. The former species is widely distributed, a single specimen of the

latter from Lower California is known to me in which however the apical spot does not attain the lateral margin.

**C. pulchellus**, n. sp.

This name is suggested for a form resembling *quadrimaculatus*, but differs in having the abdomen entirely, antennæ and legs (except the tibiæ) pale red; the tibiæ are pale fuscous. The rufous color of the body is much brighter than in any specimens of *quadrimaculatus*, and the form rather more slender. Length .18—.20 inch; 4.5—5 mm.

Occurs at Camp Grant, Arizona, during February.

*C. balteatus* is a large species with the blue patches on the elytra so large that the elytra may be said to be blue with a narrow sutural margin and transverse narrow band at anterior third rufous. The elytra are punctured as in *quadrimaculatus* and by this character may be known from *C. insulatus* which is smaller and with a greater extent of the surface of the elytra rufous.

**C. limbellus**, Gemminger, Col. Heft. VI, 1870; *limbatus* || Lec. New Species, 1865, p. 94.

This species is easily known by having the thorax rufous and immaculate and the elytra entirely bluish except a very narrow entire limb and a narrow sutural stripe. This species forms the link between those species with no pale limb and those in which the blue forms a broad vitta and by these latter to the four maculate species.

Occurs in Colorado and Nebraska.

**C. laticollis**, n. sp.—Head entirely black, very finely and sparsely punctured with sparse cinereous pubescence and erect black hairs. Thorax entirely rufous, twice broader than long, disc smooth, sides finely and moderately densely punctured. Elytra densely punctured, blue vitta narrowed at its anterior third. Body beneath black. Abdomen rufous. Anterior and bases of middle femora pale brownish, tibiæ and hind femora nearly black. Length .22 inch; 5.5 mm.

The entire upper surface is similarly clothed with pubescence as has been described on the head.

Occurs at Cape San Lucas, Lower California.

*C. confluens* differs from the above in being smaller, the blue elytral vitta almost interrupted and above all by the sides of the thorax in front being nearly straight so that the widest part of the thorax is behind the middle. The species above described having the thorax relatively broader and regularly rounded on the sides.

Occurs in Kansas.

*C. vittatus* and *marginellus* differ in having the elytra of the latter much less distinctly punctured while the black thoracic spot is large

leaving only a very narrow rufous margin. In *vittatus* the thoracic spot is usually small, occasionally as large as in *marginellus* and sometimes entirely wanting in which case the species appears to be more naturally associated with the preceding group. In any genus, where species are distinguished principally by colors, variations from a type must be expected and when such occur must be left for the determination of each student, as short reviews like the present cannot at all times be a guide.

The former species is eastern, while the latter, occurs only in California.

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*C. confluens*, Lec. Proc. Acad. 1852, 164.  
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*C. vittatus*, Say, Journ. Acad. iii, p. 184; Erichs. Entom. p. 60; *Haworthi* Westw. Trans. Ent. Soc. ii, 68, pl. 10, fig. 9.  
*C. marginellus*, Lec. Proc. Acad. 1852, p. 164.

#### **TROPHIMUS**, n. gen.

Head elongate, eyes rather distant from prothorax, epistoma membranous; antennæ slender, third joint slightly longer than the second and equal to fourth; maxillary palpi with last joint attenuate, longer than the second, third joint very short. Anterior tarsi of male four-jointed, five-jointed in female. Segments of abdomen membranous at middle; tarsi with first joint very slightly longer than the second. The above characters will serve to distinguish the genus from any in our fauna. It is allied to the European genera *Troglops* and *Homœodipnus* in which the maxillary palpi are alike in both sexes; but differing from either in having the last joint longer than the second

and gradually attenuate toward the tip. Allied also to *Cephalagonia* Wollaston, Journ. of Entomol. 1. 442, differs in the form of the head, and last joint of palpi. The third joint of antennæ is not as long as the fourth in *Cephalagonia* and the first tarsal joint long.

The occurrence of genera allied to the above might have been expected from previous experience in the distribution of genera on the two continents. A leg of *Trophimus* ♂ mounted in Canada balsam shows but four joints to the anterior tarsi even under high powers of the compound microscope.

**T. æneipennis**, n. sp.—Black, shining. Head elongate oval, one half longer than broad, black, shining, impunctured; vertex slightly depressed. Antennæ black, basal joint paler. Thorax sub-orbicular, slightly truncate in front, rufous, with a black spot at anterior margin, smooth, shining, moderately convex. Elytra slightly broader at base than thorax and slightly broader toward apex, humeri distinct, surface alutaceous, black with æneous lustre. Body beneath black, shining, meso- and metathorax with few short cinereous hairs, legs black, sparsely cinereous pubescent. Length .12—.14 inch; 3—3.5 mm.

Resembles *Anthocomus* in appearance with the head nearly as long as in *Tanaops longiceps*, Lec. The thorax is rufous except a small black oval spot touching the apical margin.

From Colorado and New Mexico. For the opportunity of examining specimens I am indebted to Dr. Samuel Lewis of Philadelphia.

**Attalus nigripes**, n. sp.—Body black, shining. Head black with slight æneous tinge, front broadly impressed with but few fine punctures and sparsely clothed with cinereous hairs. Thorax rufous, one half broader than long, slightly narrowed behind, sides strongly, base moderately rounded apex sub-truncate; surface shining, sparsely finely punctured and with few yellowish hairs. Elytra scarcely wider at base than thorax, black with æneous tinge, shining, indistinctly alutaceous, and sparsely clothed with cinereous hair. Body beneath and legs black, sparsely cinereo-pubescent. Antennæ black, with joints 2 and 3 testaceous. Length .08—.10 inch; 2—2.5 mm.

The anterior tarsi of male have the second joint prolonged over and partly covering the third, those of the female being simple. The apices of the elytra are slightly less rounded in the male. The thorax usually rufous has in some specimens a small longitudinal black spot nearer the apex. The abdomen has a narrow membranous space at middle.

Specimens from the cabinet of Dr. Samuel Lewis. Collected in Colorado.

The genera allied to *Attalus* and *Anthocomus* appear not to be exactly parallel in authors. The *Anthocomus* of Erichson contained many elements now considered as belonging to *Attalus*. Duval restricts the latter name to those species in which, as in the above, the

anterior male tarsi have all the joints in line but the second having a process above which partly covers the third. *Ebæus* contains those in which the anterior tarsi of male have the joints 3—4—5 placed slightly obliquely to the first two while the second has a prolongation extending obliquely inwards and not covering the third joint at all. The characters drawn from the extent of membranous surface of epistoma or abdomen as noticed by Duval are not at all to be relied on in the separation of genera. Should future study of our species prove the correctness of the above views of Duval, *Acletus*, Lec., must be suppressed as not distinct from *Ebæus*. While the *Ebæus* of Leconte is not that of Erichson who says, "Tarsi antici maris 5 articulati, articulo secundo obliquo." In the greater number of species of *Ebæus*, Lec., the anterior tarsi are simple in both sexes and not perceptibly differing. They are therefore more closely allied to *Anthocomus* which indeed they resemble. The males however differ in having the apices of elytra pale, prolonged and appendiculate. The discovery of other characters will probably necessitate the creation of a new genus for these species. *E. morulus*, Lec., is a true *Attalus*. The species of the latter genus are partially correct, some being *Ebæus*. In the present paper the name *Attalus* will be used for those species in which the second joint of anterior tarsus of male is prolonged over the third, concave beneath, and not oblique. *Ebæus* will therefore contain those in which the second joint is prolonged obliquely inwards and forwards so that the joint when viewed from beneath and on its outer side is very small and in the opposite directions large.

**A. elegans**, n. sp.—Head oval, shining, rufous, occipital region black. Thorax rufous, sub-orbicular, not broader than long, moderately convex, shining impunctured, less rounded at apex than at sides or base. Elytra paler rufous, alutaceous, sparsely punctured at sides, with a narrow basal black band at base not attaining the humeri and an oval black near the apex. Body beneath pale rufous, meso and metasternum shining black. Legs ferruginous except apices of anterior and middle, and the entire posterior femora black. Abdomen in great part membranous. Antennæ black, three basal joints rufous. Male with second joint of anterior tarsi prolonged over third, apices of elytra feebly impressed. Length .16 inch; 4 mm.

Specimens collected at Keyesville, California, in the high Sierras on flowers of *Æsculus*.

Abundantly different from all our species in the colors and form of thorax, and recalls in its form species of *Gnathium*, the head and thorax very nearly equalling the length of elytra which are but slightly broader than the thorax. The elytra have few moderate punctures near the sides. The entire surface is very sparsely clothed with

cinereous pubescence, the elytra having in addition sparsely placed, short, black, erect hairs.

**Malachius (Hapalorhinus) biguttulus**, n. sp.—Body black with strong æneous or bluish tinge. Head moderately broad, shining, sparsely punctured, æneous. Thorax broader than long, moderately convex, shining, very sparsely and finely punctured: sides strongly rounded, margin moderately reflexed at base. Elytra slightly broader than thorax, æneous, moderately shining, scabrous, and with a yellow spot on each at suture near apex. Body beneath æneous black. Male antennæ serrate, black; apex of elytra slightly impressed and sinuous at margin. Length .14 inch; 3.5 mm.

The entire surface of body is sparsely clothed with cinereous pubescence, that of the elytra being longer and more nearly erect.

A single specimen from Fort Tejon, Cal., and may easily be distinguished from any of our species of *Malachius* of the group *Hapalorhinus* by the characters above given.

#### CHARIESSA, Perty.

##### *C. elegans*, n. sp.

Similar in form to *C. pilosa* (Forst.), Lec., but broader and differing as follows:

Subopaque, pale red, elytra bluish black. Head coarsely punctured and with semi-erect hairs; antennæ black with basal joint only red. Thorax broader than long, truncate in front sides strongly rounded and slightly narrower behind, base broadly rounded, with margin reflexed and black; surface densely and coarsely punctured and clothed with sub-erect hairs. Scutellum and elytra bluish-black, the latter coarsely and densely punctured and scabrous, the punctures coarse and less dense at the scutellar region, and with the humeral region somewhat smoother, surface sparsely clothed with short, black, sub-erect hairs. Body beneath and legs entirely pale red, and clothed with pale sanguineous pubescence; tarsi, maxillary palpi and tip of mandibles black. Length .46 inch; 11.5 mm.

The only species with which this might be confounded at first sight is *C. dichroa*, Lec., from which it differs in having the thorax densely punctured, the elytra more densely punctured and not submetallic and by the legs being entirely red. The basal margin of the thorax is more distinctly reflexed than any other of our species and the reflexed portion margined with black. The hairs clothing the head, thorax, under surface and legs are pale sanguineous being of a different shade of color from the surface on which they are placed.

From San Joaquin County, California. A single specimen was kindly placed in my cabinet by Mr. Wilhelm Jülich of New York.

**ANELPISTUS**, n. gen. (Melandryidæ.)

The genus for which the name is proposed differs from *Scotoles* Esch. by the following characters :

Thorax broader than long, sides rounded in front, gradually narrowing to base, hind angles not prominent. Elytra very little broader than the thorax.

This genus which may be considered the representation of *Scotodes* in our fauna resembles rather an *Emmesa* or a convex *Phryganophilus*. It possesses all the other characters of *Scotodes* even to the form of the tibial spurs, and can be distinguished only by the form of thorax. The latter genus, rare in Europe, is known to me only by the descriptions of authors and the figure of Duval (Genera, Pl. 86, fig. 429) in which the thorax is represented as being nearly as long as broad, the sides strongly rounded in front, sinuate behind, with the hind angles prominent.

**A. americanus**, n. sp.—Brownish-testaceous, slightly shining. Head densely and coarsely punctured and sparsely clothed with cinerous hairs. Thorax nearly black, more shining and less densely punctured than either head or elytra and sparsely clothed with cinereous pubescence; one-fourth broader than long, sub-truncate at apex, sides strongly rounded in front but gradually narrowing to the hind angles which are not prominent, base truncate with a distinct impression near the middle of the base of each elytron. Elytra elongate parallel, moderately convex, densely and coarsely punctured and clothed with cinereous pubescence, forming a more distinct band at the middle of each elytron very narrow at suture, and also at the apical fourth. Body beneath black, more shining, very finely and rather densely punctured, and sparsely clothed with cinereous hair. Legs brownish testaceous tibiæ with apical and middle third darker. Length .28 ♂ —.34 ♀ inch; 7—8.5 mm,

The male has the antennæ slightly longer owing to a greater elongation of joints 3—7. The tibiæ are also very distinctly arcuate in ♂ and straight in ♀.

The cinereous hair forming the vestiture of the elytra in the male specimen before me appears to be more densely placed in a band across the middle, broad at margin and rapidly narrowing to suture; the apical fourth is also more densely clothed. This arrangement of vestiture may be owing to accident in pinning, as a specimen which had been preserved in alcohol is almost entirely nude. The male is smaller and more slender than the female.

For the two specimens in my cabinet I am indebted to Mr. Sanborn, of Boston, by whom they were taken in the White Mountains of New Hampshire.

**DITYLUS**, Fisch.

**Ditylus bicolor**, n. sp.—Color metallic blue, thorax red. Head densely not coarsely punctured. Thorax not longer than broad, sides slightly rounded in

front, feebly narrowed to base which has a narrow black margin; surface very coarsely but sparsely punctured, feebly convex, with a median shallow impression and two oblique very vague impressions near the hind angles. Elytra twice as wide as thorax at base, sub-parallel, metallic blue, sparsely clothed with short fine pale hairs, densely punctured and scabrous. Body beneath (except thorax) and legs metallic blue, shining, very sparsely punctured and clothed with pale hairs more densely placed on the pectus and legs. Length .45 inch : 11.5 mm.

Differs from all our *Ditylis* by its color and recalls *Asclera excavata*, Lec. Resembles *Nacertes* in form rather than our larger *Ditylus*, but cannot be separated generically from the latter.

One specimen from Fort Klamath, Oregon. Mr. Wm. M. Gabb.

**D. cyanipennis**, n. sp.—Color bluish black, shining; elytra metallic blue. Head metallic blue, shining, coarsely not densely punctured. Thorax black, faintly bluish, rather coarsely and densely punctured, not longer than broad, sides feebly rounded in front, gradually narrower to base, disc with an indistinct impression on the median line on front, and a vague V-shaped impression with the apex toward the basal margin. Elytra scarcely as broad as twice the width of thoracic base, parallel, bright bluish with slight violet tinge, densely punctured and scabrous. Body beneath metallic blue, shining, sparsely punctured and with few pale hairs. Legs bluish-black. Length .30 inch; 7.5 mm.

This is our smallest *Ditylus* and resembles *Oxaxis* still more than the preceding species, and may easily be distinguished from all others of the genus by sculpture and color, none of our other species except the preceding having any brilliancy, being for the most part blackish and opaque or with very faint metallic tinge.

Coast Range of California, south of San Francisco, Mr. Wm. M. Gabb.

**Oxaxis sericea**, n. sp.—Brown or brownish testaceous, shining, rather densely clothed with greyish silken pubescence. Surface finely and densely punctured. Thorax longer than broad, slightly flattened, at the disc, sides strongly rounded in front, gradually narrower to base; paler than the elytra with median stripe and sides dusky. Elytra rather robust, densely pubescent; color brown or slightly paler with an oblique pale stripe extending from the humerus toward apex. Body beneath black, tip of abdomen pale, densely but very finely punctured. Length .28 ♂—.38 ♀ inch; 7—9.5 mm.

In this species the last joint of the maxillary palpi may be said to be elongate oval, broader nearer the base, apex rounded. Resembles in color *fuliginosa* but may be distinguished from all our species by the much more dense pubescence with hairs longer and less fine. The pubescence is so dense and closely recumbent as to hide almost entirely the color of the elytra. As in other species this varies somewhat in its coloration, the thorax being at times paler than the head or elytra, or the entire upper surface may be uniformly brownish. The lateral

and sutural margins of the elytra are paler in many specimens. The males are smaller and more slender than the females, and have the last joint of the antennæ sinuate.

I am indebted to Mr. Wm. M. Gabb, for this species, collected in central Nevada.

#### LYTTA, Fab.

*Lytta magister*, n. sp.—Black, moderately shining; head, thorax and legs orange yellow. Head smooth, shining, very sparsely and finely punctured, clypeus, labrum and parts of mouth black. Antennæ short, joints moniliform, base of first joint yellowish. Labrum feebly emarginate, and concave and with a slight carina at middle. Thorax smooth and shining, sub-hexagonal, sides not prominent. Elytra elongate, parallel with strongly elevated reticulations, less distinct at base and apex. Body beneath black, sub-opaque, densely and finely punctured. Legs orange yellow, tarsi black. Male; antennæ thickened at middle, joints 4—7 somewhat flattened and much broader than the following joints. Last abdominal segment deeply emarginate. Female; joints of antennæ gradually thicker to the tip; terminal abdomen segment rounded. Length 1.—1.40 inch; 26—36 mm.

This is the largest species known to inhabit our territory, and may be distinguished from all our species with sub-hexagonal thorax, by the form of male antennæ, deeply eroded or reticulate elytra and by the legs from the coxæ, excepting the tarsi, entirely yellow. No sexual differences are seen either in the legs or spurs. The middle tibiæ in both sexes are slightly arcuate, as in *vulnerata*. The sides of the thorax are much more obtusely angulate than either *vulnerata* or *Cooperi*.

Not rare in Owen's Valley, California. One specimen was taken in Arizona near Gila City. They were all found walking on the ground or feeding on plants. Although they have moderately developed wings none were found in flight. For many of the specimens obtained in Owen's Valley, I am indebted to Dr. H. M. Cronkhite, Assist. Surg. U. S. A.

*Lytta deserticola*, n. sp.—Black moderately shining, head, thorax and femora reddish yellow. Head moderately convex and shining with but few fine punctures, hind angles obtuse, clypeus, parts of mouth and antennæ black; labrum coarsely punctured, feebly emarginate. Thorax round, moderately convex with few punctures; basal narrow margin black. Elytra moderately robust, black, finely reticulate. Body beneath black, feebly shining and moderately densely clothed with very short black hairs. Coxæ, trochanters, tibiæ and tarsi black, femora reddish yellow except a small black space at base and tip; legs sparsely clothed with short black hairs. Length .76 inch; 19 mm.

Resembles *dichroa*, Lec., or *4-maculata* Chev., in form, and may be known from any of our species with rounded thorax by its finely reticulate elytra and by its mode of coloration.

One female was collected south of Fort Whipple, Arizona.

***Lytta refulgens***, n. sp.—Brilliant metallic green, thorax reddish yellow with discoidal rounded metallic spot. Head shining metallic green with frontal yellowish spot; coarsely but densely punctured. Thorax regularly rounded on the sides, slightly broader than long, feebly convex and with few scattered punctures, disc with round metallic spot; narrow basal margin black. Elytra brilliant green, scabrous. Under surface more shining. Femora metallic green, tibiæ and tarsi black. Length .38—.40 inch; 9.5—10 mm.

Belongs to the same group with *æncipennis*, Lec., which has however a wider thorax, and rufous vertex. The elytra are dark olive green, and the under surface blackish green. The brilliant colors will enable the present species to be recognised at a glance.

Specimens from Millerton, California, collected by Mr. Wm. M. Gabb.

***Lytta auriculata***, n. sp.—Body black, elytra greenish or bluish black. Head with each hind angle and frontal spot red. Form slender, head black, coarsely punctured, more densely on the front. Thorax black, rather shining, coarsely punctured, sub-pentagonal, sides narrowed in front, sub-parallel or slightly convergent behind the middle. Elytra one half broader than the thorax, bluish or greenish black, scabrous. Beneath black, shining, coarsely but very sparsely punctured, and with slight pubescence. Length .35—.46 inch; 9—11.5 mm.

Belongs with *æncipennis* and *smaragdula*, differing by its more elongate from sub-pentagonal thorax and color. The antennæ are long, nearly two thirds the length of body.

Several specimens from Kern River region of California; found on a small species of Lupin in flower.

***Lytta compressicornis***, n. sp.—Brilliant blue sometimes slightly violet. Head entirely blue, very coarsely but sparsely punctured. Thorax narrower than the head, sub-quadrate, feebly narrowed at base, moderately convex, with few coarse irregularly placed punctures. Elytra twice as wide as thorax, finely scabrous, gradually wider toward apex. Body beneath blue, shining, sparsely punctured. Legs, mouth and antennæ black. Antennæ with joints 5—11 strongly compressed in both sexes, broader in the male. Length .30—.50 inch; 8—12 mm.

In both sexes the spurs of the hind tibiæ are slender and acute, the inner longer. The tibiæ are straight. This species differs however from any previously described, at least in our fauna, in having the antennæ very strongly compressed. The joints from 5 to 11 are transverse, more than twice broader than long. The antennæ are short, not longer than head, and thorax. The male has the last abdominal segment more deeply and acutely emarginate than is usual in the species allied most nearly in general appearance, e. g. *convexa*, Lec.

From Owen's Valley, California, collected on a plant resembling our Canada thistle but with yellow flowers.

**CALOSPASTA, Lec.**

**Calospasta nemognathoides**, n. sp.—Body black, moderately shining. Thorax rufous. Head black, shining, scarcely punctured. Thorax rufous, sub-quadrate, sides moderately rounded, feebly narrower in front: disc moderately convex, shining with very fine punctures. Elytra at base one half broader than the thorax, broader behind the middle, scabrous, black. Body beneath black, shining and with few short yellowish hairs, abdomen sub-opaque. Legs black, shining, sparsely but coarsely punctured and with few yellowish hairs. Length .36 inch; 9 mm.

Resembles *Nemognatha atripennis*, Lec., in appearance. The tarsal claws are as in *C. elegans*, Lec., the two portions of each claw connate, the under shorter than the upper. The antennæ are as in *C. elegans*. The surface has been entirely deprived of pubescence.

One female from Owen's Valley, Cal.

**C. perpulehra**, n. sp.—Shining blue, elytra with a large humeral spot, median transverse band and sub-apical yellow spot. Head coarsely but sparsely punctured. Thorax longer than broad, narrowing in front, sides behind the middle sub-parallel; disc moderately convex, shining, coarsely but sparsely punctured. Elytra nearly twice broader than thorax, parallel, scabrous, moderately convex, sparsely clothed with yellowish hairs. Beneath bluish, shining, sparsely clothed with short yellowish hairs. Length .28—.40 inch, 7—10 mm.

This species varies greatly in its markings. One specimen in my cabinet is entirely blue; two have the humeri alone yellow; the greater number have a humeral space and irregular transverse band behind the middle yellow, not attaining either suture or margin, others have a sub-apical spot in addition. The sculpture of the front varies considerably. In some specimens the surface is irregular without any definite formation of ridges or depressions; one specimen has a moderately convex and prominent tubercle within the insertion of the antennæ; others again have a broad median groove bounded by a ridge on each side and a smaller tubercle within the insertion of the antennæ, limited within by a slight groove. This species may be distinguished from any varieties of *elegans* by the more elongate thorax, surface more shining and very much less densely pubescent.

Collected in Owen's Valley, and Posey Flat (S. E. Sierra region) California.

In the males the front is deeply grooved at middle with a prominent tubercle within the base of the antennæ, the basal joints of the anterior tarsi are also distinctly dilated.

**C. elegans**, Lec. (*Epicauta*) Ann. Lyc. V, 161; (*Lytta*) Lec. Proc. Acad. 1853, 341; (*Calospasta*) Class. Col. N. A. 273.

Specimens in my cabinet from Cariso Creek have the yellow vitta of the elytra shortened so as to become merely a humeral elongate spot

acute at its apical end. With the known variation of the preceding species I am unwilling to separate this as distinct but prefer to consider it nearly a variety under the name of *humeralis*. Both males and females are before me, the anterior tarsi of the male as distinctly dilated as in the preceding species. The typical specimens in the cabinet of Dr. Leconte are females, hence the failure to mention this very obvious character. In the male the front is rather deeply sulcate but the lateral tubercle is less evident than in the male of *perpulchra*.

**C. mirabilis**, n. sp.—Pale rufous, elytra pale yellowish. Head broadly oval, gibbous between the bases of the antennæ, sparsely punctured. Thorax oval, as broad as long, strongly narrowed in front, and slightly narrower at base; median and basal impressions moderately deep. Elytra oblong, broader behind, humeri moderately prominent, margin reflexed, suture elevated, and with four strongly elevated costæ on the disc of each elytron, extending from base nearly to apex. Color pale yellow, with four small brown spots at base, arranged in arc with convexity backwards, an irregular narrow transverse band at middle interrupted by the costæ, and a narrower sub-apical band. Body beneath and legs, pale rufous, abdomen paler and more shining. Length .46 inch; 11.5 mm.

The entire surface of body is very sparsely clothed with very short silvery white hairs, longer on the legs. The intervals between the elytral costæ are nearly flat and sparsely punctured. The small brown spots at base are arranged between the suture and first costa, and between the first and second. The tarsal claws are divided, the upper and lower portions being connate, and the latter shorter. The antennæ are as in the other species of *Calospasta*. With one exception (*Pleuropompha costata*, Lec.), this is the only Meloide in our fauna with costate elytra.

The specimen in my cabinet is from Southern Arizona, and was obtained through the Agricultural Bureau at Washington.

**Tegrodera erosa**, Lec. Ann. Lyc. V, 159.

Two varieties of the species occur. Specimens collected by Mr. Gabb in Lower California have the elytra very coarsely reticulate and the transverse black band entirely wanting. Those collected by myself in Owen's Valley have the elytra more finely reticulate and a broad median and apical black band. Specimens from San Diego are nearly intermediate in sculpture and color. I am unable to detect any differences of a specific nature. The male has the last segment of abdomen slightly emarginate.

**Zonitis longicornis**, n. sp.—Elongate, pale brownish testaceous; opaque; margin, suture and narrow stripe extending from humerus to tip paler. Head nearly black, vertex paler very densely and coarsely punctured, rugose.

Thorax as broad as long, sides rounded and narrowed to base; disc with broad darker space at middle; densely and rather coarsely punctured. Elytra elongate, parallel, sutural and lateral margins and narrow oblique stripe extending from the humerus to near the apex, pale testaceous; densely punctured and scabrous. Body beneath brownish, densely punctured. Legs densely punctured; coxæ, base and apex of femora, base of tibiæ and proximal end of tarsal joints pale testaceous. Antennæ long, slender, testaceous, equalling three fourths the length of body. Length .40 inch; 10 mm.

Resembles *Epicauta* rather than *Zonitis*, and may be distinguished from all our species by its long antennæ and very densely punctured surface as well as by the system of coloration.

One specimen from Central Illinois, is known and had been, from its form placed among the species of *Epicauta* in my cabinet.

#### GNATHIUM, Kirby.

The characters separating this genus from *Nemognatha* are very slight, and the addition of new species seems to be gradually lessening their value, the only character remaining being a slight thickening of the outer joints of the antennæ.

Our species are as follows:

Color yellowish-testaceous.

Elytra opaque, densely punctured.

Thorax elongate..... **minimum.**

Thorax not longer than broad, sides strongly rounded..... **texanum.**

Elytra shining, feebly punctured; thorax campanulate..... **nitidum.**

Color black, thorax yellowish testaceous.

Elytra coarsely, not densely punctured ..... **flavicolle.**

**G. minimum**, Say, Journ. Acad. III, p. 306.

Differs from the following species in the form of thorax which may be described as very elongate oval slightly flattened above, sides feebly rounded, truncate at base and apex. The surface is evenly punctured the punctures moderately coarse, much more so than in any other species known to me. The elytral punctures are coarser and more densely placed; surface with semi-recumbent hairs which vary in color. Body beneath, darker in color, sometimes brown with the legs dusky. In the species with dark under surface the hairs are black, when pale or similar in color to the upper surface the hairs are also pale. Length .30 inch; 7.5 mm.

Kansas, New Mexico and Texas.

**G. texanum**, n. sp.

Similar to *minimum* but smaller. Thorax not longer than broad, wider in front of middle, sides strongly rounded in front. Surface sparsely and irregularly coarsely punctured. Elytra more finely and less densely punctured than in *minimum*, and sparsely clothed with

short black hairs, semi-recumbent near the base and erect behind the middle. Body beneath slightly darker than the upper surface. Length .25 inch ; 6.5 mm.

This species may be distinguished from *minimum* by the form of thorax. The head is also less elongate, and the maxillary prolongations about one and a half times the length of head. In the preceding species they are longer than half the entire length of body.

Specimens were collected by Dr. A. L. Heerman in Texas.

**G. nitidum**, n. sp.—Form slender, color yellowish testaceous, shining. Head shining, densely punctured within the eyes, vertex smooth. Thorax campanulate, slightly longer than wide ; surface smooth, shining with few fine widely scattered punctures. Elytra shining with fine distantly placed punctures arranged in irregular striæ. Body beneath pale brownish, legs yellow. Antennæ black, first and sometimes second joint pale. Length .20 inch ; 5 mm.

Differs from all our species by its shining surface. Recent specimens have but few rather longer hairs than either of the preceding species. The head is less elongate, the hind angles more rounded and the maxillary prolongations scarcely longer than the head.

Specimens were collected in Owen's Valley, California.

**G. flavicolle**, Lec. Journ. Acad. Ser. II. iv, p. 24.

From all the preceding species it differs in color, having the entire body black except the thorax, which is yellow. It appears to resemble *francilloni*, Kirby, and for the sake of comparison and future ease in study I append the original descriptions.

**G. flavicolle**. Lec.—Nigrum, capite nitido parce punctato, elongato vertice sublæve, thorace conico flavo nitido, punctis paucis notato, elytris thorace duplo latioribus, fortiter haud dense punctatis, piceis postice ad suturam pallidioribus, pube brevi nigra erecta vestitis ; mandibulis elongatis. antennis extrorsum sensim incrassatis ; maxillis pallidis corpore duplo brevioribus. Long .17 inch.

Texas.

**G. francilloni**, Kirby,—Corpus obscureatum fere, pilosulum, supra nigrum, subtus piceum. Caput deflexum, elongatum punctatum ; disco læviusculo, collo brevi angusto piceo insidens. Mandibulæ capite vix breviores, protensæ, apice incurvæ, rufæ. Antennæ apicem versus sensim crassiores, articulo secundo quarti fere longitudine, tertio reliquis longiori, sequentibus fere obconicis, 8—9—10 sub-cylindricis externo elongato-conico. Thorax campanulatis, glaber, rufus, brevissimus. Elytra rugulosa. Tibiæ bicalcaratæ. Tarsi unguiculati ; unguiculis bipartitis. Long. 2½ lines (.22 inch).

Georgia.

Without wishing to express a definite opinion regarding the identity of the two, it must be acknowledged that the two descriptions approxi-

mate each other very closely. The type of *flavicolle* does not seem to be a fully developed specimen of the species to which it belongs. It must also be seen that Kirby's description of the thorax hardly corresponds either with itself or with our *flavicolle* where he writes "camp-anulate—and very short." Kirby's description may be found in Linnean Transactions, xii, p. 424.

***Mycetina pallida*, n. sp.**—Elongate, pale rufo-testaceous, moderately shining. Thorax sparsely and very finely punctured, longitudinal and basal impressions well marked. Elytra less shining, very finely but sparsely punctured and with minute hairs. Beneath more distinctly punctured, paler; prosternum narrow, depressed. Legs slightly darker than the under surface; antennæ brownish. Length .26 inch; 6.5 mm.

A female specimen in the cabinet of Dr. Leconte, received by Dr. S. Lewis, from Colorado.

Resembles in form *M. læta* (Lec.) and not differing from that species in the relative size of its parts. Differs from all our species in its entirely uniform pale rufo-testaceous color. The elytra are somewhat more opaque than the rest of the surface and under high power are very finely alutaceous, and with rather sparsely placed fine punctures, each bearing a minute slender hair.

***M. limbata*, n. sp.**—Piceous black, shining; entire upper surface with fine sparsely placed punctures, each bearing a very minute hair, those of the thorax less distinctly impressed; transverse and longitudinal impressions of thorax distinct though not deep. Elytra piceous black, entire margin from humerus to apex testaceous and with a narrow band extending inwards from the middle of margin slightly obliquely towards the suture without attaining it. Antennæ not closely articulate and with the palpi, ferruginous. Under surface black, sub-opaque, more coarsely punctured than the upper surface. Legs ferruginous. Length .18 inch; 4.5 mm.

This species has exactly the form of *Endomychus biguttatus*, and may be easily distinguished from any of our species of *Mycetina*, by the system of coloration. Belongs to same group with *perpulchra* in which the mesosternum is broader than long and sub-pentagonal. The pale margin of the elytra becomes much broader toward the apex and extends slightly along the suture.

Occurs in California. For the unique in my cabinet I am indebted to Mr. James Behrens, of San Francisco.

***Epipocus unicolor*, n. sp.**—Rufo-ferrugineous, sparsely clothed with short golden hairs. Head rather densely and coarsely punctured. Thorax one-half broader than long, deeply emarginate in front, angles obtuse; sides rounded in front of, sinuate behind middle, hind angles acute, moderately prominent; disc coarsely but rather sparsely punctured between grooves, more finely and densely toward the sides; grooves moderately deep and slightly convergent and extending two thirds toward apex. Elytra broader at base than thorax, moder-

ately convex, apices obliquely truncate with the outer angle more prominent; surface equally punctured, punctures not coarse, more densely placed than on thorax. Body beneath, legs and antennæ similar in color to upper surface. Meso- and metathorax sparsely, abdomen finely, epipleuræ coarsely punctured and sparsely clothed with golden hairs. Antennæ nearly half the length of body, third joint slightly longer than fourth. *Male* with minute spur on inner side of anterior tibiæ below the middle. Length .22—.28 inch; 5.5—7 mm.

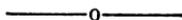
Colorado, Dr. Samuel Lewis. Very abundant under damp logs at Camp Grant, Arizona.

This species is evidently allied to *longicornis*, Gerst., of which specimens are unknown to me. This species appears from the description to be abundantly distinct from the one above described, and is about equal in size. Resembles *punctatus*, Lec., in form.

**Engis californica.** n. sp.—Elongate oval. Head ferruginous, moderately coarsely but not densely punctured. Thorax ferruginous, one-fourth broader than long, sides moderately rounded from base, scarcely narrow at apex; disc moderately coarsely and densely punctured. Elytra not broader than thorax, black or brownish with a humeral spot ferruginous; surface with regular striae of fine punctures moderately closely placed. Body beneath brownish with the entire margin and tip of abdomen somewhat paler. Legs ferruginous antennæ brown. Length .10—.14 inch; 25—3.5 mm.

This species may be readily distinguished from *quadrimaculata*, by the ferruginous head and thorax and by the elytra having only a humeral pale spot. The latter is irregular in form and extent, usually gradually vanishing in the darker color around it. The thorax is also less rounded in front, more convex and densely punctured. It resembles somewhat the figure of *E. humeralis*, Fabr. (Duval, Genera. pl. 75, fig. 357), but the thorax is more rounded and scarcely narrowed in front.

Specimens in my cabinet from Fort Crook, Sacramento, and Fort Tejon, Cal. Occurs under bark or in fungi.



**Descriptive Catalogue of the species of NEBRIA and PELOPHILA of the United States.**

BY GEO. H. HORN, M. D.

The two genera *Nebria* and *Pelophila* appear to be sufficiently distinct to be retained apart. The following tables, the result of a short study of our species, may be useful to those to whom the widely scattered specific descriptions are inaccessible.

**NEBRIA.**—Anterior tarsus of male moderately or feebly dilated; antennæ slender, joints all cylindrical, equalling in length two-thirds or more the length of the body; scutellar stria of elytra always distinct.