

The striæ which are characteristic of this group extend from the tip of the prosternum to the beginning of the lobe, and are divergent at each end, more so posteriorly. In the first two species the striæ are hooked at the anterior end and their tips thus approach, in *defectus* they are divergent and not hooked.

H. servus, Er.—West Indies, Maryland, Arizona.

H. indistinctus, Say,—N. C., Ga., N. M.

H. defectus, Lec.—Mass., S. C., Ga.

I have in my cabinet a specimen with the last two dorsal segments coarsely and densely punctured as in *servus* but with the outer thoracic stria short as in *defectus*. I do not care to give this a name until other specimens appear when it may possibly be necessary to unite those already named instead of describing new species.

Revision of the species of *ACMÆODERA* of the United States.

BY GEORGE H. HORN, M. D.

The number of new species which have accumulated in our collections since the latest synopsis (Leconte, Trans. Am. Philos. Soc. 1859), has nearly equalled the number then known and of these fourteen have remained to the present time unnamed. While feeling the necessity of having these described I have until now been deterred from attempting any arrangement of our entire series by the remarks of Mr. Crotch (Proc. Acad. 1873, p. 89), as follows: "but I am entirely unable to discover any characters except the variable ones of color, sculpture and form; so that the limits of species appear to be merely opinionative." Possibly the following pages may show quite to the contrary.

As there is considerable structural variation the different members of the body will be reviewed.

The head is always punctured, the front either impressed or convex and the vertex usually finely carinate, either deeply inserted with the eyes partly concealed by the angles of the thorax, or with the eyes free.

The thorax is very variable. When viewed from above the apex may be emarginate as in the *sinuatæ* and *emarginatæ* or truncate as in the *truncatæ*; sometimes the middle of the anterior margin is slightly prolonged. The sides vary in form from strongly arcuate to nearly straight, and the margin may be broad and distinctly reflexed or very narrow, often entirely invisible from above or even nearly

entirely obliterated (*gemina*). The upper side has, in a general way a similarity of sculpture. There is a broad triangular impression at middle and an oblique impression on each side terminating in a fovea at base, in all those species with a depressed thorax. In the convex species these impressions are reduced so that there are merely three basal foveæ. In width there is also considerable diversity, a moderate number have the thorax wider than the elytra, in others the sides are regularly and gradually arcuate from tip to base.

The prosternum exhibits remarkable differences. The simplest form is that in which the apex of thorax is almost squarely truncate so that the margin above and beneath is continuous, the angles of the prosternum being prolonged so as to touch the angles of the thorax. The next form is that in which the angles of the thorax are produced partly concealing the eyes, the thorax above emarginate and the alæ or angles of prosternum not attaining the angles. The form naturally following this has a similar form but the edge of the prosternum is trisinate, the middle portion, immediately behind the head broadly emarginate and limited on each side by a tooth of variable prominence. Another modification results from the presence of a lobe at the middle of the prosternum of moderate extent, emarginate and angulate, external to which the prosternum is slightly notched the alæ however attaining the angles of the thorax.

The elytra are variable in form to a moderate degree and may be depressed or not, the surface is marked with striæ of punctures also variable, the intervals in several species subcostiform. The base is truncate, except in *gibbula* in which the middle is slightly arcuate forward and the humeral angles prolonged, slightly clasping the base of the thorax.

The abdomen varies in punctuation, usually the punctures are sparsely placed, equally over the entire surface. In *pubiventris* and *comata* however the sides are more densely punctured and the pubescence also denser and longer. In *guttifera* the last three segments are very densely and finely punctured and in *versuta* the last two but not as densely or finely as *guttifera*.

The last ventral segment has, in many species, close to the apical margin and parallel with it an elevated plate of varying extent, sometimes reduced to a mere subapical ridge. In a number of species however it is entirely absent. When fully developed this plate causes the apical margin to appear double and the term is so used in the following pages.

The tarsi in the vast majority of species are short, usually not longer than one-third the tibiæ and moderately dilated. In two species however they are long and slender, equalling at least the half of the tibiæ and not dilated. The claws exhibit feeble variations, not of sufficient moment however to mention.

The antennæ show a modification in but one species. The normal form is that in which the fifth joint is suddenly broader than the fourth and the following joints similar to it. In *gemina* however the fourth joint is a little wider than the third and the fifth a little wider than the fourth so that the abrupt dilatation of the fifth joint entirely disappears.

The surface of the body has usually a more or less distinct tinge of bronze and from the minute punctures of the intervals arise usually brownish hairs. Four species, *subbalteata*, *culta*, *quadrivittata* and *gemina*, have short erect setæ.

Regarding the ornamentation nothing can be said in general. The accompanying plate will show the styles. There is but one color character of value, the presence of the yellow side spot on the thorax, it is either constantly present in a given species or as persistently absent.

Based on the characters above mentioned it is proposed to divide the genus into several groups in the following manner :

- Tarsi short, moderately dilated.....1.
- Tarsi long, equalling more than half the length of the tibiæ.....2.
- 1.—Prosternum with the anterior margin trisinate, (Pl. I, A).
 - Acmæoderæ sinuatæ.**
 - Prosternum simply shorter than the anterior angles, (Pl. I, B).
 - Acmæoderæ emarginatæ.**
 - Prosternum truncate, as long as the anterior angles, (Pl. I, C).
 - Acmæoderæ truncatæ.**
 - Prosternum lobed at middle, alæ attaining the angles, (Pl. I, D).
 - Acmæoderæ lobatæ.**
 - 2.—Form slender, prosternum lobed or truncate.....**Acmæoderæ graciliformes.**

ACMÆODERÆ SINUATÆ.

This group is composed entirely of species of at least moderate size and those also in which the thorax attains its greatest width and depression and the most distinctly reflexed margin. Doubtless very many Mexican species go here. In our fauna it is at present the largest group the species being thirteen in number and arrange themselves naturally in the following manner :

- Thorax wider than the base of the elytra, margin usually well defined, lateral and visible in its entire extent from above.....1.
- Thorax not wider than the elytra, margin extremely narrow, becoming inferior at least posteriorly or often nearly obliterated behind.....8.
- 1.—Sculpture above very coarse, punctures large and deep obliterating the intervals (excepting the third which is subcostiform). Body above greenish bronze without ornamentation. Thorax without marginal spot.....**cuprina.**
- Sculpture above finer, punctures small, intervals distinct. Body above ornate. Thorax margined with yellow.....2.
- 2.—Thoracic margin rather wide distinctly reflexed.....3.
- Thoracic margin very narrow not reflexed.....7.
- 3.—Last ventral segment with well defined double margin.....4.
- Last ventral with scarcely a trace of subapical carina... ..6.
- 4.—Thorax rather suddenly wider at base than the elytra, sides feebly arcuate or nearly straight, rapidly converging to apex.....**amplicollis.**
- Thorax but little wider at base than elytra, sides arcuately and gradually narrowing to apex.....5.
- 5.—Prosternum coarsely and rather densely punctured.....**opacula.**
- Prosternum very finely and sparsely punctured.....**amabilis.**
- 6.—Elytral ornamentation consisting of a marginal band extending to middle and broader behind, and a broad transverse band near the tip enclosing three spots.....**flavomarginata.**
- Elytral ornamentation of four narrow transverse bands very irregular and much interrupted.....**macra.**
- 7.—Body above black, thorax yellow at the sides; elytra with four transverse bands interrupted at suture, the anterior arcuate to the front...**robusta.**
- 8.—Thorax margined with yellow.....11.
- Thorax unicolorous.....9.
- 9.—Abdomen at sides more densely and finely punctured than at middle and clothed with long white hair.....**pubiventris.**
- Abdomen equally and sparsely punctured and with very little pubescence.....10.
- 10.—Thorax rather densely punctured; elytra coppery bronze with large irregular reddish spots arranged as four transverse interrupted bands; punctures near the tip rather fine, intervals very little more convex at tip than on the disc.....**plagiaticauda.**
- Thorax densely punctured; elytra blackish and with numerous very small spots scattered over the surface. Striæ at tip coarsely and deeply punctured, intervals very convex.....**miliaris.**
- Thorax very sparsely punctured; elytra black shining and with a few small spots irregularly scattered. Intervals at tip feebly convex, the striæ moderately punctured.....**sparsa.**
- 11.—Thorax very sparsely punctured in the median depression, elytra with three bands interrupted at middle and an apical spot.....**tuta.**
- Thorax as densely punctured in the impression as in front, elytra ornamented as in *amplicollis* or *connexa*.....**Hepburnii.**

A. cuprina, Spin.—Form elongate triangular, depressed, broadly obtuse in front, color dark greenish bronze moderately shining, sparsely clothed with erect black hair. Head densely punctured, vertex longitudinally impressed and with a feeble carina posteriorly. Thorax more than twice as wide as long,

emarginate at apex, base truncate, sides feebly arcuate but rapidly divergent posteriorly, near the base suddenly arcuately narrowed, margin acute, visible in its entire extent from above, not reflexed, surface densely and coarsely punctured, with a broad triangular median and on each side an oblique impression. Elytra twice as long as wide at base and with rows of cribrate punctures obliterating the intervals excepting the fourth and sixth, the former sub-costiform and extending three-fourths to apex, the latter less elevated extending to middle; sides of elytra from apical third to tip rather coarsely serrate, humeral umbone moderately prominent. Body beneath colored as above but more shining. Thorax coarsely not densely punctured, sternum in front strongly trisinate. Metasternal side pieces and coxal plate coarsely and densely punctured. Abdomen sparsely punctate, intervals smooth. Last ventral with very feeble submarginal line at tip. Surface beneath and legs sparsely clothed with moderately long whitish hairs. Length .46 inch; 11.5 mm.

This species is readily known by its uniform color and depressed form. It is doubtful as a member of our fauna and is introduced on the authority of the collection of Count Mnizech of Paris from whom Dr. Leconte obtained a specimen said to have been collected in our territory.

A. amplipollis, Lec.—(Pl. I, fig. 1.) Form elongate triangular, very obtuse in front, thorax greenish, shining, sides broadly yellow, elytra slightly bluish ornamented with yellow longitudinal bands and irregular transverse fasciæ; surface sparsely clothed with short pale brown hair on the thorax, black on the elytra. Head coarsely and moderately densely punctured, front slightly concave, vertex with feeble carina. Thorax more than twice as wide as long, apex emarginate base truncate, sides very feebly arcuate, rapidly diverging posteriorly; hind angles rounded, wider than the elytra, lateral margin moderately broad, visible in its entire extent from above and distinctly reflexed; disc with broad median triangular impression and on each side near the base a moderately impressed fovea, surface coarsely but not densely punctate, color greenish, shining, sides rather broadly yellow, the latter color not reaching the anterior angles. Elytra twice as long as wide, gradually narrowing at basal three-fifths then rapidly narrowing to apex, sides near tip moderately strongly serrate; surface convex, disc slightly flattened, and with rows of large punctures deeply impressed, intervals distinct and with a single series of finer punctures, except behind the humeral umbone where the punctures of the striæ are large and confluent; umbone moderately prominent; color very dark blue ornamented with yellow forming at apical three-fifths a marginal plaga broader posteriorly and also a subsutural narrower stripe uniting with the former posteriorly, apical two-fifths with two narrow transverse bands interrupted at the suture. Prosternum trisinate in front, sparsely punctured, sides of prothorax more coarsely but not densely punctured. Abdomen beneath moderately coarsely but not densely punctured. Color beneath dark metallic green, sparsely clothed with whitish hairs. Last ventral segment with distinct double margin at tip. Length .38—.44 inch; 9.5—11 mm.

This species occurs in Arizona and may be known especially by its broad thorax and the style of the elytral marking which has no parallel in this portion of the group.

A. opacula, Lec.—(Pl. I, fig. 2.) Form moderately elongate, sub-depressed, gradually narrower from base of thorax to tip of elytra, color nearly black, moderately shining, thorax margined with yellow, elytra with a marginal and discal row of yellow spots, and two bands at apical fourth slightly red, surface sparsely clothed with erect black hair. Head coarsely and moderately densely punctured, front scarcely impressed vertex distinctly carinate. Thorax twice as wide as long, apex emarginate, base truncate, sides feebly arcuate rapidly wider posteriorly, hind angles rounded, margin moderately wide, visible in its entire extent from above and distinctly reflexed; disc with broad, shallow, median triangular impression and a fovea on each side near the base, surface sparsely punctured at middle, more densely and coarsely at the sides. Elytra narrower at base than the thorax, gradually narrowing from base to apex, sides near the tip moderately serrate, umbone rather small, feebly prominent; disc slightly flattened and with rows of moderate punctures becoming much coarser and deeper toward the sides and tip, intervals distinct and with a single series of distant punctures; color black with feeble tinge of bronze and ornamented with yellow in the following manner: a sub-humeral marginal spot, a larger marginal spot at middle, four or five small discal spots in a row and two narrow bands near the apex, slightly reddish, interrupted at middle. Body beneath dark greenish bronze, shining, sparsely clothed with whitish hair. Prosternum trisinate in front, moderately densely punctured, sides of thorax beneath coarsely punctured. Abdomen sparsely punctured at middle, more densely and coarsely at the sides. Last ventral with distinct double margin at tip. Length .42 inch; 10.5 mm.

The trivial name seems rather inapplicable as it is about as shining as any of the species without decided metallic surface.

Several specimens are before me, the type from El Paso, others from Arizona.

A. amabilis, n. sp.—(Pl. I, fig. 3.) Form moderately elongate, gradually narrower from base of elytra to tip, color piceous distinctly bronzed, shining, thorax margined with yellow at the sides, elytra with undulated marginal band, small discal spot, and two subapical bands yellow, surface sparsely clothed with erect brown hair. Front coarsely but not densely punctured, feebly impressed, vertical carina obsolete. Thorax more than twice as wide as long, emarginate at apex, truncate at base, sides moderately arcuate and gradually broader to base, margin visible from above, moderately broad and distinctly reflexed; disc with median triangular impression and a fovea on each side near the base; surface rather coarsely but not densely punctured at middle, more densely at the sides which are rather broadly margined with yellow. Elytra narrower at base than the thorax, umbone feeble, sides gradually arcuately narrowed to base, disc slightly depressed and with rows of punctures fine near the suture, coarser at the sides and apex, intervals with a single row of fine punctures, margin near apex moderately serrate; color piceous distinctly bronzed and ornamented with yellow as follows: a marginal band extending to middle gradually broader posteriorly, the inner edge undulating, a small discal spot at basal third, a small marginal spot behind the band, two transverse bands at apical fourth interrupted at suture, the posterior band red. Body beneath colored as above. Prosternum trisinate in front, sparsely punctured, side pieces more coarsely punctured. Abdomen sparsely punctured at middle more

coarsely and densely at sides. Last ventral with distinct double apical margin. Length .40 inch; 10 mm.

I have seen two specimens from Arizona, one given me by Mr. C. V. Riley, the other in the cabinet of Mr. Ulke.

The elytral markings of this species belong to the same type as that of the next species.

A. flavomarginata, Gray.—(Pl. I, fig. 4.) Form moderately elongate, gradually narrowed from base of elytra to tip, moderately convex, color piceous shining, without metallic lustre above, elytra with lateral space and a transverse band at apical third reddish yellow. Head coarsely punctured, front slightly impressed and with coarser punctures forming strigæ, vertex distinctly carinate. Thorax rather more than twice as wide as long, wider at base than the elytra, apex emarginate and with a distinct post-marginal impression, base truncate, sides moderately arcuate and rather rapidly wider posteriorly, hind angles obtuse, margin distinctly visible from above in its entire length, rather broad and distinctly reflexed; disc with broad and moderately deep median triangular impression and a lateral fovea on each side, surface rather coarsely punctured, rather more densely toward the sides which are rather broadly margined with yellow. Elytra rather more than twice as wide as long, gradually narrowed to apex, umbone moderately prominent, sides serrate, disc slightly depressed with rows of punctures in the striæ and intervals nearly equal, those at the sides coarser in the striæ, color piceous very rarely with any bronze lustre colored with yellow as follows; a marginal band extending from the base to beyond the middle and becoming gradually broader posteriorly and enclosing a small black spot near its end, also a broad band of reddish yellow at apical third enclosing three spots, one at each end, the other sutural. Body beneath bluish-green shining, sparsely pubescent. Prosternum in front trisinate moderately densely punctate. Abdomen sparsely punctate. Last ventral without trace of double margin or carina at tip. Length .50 inch; 12.5 mm.

This species well known in nearly all collections occurs in southwestern Texas.

A. macra, n. sp.—(Pl. I, fig. 5.) Form moderately elongate, feebly depressed, color piceous with distinct coppery bronze lustre, thorax with sides yellow, elytra with four slender, irregular transverse fasciæ. Head coarsely punctured, front feebly impressed, vertex with distinct carina. Thorax not twice as wide as long, apex emarginate, base truncate and scarcely wider than the elytra, sides moderately arcuate, margin visible from above and slightly reflexed, disc with median triangular and on each side an oblique impression terminating in a fovea near the base, surface rather coarsely, moderately densely and equally punctured, sides narrowly yellow. Elytra rather more than twice as long as wide, gradually narrowed from base to apex, sides serrate near the tip; disc feebly depressed, umbone feeble, and with striæ of rather coarse punctures finer at middle, intervals narrow and with a single series of fine punctures, the third and fifth more convex for a short distance at base, ornamented with yellow arranged in four narrow, transverse, rather irregular bands, one at middle, another between this and the base and two others in the posterior third, the third interval also bears a small spot near the base and there is one

between bands one and two at the margin, and two others between bands two and three. Prosternum in front trisinate, coarsely but not densely punctured. Abdomen coarsely but not densely punctured, rather smoother at middle. Last ventral without trace of double margin or carina at tip. Body beneath coppery bronze sparsely clothed with whitish hair. Length .30—.44 inch; 7.5—11 mm.

This species is more slender than any other of the normal forms and viewed laterally the upper surface more arcuate and the head and thorax more deflexed than any species excepting *alacris* and *comata*.

Three specimens from Texas. For the two in my cabinet I am indebted to Mr. A. S. Fuller of Ridgewood, N. J.

A. robusta, n. sp.—(Pl. I, fig. 6.) Form robust, moderately depressed, color black with slightly bluish tinge, moderately shining, thorax yellow at the sides, elytra with three transverse bands interrupted at middle and an apical spot reddish yellow, surface with inconspicuous greyish hairs. Head coarsely not densely punctured, a smooth frontal line and feeble vertical carina. Thorax rather wider than twice the length, apex emarginate base truncate and very distinctly wider than the elytra, sides nearly straight, rapidly wider posteriorly, hind angles obtuse, margin very narrow, scarcely visible from above except at base, disc with shallow triangular median impression and an oblique impression on each side terminating in a fovea at base, surface sparsely punctured, more densely in the lateral impressions. Elytra twice as long as wide at base, sides nearly parallel at basal two-thirds, then narrowing to tip and moderately serrate, umbone not prominent, disc feebly striate at middle, more distinctly at sides and apex striæ with coarse but not serrate punctures, intervals with a single series of finer punctures, color nearly black with reddish-yellow transverse bands, the first extending from the margin slightly obliquely toward the suture, the second and third transverse, also an apical spot. Body beneath with slight bluish tinge, sparsely clothed with rather long greyish hair. Prosternum at middle and sides coarsely punctured, anterior margin trisinate. Abdomen sparsely and rather finely punctured, last ventral with a very feeble trace of sub-marginal carina. Length .40—.44 inch; 10—11 mm.

Two specimens collected in Owen's Valley, California.

A. pubiventris, n. sp.—(Pl. I, fig. 7.) Form moderately robust, sub-depressed, sparsely clothed with short, greyish hair, color black, shining, with a very feeble tinge of blue. Head coarsely and densely punctured, front slightly impressed, vertex with fine carina. Thorax nearly twice as wide as long, apex feebly bisinuate, slightly prolonged at middle over the head, base truncate, not wider than the elytra, sides moderately arcuate in front, widest at middle, slightly narrower at base, lateral margin very feeble not visible from above, becoming inferior at base; disc convex, median line well marked, a broad shallow impression at middle of base and a fovea on each side, surface coarsely and moderately densely punctured, at sides more finely and more densely punctured. Elytra as wide at base as thorax, umbone feeble, sides nearly straight at basal two-thirds and feebly convergent, apical third arcuately narrowed, margin finely serrate, disc subdepressed, striate, striæ with coarse punctures.

tures, intervals with a single series of submuricate punctures, colored with reddish yellow in the following manner: a small spot at middle of base, sometimes wanting, two spots at basal third, a fascia at middle, three spots near the apex sometimes confluent. Body beneath black with feeble bluish lustre. Prosternum and side pieces coarsely punctured, anterior margin strongly trisinate with a strong tooth on each side of the middle emargination. Abdomen at middle sparsely punctured, at sides densely and finely punctured and clothed with long whitish recumbent hair. Last ventral with the apical margin distinctly double. Length .34—.42 inch; 8.5—10.5 mm.

Several specimens from Owen's Valley, California. The ventral character of this species rarely distinguishes it in the present group. This species begins a small series in which the thorax is not margined with yellow.

A. plagiaticauda, n. sp.—(Motsch mss. *fide* Deyrolle, Pl. I, fig. 8.) Form robust, very feebly depressed, color coppery bronze, elytra with reddish spots arranged similarly to those of the preceding species, surface with sparse, erect, moderately long brownish hair. Head densely punctured, front feebly impressed, vertex with fine carina. Thorax more than twice as wide as long, apex feebly emarginate very slightly prolonged at middle, base truncate, sides moderately arcuate and gradually wider to base which is not broader than the elytra, disc with median linear impression and vaguely concave at base, on each side at base a moderately deep fovea, surface uniform in color, rather sparsely punctured at middle and more densely at the sides. Elytra twice as long as wide, umbone feeble, sides nearly parallel and at apical third rapidly narrowing to tip, feebly serrate; disc very feebly depressed, striæ at middle less evident, punctured, intervals with a single series of finer punctures; surface coppery bronze shining maculate with red as follows; a small basal spot, a spot at basal third another external near the margin, a median short fascia, another at apical third also a small sub-apical spot at margin. Body beneath coppery bronze, sparsely pubescent. Prosternum trisinate in front, at middle and sides coarsely punctured. Abdomen rather finely and moderately densely punctured. Last ventral with distinct double apical margin. Length .44 inch; 11 mm.

Two specimens before me from the Mariposa region of California.

Dr. Leconte's specimen was obtained from the cabinet of Count Mnizech of Paris with the above manuscript name. I do not know that it has ever been published. My specimen is due to the late Jules Thevenet of Paris and was collected by his brother in Mariposa County, California.

A. miliaris, n. sp.—(Pl. I, fig. 9.) Form moderately robust, subdepressed, color black tinged with bronze, surface sparsely clothed with erect black hair, elytra with numerous small yellow spots, forming two narrow transverse bands near the tip which are reddish at the margin. Head coarsely punctured, front slightly impressed, vertex with feeble carina. Thorax unicolored, twice as wide as long, apex feebly emarginate, base truncate, sides moderately arcuate in front, nearly straight posteriorly, margin narrow, scarcely visible from above

except in front and becoming much inferior posteriorly; disc with feeble median triangular impression, on each side a moderately deep fovea; surface coarsely and moderately densely punctured, slightly less densely at middle. Elytra as wide as the base of the thorax, umbone feebly prominent sides sinuate at middle, apical third rapidly narrowed and moderately serrate; disc feebly depressed, striate, striæ coarsely punctured the two outer striæ very deep and with a very deep short stria beneath the umbone, intervals flat on the disc outer ones convex and with a row of fine distant punctures; surface with numerous small yellow spots, forming at apical third two small irregular bands, which are red at the margin. Body beneath distinctly bronzed, very sparsely clothed with greyish hairs, longer and denser on the metasternal side-pieces. Prosternum in front distinctly trisinate, coarsely punctured. Abdomen moderately coarsely but not densely punctured, last ventral with distinct double apical margin. Length .32—.42 inch; 8—10.5 mm.

Four specimens Texas. This species is easily known in this group by the elytral ornamentation and the very distinct sinuation of the sides.

A. sparsa, n. sp.—(Pl. I, fig. 10.) Body black shining with slight bronze lustre, surface with few short black hairs, form not robust, elytra with few small yellow spots widely scattered more numerous near the tip. Head coarsely punctured, front feebly impressed, vertex with faint carina. Thorax nearly twice as wide as long, apex feebly emarginate and but little narrower than the base, sides feebly arcuate, margin feeble, not visible from above; disc with triangular median impression and a fovea on each side at base; surface coarsely punctured, very sparsely at middle, more densely at the sides, color uniform. Elytra as wide as base of thorax, umbone moderately prominent, sides gradually converging from base to apex, more rapidly at apical third and moderately serrate; disc moderately convex, striate, striæ obliterated at middle near the base, moderately punctured, intervals flat, uniseriately punctulate, the three outer intervals convex and the third more elevated at base; surface black, shining, with slight bronze tinge and with small yellow spots very sparsely placed, arranged vaguely in a median row of five or six and a submarginal series consisting of three or four groups. Body beneath black with slight bronze lustre, with few whitish hairs. Prosternum trisinate in front, very sparsely punctured. Abdomen very sparsely and finely punctured, last ventral with distinct double margin. Length .38 inch; 9.5 mm.

I have seen but two specimens of this species, both similar in style of marking, collected in Colorado, that in the cabinet of Dr. Leconte from Manitou while that from Mr. Ulke is without special locality.

A. tuta, n. sp.—(Pl. I, fig. 11.) Black with cupreous lustre, form moderately robust, surface with few black erect hairs, thorax margined with yellow, elytra with three fasciæ interrupted at middle and an apical marginal spot yellow. Head coarsely and densely punctured, a faint frontal impression and vertical carina. Thorax nearly twice as wide as long, apex feebly emarginate, base truncate, sides moderately arcuate and gradually but feebly diverging from apex to base; disc with feeble median triangular impression with a moderate

fovea on each side; surface shining, coarsely and deeply but not very densely punctured except in the lateral foveæ, sides with yellow border, margin narrow, not visible from above, inferior in the greater part of its extent. Elytra as wide at base as thorax, umbone feebly prominent, sides gradually narrowing to apex and acutely serrate, disc feebly depressed, striate, striæ very faint at middle near base, but with coarse punctures closely placed, intervals flat except externally, uniseriately punctulate; surface rather brightly cupreous and with three bands of yellow interrupted at middle, the sub-basal oblique, the others transverse, also a small spot on the margin near the tip. Body beneath brilliantly cupreous, sparsely hairy. Prosternum distinctly trisinate in front, sparsely punctured. Abdomen sparsely and rather finely punctate, last ventral with scarcely any trace of subapical transverse carina. Length .32 inch; 8 mm.

Two specimens St. George, Utah, collected by Dr. Edw. Palmer.

A. Hepburnii, Lec.—(Pl. I, fig. 12.) Form moderately robust, subdepressed, sparsely clothed with grey and black hair intermixed, color piceous distinctly bronzed, thorax with yellow side margin, elytra with lateral and subsutural longitudinal stripe united by transverse band at the middle of the elytra, two transverse bands interrupted at middle and subapical spot yellow. Head coarsely and moderately densely punctured, front very feebly impressed, vertex with feeble carina. Thorax nearly twice as wide as long, apex feebly emarginate and slightly lobed at middle, base truncate, sides very feebly arcuate or nearly straight, gradually divergent to base, margin very narrow, not visible from above except in front, posteriorly inferior; disc with median triangular impression and a rather deep but broad lateral oblique impression terminating in a fovea posteriorly; surface rather coarsely but not densely punctured at middle, more densely at the sides which are rather broadly margined with yellow. Elytra as wide as the thorax, umbone feeble, sides feebly narrowing from base, more rapidly at apical third and rather finely serrate; disc subdepressed, finely striate, striæ moderately coarsely but not very closely punctured, intervals flat, uniseriately punctate; surface ornamented with yellow as follows: a lateral and a subsutural irregular stripe which extend to the middle of the elytra and united by a transverse band, two irregular transverse bands posterior to the latter interrupted at the suture, and a subapical spot. Body beneath dark æneous, sparsely clothed with greyish hair. Prosternum in front distinctly trisinate, sparsely punctured at middle, side pieces more densely and coarsely. Abdomen sparsely punctured, last ventral with feeble trace of subapical transverse carina. Length .40 inch; 10 mm.

Occurs in California in the regions adjacent to the western base of the Sierra Nevada Mountains.

ACMÆODERÆ EMARGINATÆ.

The thorax is emarginate above, the anterior angles cover a portion of the eyes, the prosternum is shortened, its alæ not attaining the angles, the anterior margin usually straight sometimes broadly but very feebly emarginate from angle to angle.

The species are few in number and are as follows:

- Thorax unicolored or with merely a very small spot at sides.....1.
 Thorax broadly margined with yellow.....5.
 1.—Lateral margin of thorax scarcely visible from above.
 Elytra variegated over the entire surface.....**acuta**.
 Elytra with three reddish spots at the sides behind the middle...**Dohrni**.^{*}
 Lateral margin visible in its entire extent from above, thorax distinctly
 wider than the elytra.....2.
 2.—Apical margin of last ventral single, no trace of carina.....**connexa**.
 Apical margin of last ventral double.....3.
 3.—Tooth of anterior claws acute nearly as long as the claw; elytra tipped
 with red.....**stellaris**.
 Tooth of anterior claws with free edge rectangular; elytra not ornate
 with red.....4.
 4.—Surface bluish; thorax distinctly wider than the elytra.....**ornata**.
 Surface cupreous; thorax very little wider than the elytra...**flavosticta**.
 5.—Thorax wider than the elytra, margin very evident.....**decipiens**.
 Thorax not wider than the elytra, margin feeble.....6.
 6.—Thoracic margin inferior posteriorly; disc coarsely and densely punctured.....**variegata**.
 Thoracic margin lateral but narrow; disc sparsely punctured.....**mima**.

A. acuta, Lec.—(Pl. I, fig. 14.) This species resembles *connexa* in form, and markings but is usually smaller and with other differences as follows: Thorax not wider at base than the elytra, margin narrow and scarcely visible from above and somewhat inferior posteriorly. Last ventral segment rarely with feeble sub-apical carina. Length .30—.38 inch; 7.5—9.5 mm.

I have great doubts concerning the validity of this species. I have many specimens of *connexa* and *acuta* and am able thus far to separate them in my cabinet but the characters as seen above are feeble and may readily escape observation. I leave the species in its present condition with the hope that some future student may find characters which now escape my observation.

Occurs with the preceding species. California and Utah.

A. connexa, Lec.—(Pl. I, fig. 13.) Form depressed, color piceous with distinct æneous tinge, surface with erect black hairs sparsely placed, elytra ornamented with yellow forming a lateral and subsutural stripe extending to middle and very much contorted, united at their apices and posteriorly two irregular transverse bands interrupted at suture and an apical spot. Head coarsely and densely punctured, front convex, vertex feebly carinate. Thorax twice as wide as long, apex emarginate base truncate, sides rather broadly arcuate and wider posteriorly, hind angles broadly rounded, margin moderately wide, visible from above in its entire extent; disc with moderately deep triangular median impression, and a lateral fovea at base surface coarsely punctured, more densely at the sides than at middle. Elytra narrower at base than the thorax, umbone moderate, sides gradually narrowed to apex, more rapidly at apical third and rather strongly serrate; disc depressed, striate,

^{*} This species in a cabinet arrangement may be placed after *flavosticta*, otherwise it interrupts a very natural sequence of elytral markings.

striae rather coarsely punctured, intervals flat at middle convex at the sides, each with a single row of minute punctures; surface colored as above. Body beneath dark bronze, sparsely clothed with greyish hairs. Prosternum broadly emarginate in front, the alae not attaining the anterior angles, surface sparsely punctured, side pieces more densely and coarsely. Abdomen sparsely punctured, last ventral without trace of subapical carina. Length .44 inch; 11 mm.

Occurs from the Coast Range of California to western Utah. Its markings resemble *Hepburnii* as well as the preceding species, and are very variable. Specimens very rarely occur with a small yellow spot on the side of the thorax.

A. stellaris, Chev.—(Pl. I, fig. 18.) Form depressed, surface distinctly bronzed, sparsely clothed with erect black hair, elytra with numerous small yellow spots often uniting forming intricate reticulations, sides at tip red. Head densely punctured, front feebly concave, vertex feebly carinate. Thorax usually unicolorous, rarely with a small lateral spot, twice as wide as long, apex emarginate, base truncate, sides strongly arcuate, margin moderate, slightly reflexed and visible in its entire extent from above; disc with median triangular impression moderately deep at middle posteriorly, lateral oblique impressions moderately deep; surface coarsely punctured, rather sparsely at middle, more densely at the sides. Elytra narrower at base than the thorax, umbone moderate, sides gradually narrowed from base to apex, sides moderately serrate; disc depressed, striate, striae rather coarsely but not closely punctured, intervals flat with a single series of fine punctures on each; surface black slightly bronzed with narrow intricate yellow markings, sides at the tip red. Body beneath dark bronze, sparsely pubescent. Prosternum as in *connexa*. Abdomen rather sparsely punctured, last ventral with distinct double margin at tip. Length .46 inch; 11.5 mm.

This species is one of the most easily recognizable in our fauna. The claws of the anterior tarsi have the tooth or lobe nearly as long as the upper portion of the claw. It occurs in western Texas and also in Mexico.

A. ornata, Fab.—(Pl. I, fig. 15.) Form robust, moderately depressed, sparsely clothed with erect black hair, surface bluish, elytra sparsely maculate with small yellow spots, often nearly immaculate. Head coarsely and densely punctured, front with very feeble impression, vertex with distinct carina. Thorax twice as wide as long, apex emarginate, base truncate, sides rapidly broader posteriorly, behind the middle rather strongly arcuate, margin moderate, distinctly visible in its entire extent from above; disc with distinct median triangular impression and with oblique lateral impression terminating in a fovea at base; surface rather coarsely and deeply punctured, very densely at the sides less densely at middle. Elytra narrower at base than the thorax, umbone moderately prominent, sides feebly convergent from base, more rapidly at apical third and serrate; disc with striae less deep than at the sides, striae rather coarsely punctured, less so at middle, intervals flat and with a single row of punctures, those at middle nearly as large as the punctures of the striae. Body beneath metallic blue, sparsely hairy. Prosternum as in *connexa*. Abdomen very sparsely punctured, last ventral with feeble subapical transverse carina. Length .34—.44 inch; 8.5—11 mm.

Specimens of this species occur with a small, lateral, thoracic spot, sometimes on one side only.

Occurs over nearly our entire country east of the Rocky Mts.

A. flavosticta, n. sp.—(Pl. I, fig. 16.) Form subdepressed, surface with cupreous lustre and with few erect black hairs. Head coarsely and deeply punctured, front with distinct impression, vertex not carinate. Thorax more than twice as wide as long, apex emarginate, base truncate, sides moderately arcuate, margin distinctly visible from above; disc with moderate median triangular impression, lateral oblique impressions rather deep; surface with coarse, deep sparsely placed punctures, denser at the sides, surface unicolored. Elytra as wide at base as the thorax, sides gradually converging from base, more rapidly at apical third and rather coarsely serrate, umbone rather feeble; disc feebly convex, striate, striæ rather coarsely and serrately punctured, intervals slightly convex and with a single series of fine punctures; surface ornate with yellow as follows: an irregular spot at middle of base, a lateral stripe from humerus to middle with a branch toward the suture, posteriorly two interrupted fasciæ. Body beneath bronzed, shining, with very short, sparse pubescence. Prosternum as in *connexa*. Abdomen rather coarsely and sparsely punctured, last ventral with distinct double apical margin. Length .28—.36 inch; 7—9 mm.

The elytral markings of this species somewhat resemble certain forms of *pulchella*. The name given is an unpublished one of Sturm found attached to it in some European cabinets. The same species was mentioned in the List by Dr. Leconte as *croceonotata* Gory.

Occurs in Lower California (Peninsula), collected by Mr. John Xantus de Vesey.

A. Dohrni, n. sp.—(Pl. I, fig. 21.) Form moderately depressed, surface shining, bronzed and sparsely clothed with black hair, elytra with three marginal spots behind the middle, the central spot larger. Head coarsely and moderately densely punctured, front convex, vertex with feeble trace of carina. Thorax unicolored, twice as wide as long, apex moderately emarginate, base truncate, sides feebly arcuate, margin narrow, visible from above for a short distance in front, posteriorly inferior; disc with vague median impression and a shallow fovea on each side at base; surface coarsely but not densely punctured. Elytra as wide as the thorax, sides subparallel, gradually narrowed at apical third which is serrate, umbone moderate; disc depressed, surface striate, striæ deeper at sides and apex, punctured with moderate, not closely placed punctures, intervals flat with a single series of moderate punctures. Body beneath bronzed, shining, sparsely hairy. Prosternum very sparsely punctured at middle, at sides moderately and coarsely. Abdomen very sparsely punctured, more densely at the sides of the first segment; last ventral without trace of subapical carina. Length .32 inch; 8 mm.

The elytral markings consist of three reddish spots on the lateral margin, the first about at the middle, the second at three-fourths extending inwards to the middle of the elytra, the third between this and the apex. This species resembles considerably one of the next

group, *mariposa*, which is however bright blue and has a different prosternum.

I dedicate this species with great pleasure to Dr. C. A. Dohrn of Stettin, by whom it was sent with a number of other species, for naming. There is also a second specimen in Mr. Ulke's cabinet.

Occurs in California.

A. decipiens, Lec.—(Pl. I, fig. 17.) Form moderately robust, subdepressed, surface distinctly bronzed and with erect black hairs. Head coarsely and densely punctured, front impressed, vertex with distinct carina. Thorax more than twice as wide as long, very little wider at base than apex, apex emarginate base truncate, sides rather strongly arcuate, margin moderately wide, distinctly reflexed and visible in its entire extent from above; disc with feeble median triangular impression and moderately deep lateral foveæ; surface coarsely, deeply and moderately densely punctured, nearly equally over the entire surface, sides rather broadly yellow. Elytra narrower at base than the thorax, umbone moderate, sides gradually and at apical third more rapidly converging to apex and serrate; disc feebly convex, striate, (striæ feeble at middle near base), striæ rather coarsely punctured, intervals at apex and sides convex and uniseriately punctulate; surface distinctly bronzed and intricately marked with yellow. Body beneath bronzed, shining, sparsely hairy. Prosternum as in *connexa*. Abdomen rather coarsely but sparsely punctured, last ventral with distinct double apical margin. Length .42 inch; 10.5 mm.

I have seen but one specimen of this species brought by Dr. Coues from Arizona.

A. variegata, Lec.—(Pl. I, fig. 19.) Form moderately robust, disc nearly flat, surface faintly bronzed, with erect black hair, elytra with three yellow bands and an apical spot. Head coarsely punctured, front convex, vertex with fine carina. Thorax margined with yellow at the sides, twice as wide as long, apex emarginate, base truncate, sides moderately arcuate and when viewed directly from above slightly sinuate posteriorly, margin very narrow, not visible from above, inferior posteriorly; disc with moderate median triangular impression, and with oblique lateral impressions foveate at base; surface opaque, densely and coarsely punctured becoming cribrate at the sides. Elytra as wide as thorax, sides parallel and at apical third gradually narrowed to tip; disc flat, striate, striæ coarsely and closely punctured, intervals flat, each with a row of moderately coarse punctures; surface bronzed with three yellow bands nearly transverse and of variable width and a subapical spot. Body beneath very dark bronze, sparsely clothed with greyish hair. Prosternum as in *connexa*. Abdomen sparsely punctate last ventral without trace of subapical carina. Length .36 inch; 9 mm.

This species bears considerable superficial resemblance to *tuta* of the preceding group but is readily known by the form of the prosternum and the entire absence of any subapical carina to the last ventral.

Several specimens were collected by Dr. Palmer at St. George, Utah.

This species has nothing to do with *pulchella* and *mixta* with which it has been placed in synonymy by Mr. Crotch and Mr. Edw. Saunders who acted probably under advices from Mr. C. (see Catalogue Buprest. London, 1871).

A. mima, Gory.—(Pl. I, fig. 20.) Form robust, black, surface with very feeble bronze lustre, and with few erect black hairs, sides of thorax yellow, elytra with lateral and submedian stripe extending three-fourths to tip and united by several transverse bands, posteriorly two narrower transverse bands. Head coarsely and densely punctured, front feebly impressed, vertex without carina. Thorax more than twice as wide as long, apex emarginate base truncate, sides moderately arcuate and gradually wider from apex to base, margin narrow but visible from above; disc with shallow median triangular impression and a moderate oblique impression on each side; surface not coarsely and rather sparsely punctured at middle, more densely toward the sides. Elytra as wide as thorax, sides subparallel ♀ or gradually ♂ narrowed from base, apical third arcuately narrowed to tip; disc striate at the sides and tip, at middle near the base feebly, with rows of moderately coarse punctures, intervals flat, uniseriately punctulate. Body beneath dark bronze, sometimes feebly violet, sparsely pubescent. Prosternum as in *connexa*. Abdomen very sparsely punctate, last ventral with distinct double apical margin. Length .38—.44 inch; 9.5—11 mm.

This species preserves its type of marking with as great uniformity as any species in our fauna.

Occurs in Texas also in Mexico.

ACMÆODERÆ TRUNCATÆ.

In these species the anterior margin of the thorax forms a continuous line, the upper margin being truncate or very feebly emarginate. The alæ of the prosternum attain the anterior angles of the thorax beneath. The head is inserted merely to the hind margin of the eyes. The species are all of rather robust facies, form cylindrical and convex above. Many of the species are of small size.

They are distinguished as follows:

- Antennæ with fifth joint suddenly broader than the fourth which is cylindrical.....1.
- Antennæ gradually broader from the third joint, fourth joint oval and similar to the fifth.....9.
- 1.—Last ventral with subapical carina more or less distinct.....2.
- Last ventral without trace of subapical carina; form cylindrical.....7.
- 2.—Thorax margined with yellow at the sides.....3.
- Thorax without yellow margin.....4.
- 3.—Thorax arcuately narrowing from base to apex; striæ of the elytral disc finely punctured.....**pulchella.**
- Thorax wider at middle than the elytra at base, sides strongly arcuate; striæ of disc coarsely punctured.....**obtusa.**

- 4.—Thorax wider in front of base than the base of the elytra margin rather broad and entirely lateral.....**consors.**
 Thorax not wider than the elytra, discal impressions small.....5.
- 5.—Apex of thorax narrower than the base. Abdomen coarsely deeply and densely punctate.....**subbalteata.**
 Apex of thorax not narrower than the base, sides slightly sinuate in front of basal angles.....6.
- 6.—Abdomen similarly punctured over the entire surface; thorax densely punctured.....**texana.**
 Abdomen with last two segments much more densely punctured; thorax sparsely punctured.....**versuta.**
- 7.—Abdomen with last three segments more densely and finely punctured than the preceding.....**guttifera.**
 Abdomen with segments equally but sparsely punctured.....8.
- 8.—Thorax gradually narrowed from base to apex, not arcuate, disc sparsely punctured. Elytra with feeble punctures on the disc.....**mariposa.**
 Thorax with sides arcuate, disc densely punctured. Elytra with rather coarse punctures.
 Elytra irregularly guttate.....**culta.**
 Elytra with a submarginal and median yellow stripe on each.
quadrivittata.
- 9.—Margin of thorax entirely obliterated except for a short distance at base. Elytra with stripes as in *quadrivittata*.....**gemina.**

A. pulchella, Herbst.—(Pl. I, fig. 22.) Form variable but always with the disc more or less convex, surface sparsely clothed with short brownish hair, thorax always yellow at the sides, elytra extremely variable in markings often entirely yellow except the umbone. Head coarsely and densely punctured, front feebly impressed, vertex with feeble carina. Thorax convex, not twice as wide as long, apex and base truncate, sides regularly arcuate from apex to base, margin narrow not visible from above; disc convex, median line feebly impressed and with feeble trace of the triangular impression, lateral oblique impressions reduced to a small fovea on each side of middle; surface moderately densely and evenly punctured. Elytra as wide as thorax, umbone rarely even feebly prominent, form variable, often robust, sometimes gradually narrowing from base to tip and rather finely serrate; surface striate, outer striæ scarcely deeper, moderately punctured, intervals flat, uniseriately punctulate; markings variable, surface always bronzed. Body beneath coppery-bronze shining sparsely hairy. Prosternum gradually arcuate in front, the alæ attaining the anterior angles. Abdomen sparsely punctured, but somewhat variable, last ventral with distinct double apical margin. Length .22—.40 inch; 5.5—10 mm.

The markings of this species are so extremely variable that with isolated specimens it would be easy to describe four or five species. I have now sixty specimens before me and have examined in selecting my own series five times that number and have seen every intermediate form.

The following varieties may be mentioned:

var. pulchella, Hbst.—(Pl. I, fig. 22.)

A marginal band from humerus to middle gradually broader behind and sinuate within, several dorsal spots, two transverse fasciæ between the middle and apex.

This variety occurs most commonly from Pennsylvania to Georgia.

var. arizonæ.—(Pl. I, fig. 25.)

Form slender. Elytra with marginal stripe extending from humerus to middle, terminating in a narrow transverse band nearly reaching the suture, a moderately large basal spot, two transverse fasciæ behind the middle and a subapical spot.

One specimen from Arizona and several, more robust, from Florida.

var. mixta, Lec.—(Pl. I, fig. 26.)

In this form the basal spot becomes larger and longer and sends branches to the side, the first transverse fascia at middle becomes broader and sends a branch forward, the two posterior bands are also broader and frequently broken up.

This variety occurs in Texas, Colorado and Utah.

var. immaculata.

Elytra entirely yellow, or with the umbones tipped with brown.

This I have from Owen's Valley, California and Utah.

This is probably the most widely distributed species in our fauna as will be seen by the above given localities.

A. obtusa, n. sp.—(Pl. I, fig. 29.) Form robust, subdepressed, nearly as obtuse posteriorly as in front, surface greenish blue, sparsely clothed with short black hair, thorax yellow at the sides, elytra with median basal spot, three irregular transverse bands and apical spot yellow. Head coarsely and densely punctured, front feebly impressed, vertical carina obsolete. Thorax more than twice as wide as long wider at middle than at base, apex truncate, at middle slightly prolonged over the head, base truncate, sides rather strongly arcuate, margin narrow and entirely invisible from above; disc with feeble median line terminating in a very vague basal impression, a very slight fovea at base on each side of middle; surface moderately coarsely and densely punctured, equally over the entire surface. Elytra as wide at base as the thorax, umbone feebly prominent, sides subparallel or very feebly converging, at apical fourth arcuately narrowing to an obtuse apex, sides very finely serrate near the tip; disc striate over the entire surface, striæ coarsely and deeply punctured, intervals flat, rather coarsely punctate; surface greenish blue marked with a median basal spot, three irregular transverse bands and an apical spot, yellow. Body beneath bluish green, sparsely pubescent. Prosternum as in *pulchella*. Abdomen coarsely and moderately densely punctate especially on the last two segments. Length .36—.40 inch; 9—10 mm.

Eight specimens from Texas. This species cannot be confounded with any other than some of the varieties of *pulchella* from which the form of thorax will distinguish it.

A. consors, n. sp.—(Pl. I, fig. 30.) Form moderately robust, surface æneous, and with very sparsely placed erect brownish hairs. Head coarsely and densely punctured, front impressed, vertex with distinct carina. Thorax twice as wide as long, unicolored, apex and base truncate, sides arcuate broadest at middle, margin moderate, slightly reflexed, distinctly visible from above; disc with distinct median triangular impression and with a moderate oblique impression terminating in a fovea on each side of middle; surface shining, moderately densely but not very coarsely punctured, equally over the entire surface. Elytra as wide at base as thorax, umbone feebly prominent, sides feebly converging from base, more rapidly at apical third and rather strongly serrate; disc slightly convex, striæ rather deep over the entire surface and with coarse deeply impressed punctures, intervals narrow, convex, and with a single series of fine punctures; surface ornamented with yellow forming very irregular transverse bands. Body beneath dark bronze very sparsely punctate. Prosternum as in *pulchella*. Abdomen sparsely punctate, last ventral with very short subapical carina. Length .30 inch; 7.5 mm.

One specimen Texas, easily known from any in the group from the fact that the sculpture of the thorax above is rather that of the preceding group.

A. subbalteata, Lec.—(Pl. I, fig. 31.) Form moderately robust, feebly depressed, color blackish subopaque, thorax with feeble bronze lustre, surface with sparsely placed short semi-erect grey hairs, elytra with subbasal and median band and two spots posteriorly. Head coarsely and densely punctured, front convex vertex not carinate. Thorax unicolored, twice as wide as long, convex, apex and base truncate, sides moderately arcuate, margin narrow not visible from above, inferior posteriorly; disc convex median line feebly impressed terminating in a small fovea at base, on each side a feeble oblique impression terminating in a shallow fovea; surface coarsely and densely punctured at middle, more densely at sides. Elytra as wide at base as the thorax, umbone very feeble, sides gradually narrowing to apex and finely serrate; disc feebly convex and with striæ of very coarse and deep but distinct punctures, intervals very narrow and with distant finer punctures; surface pitchy black with feeble trace of lustre and marked with two yellow bands, the first subbasal, the second median posterior to which are two irregular spots. Body beneath dark bronze subopaque. Prosternum as in *pulchella*. Abdomen finely alutaceous, coarsely and moderately densely punctured, last ventral with distinct subapical transverse carina. Length .24 inch; 6 mm.

A very distinct little species of the form of *culta*.

One specimen, Peninsula of California.

A. texana, Lec.—(Pl. I, fig. 32.) Form cylindrical, slightly depressed, color piceous, surface feebly bronzed and sparsely clothed with erect black hairs. Head densely punctate, front convex vertex slightly carinate. Thorax unicolored, very nearly twice as wide as long, apex very little narrower than base, truncate, slightly prolonged over the head at middle, sides moderately arcuate in front, feebly sinuate in front of base, margin very narrow, not visible from above, inferior posteriorly; disc convex, median line slightly impressed in front, a vague depression posteriorly and on each side at base a small fovea; surface coarsely punctured, moderately densely at middle and at sides more

densely in the usual position of the oblique impression. Elytra as wide as the thorax at base, subcylindrical, gradually narrowed to tip and finely serrulate; disc with striæ of moderate punctures not closely placed, intervals flat, uniseriately punctulate; surface rather irregularly maculate with yellow without any distinct pattern. Body beneath dark bronze, sparsely pubescent. Prosternum as in *pulchella*. Abdomen sparsely punctured, last ventral with very distinct submarginal carina. Length .26 inch; 6.5 mm.

This species is of the size form and general aspect of *culta* but may be known by the surface having the usual hairs and not setæ and by the last ventral having a distinct subapical carina.

Two specimens Texas.

A. versuta, n. sp.—(Pl. I, fig. 33.) Form cylindrical, slightly depressed, very little narrower at tip than in front, piceous slightly bronzed, sparsely clothed with erect brownish hairs. Head densely punctate, front feebly impressed, vertex not carinate. Thorax unicolored, nearly twice as wide as long, apex slightly narrower than base, slightly prolonged at middle over the head, sides rather strongly arcuate and slightly sinuate in front of base, margin very narrow not visible from above; disc convex, a very slight depression at middle of base, on each side a more distinct depression; surface sparsely punctured at middle, very densely at the sides. Elytra as wide as thorax, sides parallel, at apical third arcuately narrowing and finely serrate; disc moderately convex, striate, outer striæ deeply impressed, punctured rather distantly, intervals flat, uniseriately punctulate; surface with yellow spots arranged in a discal row of fine equally distant, a marginal series of five or six irregularly placed. Surface beneath bronzed sparsely hairy. Abdomen with the first three segments sparsely punctured, last two more densely, last ventral with distinct double margin at tip. Length .26 inch; 6.5 mm.

Superficially this species greatly resembles *guttifera* but the abdominal characters abundantly distinguish it. The last two ventral segments are in the present species more densely punctured than those which precede, the punctures of the fifth segment are coarse, those of the fourth unequal, the punctures nearest the base of the segment are finer and denser than those at the tip.

One specimen Mariposa, California.

A. guttifera, Lec.—(Pl. I, fig. 34.) Form cylindrical subdepressed, surface piceous, faintly bronzed, sparsely clothed with brownish hairs. Elytra with three dorsal spots the first median the other two posterior, a marginal series of five unequally placed. Body beneath bronzed. Ventral segments unequally punctured, the first two very sparsely at middle and somewhat more densely at the sides, the second at sides rather more densely pubescent; last three segments subopaque, very densely and very finely punctured and clothed with moderately long fine, silken, erect hair which curves toward the front; fifth ventral without any trace of subapical carina. Length .28 inch; 7 mm.

Of this species I have seen but one specimen from Fort Tejon, California, which is so abundantly distinct by its abdominal characters as

to require no further mention. Its description is in other respects in full accord with the preceding species.

A. mariposa, n. sp.—(Pl. I, fig. 35.) Form subdepressed, surface bright blue, sparsely clothed with erect brownish hair, elytra with a red band at apical third interrupted at middle, a marginal spot near the middle, another near the tip. Head moderately densely punctured, front flattened, vertex not carinate. Thorax unicolored, less than twice as wide as long, apex very feebly emarginate, sides at anterior angles very feebly arcuate, posteriorly straight and gradually divergent, margin very narrow not visible from above, at base inferior; disc with median line feebly impressed in front at base slightly flattened, on each side a feeble fovea; surface rather coarsely but not densely punctured at sides more densely. Elytra at base as wide as the thorax, umbone feebly prominent, sides feebly convergent from the base, at apex arcuately narrowed and distinctly serrate; disc slightly depressed, striæ visible at sides and apex, obliterated at middle and with rather small punctures not closely placed, intervals flat, uniseriately punctulate. Body beneath bluish green, sparsely pubescent. Prosternum truncate. Abdomen very sparsely punctulate, last ventral without trace of subapical transverse carina. Length .28 inch; 7 mm.

This species is peculiar in its markings and surface color, and by the sides of the thorax being straight from near the anterior angles.

I have seen but one specimen collected by Mr. Alphonse Thevenet at Mariposa, California, and given to Dr. Leconte by the late Jules Thevenet of Paris.

A. culta, Weber.—(Pl. I, fig. 36.) Form robust, subcylindrical, surface slightly bronzed, with sparsely placed short erect setæ, elytra with a dorsal series of four or five yellow spots and a marginal series which in some specimens send a branch to the dorsal spot. Head densely punctured, front convex, vertex feebly carinate. Thorax unicolored, nearly twice as wide as long, apex and base truncate, sides arcuate and widest in front of base, margin narrow, not visible from above; disc convex with three small basal foveæ; surface coarsely and densely punctured. Elytra as wide at base as the thorax, sides subparallel from base, apex gradually narrowed and finely serrate; disc convex, striate, striæ with moderately coarse punctures, intervals more coarsely punctulate than usual. Body beneath bronzed green, sparsely pubescent. Prosternum truncate. Abdomen coarsely and moderately densely punctured, last segment without trace of carina. Length .20—.30 inch; 5—7.5 mm.

The markings of the elytra are of course subject to great variation and may be entirely without spots. The form described is the usual condition, sometimes the dorsal series of spots becomes united in one irregular stripe or the surface may be nearly as intricately reticulate as in *stellaris*.

Occurs everywhere in the United States east of the Rocky Mountains, and very common.

A. quadrivittata, Horn.—(Pl. I, fig. 37.) Form cylindrical, convex, surface faintly bronzed, with sparsely placed short erect setæ, elytra with a marginal and median yellow stripe on each. Head densely and coarsely punctured, front flat, vertex carinate. Thorax convex, unicolored, apex truncate, sides gradually arcuate to base, margin very narrow, not visible from above, inferior at base; disc with median line feebly impressed in front, a faint impression at middle of base, one more distinct on each side; surface moderately densely punctured, intervals shining. Elytra as wide as thorax, sides feebly narrowing to apex and very finely serrulate, umbone feebly prominent; disc convex with distinct and regular striæ of moderately coarse punctures, intervals flat, uniseriately punctulate. Body beneath bronzed, sparsely pubescent. Prosternum truncate. Abdomen finely alutaceous, moderately densely punctate, last ventral without apical carina. Length .20 inch; 5 mm.

I have seen numerous specimens of this species and find the markings of the elytra invariable. In size it varies a very little above and below that given above.

Specimens occur from Fort Mojave, California, and St. George, Utah, Dr. Palmer.

A. gemina, n. sp.—(Pl. I, fig. 37.) Form cylindrical, surface opaque. Thorax with yellow spot at sides, sides moderately arcuate and narrower at base than at middle, margin entirely obliterated except at basal third; disc opaque convex, punctures variolate and very densely placed. Body beneath bronzed, subopaque, sparsely pubescent. Prosternum truncate, abdomen coarsely and moderately densely punctured, last three segments decidedly rugulose, last ventral in great part yellow and without trace of subapical carina. Length .22 inch; 5.5 mm.

In all other respects this species resembles the preceding, the elytra being similarly vittate. The most striking character is found in the form of the antennæ. These become gradually broader from the third joint instead of (as in the other species) having the fifth joint suddenly broader than the fourth. This character with the almost entire obliteration of the thoracic margin, mark it as a peculiar species.

One specimen in my cabinet from California, San Bernardino Valley. Mr. Ulke has another also from California, without special locality.

ACMÆODERÆ LOBATÆ.

The prosternum in front is furnished with a broad lobe, emarginate at middle; the angles prominent, on each side of the lobe is a slight notch beyond which the margin is straight to the angles. The humeral angles of the elytra are prolonged and the sides of the elytra so deeply sinuate opposite the metasternum that the end of the coxal plate is distinctly visible from above.

One species constitutes this group.

A. gibbula, Lec.—(Pl. I, fig. 38.) Form robust, surface distinctly bronzed, sparsely clothed with short erect hairs, elytra with a discal row of five large yellow spots, a marginal row of three or four and between the two a row of three red spots. Head moderately densely punctured, front slightly impressed, vertex feebly carinate. Thorax nearly twice as wide as long, apex truncate, base sinuate at middle and near the hind angles arcuate, sides very feebly arcuate and gradually wider from apex to base, margin moderate, slightly visible from above; disc convex, a vague median impression at base, on each side an oblique impression terminating in a moderately deep fovea at base; surface unicolored, shining, sparsely punctured at middle, more densely at the sides. Elytra as wide as the thorax, umbone prominent, humeral angles prolonged beneath the angles of the thorax, sides deeply sinuate opposite the metasternum, then arcuately narrowing to tip, sides serrate; disc moderately convex, striate, striæ feeble at middle and with coarse punctures moderately closely placed, intervals flat with a single series of fine punctures. Body beneath bronzed, shining. Prosternum in front strongly lobed, lobe emarginate at middle, alæ of prosternum attaining the anterior angles. Abdomen sparsely punctured at middle, much more densely at the sides and rather densely clothed with long silken, whitish pubescence; last segment with distinct double apical margin. Length .46 inch; 11.5 mm.

Occurs in Arizona.

ACMÆODERÆ GRACILIFORMES.

These species are slender and about four times as long as wide, the body above arcuate from head to tip. Their aspect is much that of certain *Agrilus*. The two species vary considerably in their prosternal characters, but agree in their slender tarsi, which are especially on the posterior pair of legs greater than half the length of the tibia in one species and very nearly as long as the tibia in the other.

They are distinguished as follows:

Prosternum emarginate at middle and on each side angulate, alæ attaining the anterior angles. Thorax above unicolored. Abdomen more densely punctured at the sides with longer hair.....**comata**.
Prosternum squarely truncate beneath, alæ attaining the angles. Thorax above yellow at the sides. Abdomen very sparsely punctured.....**alacris**.

These two species have affinities with two of the preceding groups by the form of the margin of the sternum but being very evidently more closely allied to each other than to any other species I have given the tarsal character preference in forming them in a group by themselves. They are both from California and lead us to expect other species with similar characters from Mexico.

A. comata, Lec.—(Pl. I, fig. 39.) Form slender, *Agrilus* like, arched, piceous, sparsely clothed with blackish hair, elytra with few small yellow spots. Head coarsely punctured, front impressed, vertex not carinate. Thorax not twice as wide as long, as wide at apex as base, apex truncate, sides slightly arcuate in front then gradually narrower to base, margin feeble, not visible

from above, inferior and less distinct posteriorly; disc with broad median impression deeper behind and a rather deep but small impression on each side at base; surface coarsely punctured, sparsely at middle, more densely at the sides. Elytra as wide at base as the thorax, umbone feeble, rather more than two and a half times as long as wide, sides gradually narrowed to tip and acutely serrate; disc moderately convex, with striæ of large somewhat confluent punctures, intervals 3—5—7 subcostiform; surface with small yellow spots arranged in a dorsal series of three or four and a submarginal series. Body beneath feebly bronzed. Prosternum with the alæ attaining the anterior angles, at middle with short lobe emarginate in front and rather strongly angulate at the sides. Abdomen sparsely punctured at middle, more densely at the sides and clothed with rather long greyish hairs, last ventral without subapical carina but with rather deep but broad marginal groove. Tarsi slender not dilated, and nearly as long as the tibiæ. Length .38 inch; 9.5 mm.

One specimen from near Fort Yuma, California.

A. alacris, n. sp.—(Pl. I, fig. 40.) Form of *comata*, color metallic green, sides of thorax and elytra ornate with yellow, surface with short brownish hairs. Head densely punctured, front convex, vertex not carinate. Thorax one and a half times as wide as long, apex very feebly emarginate and slightly prolonged at middle over the head, sides feebly arcuate in front, nearly straight and feebly divergent posteriorly; margin feeble not visible from above; disc with feeble median impression and a punctiform fovea on each side at base; surface densely and coarsely punctured, sides margined with yellow which is less densely punctured. Elytra as wide at base as the thorax, umbone feeble, sides subparallel, at apical third gradually narrowed to tip and acutely serrate; disc moderately convex, with striæ of large subconfluent punctures, intervals 3—5 subcostiform; surface ornate with yellow as follows: a narrow marginal space from base to middle joining a short transverse triangular spot, a narrow short stripe on third interval at base, an irregular spot at middle, posteriorly two transverse bands interrupted at suture. Body beneath bronze green, very sparsely pubescent. Prosternum truncate, alæ attaining the angles of the thorax. Abdomen very sparsely punctulate, last ventral without subapical carina or groove. Tarsi longer than half the tibiæ. Length .36 inch; 9 mm.

These two species differ especially in the form of the sternum and vestiture of the abdomen.

One specimen given to Dr. Leconte by Dr. Sharp of Scotland, collected by Mr. Hardy in the same region with the preceding.

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- A. alacris**, n. sp.

EXPLANATION OF PLATE I.

- Fig. 1.—*Acmæodera amplicollis*, Lec.
 Fig. 2. “ *opacula*, Lec.
 Fig. 3. “ *amabilis*, Horn.
 Fig. 4. “ *flavomarginata*, Gray.
 Fig. 5. “ *macra*, Horn.
 Fig. 6. “ *robusta*, Horn.
 Fig. 7. “ *pubiventris*, Horn.
 Fig. 8. “ *plagiaticauda*, Horn.
 Fig. 9. “ *miliaris*, Horn.
 Fig. 10. “ *sparsa*, Horn.
 Fig. 11. “ *tuta*, Horn.
 Fig. 12. “ *Hepburnii*, Lec.
 Fig. 13. “ *connexa*, Lec.
 Fig. 14. “ *acuta*, Lec.
 Fig. 15. “ *ornata*, Fab.
 Fig. 16. “ *flavosticta*, Horn.
 Fig. 17. “ *dicipiens*, Lec.
 Fig. 18. “ *stellaris*, Chev.
 Fig. 19. “ *variegata*, Lec., from specimens from Utah. In the type the markings are much broken up as in some varieties of *pulchella*.
 Fig. 20. “ *mima*, Gory.
 Fig. 21. “ *Dohrni*, Horn.*
 Fig. 22. “ *pulchella*, Herbst, as it occurs in the Atlantic region.
 Fig. 23. “ “ var., a Florida specimen. (Cab. Lec.)
 Fig. 24. “ “ “ Florida.
 Fig. 25. “ “ “ Arizona, (my Cabinet.)
 Fig. 26. “ “ “ *mixta*, Lec., from the type.
 Fig. 27, 28. “ “ “ specimens from Utah.
 Fig. 29. “ *obtusa*, Horn.
 Fig. 30. “ *consors*, Horn.
 Fig. 31. “ *subbalteata*, Lec.
 Fig. 32. “ *texana*, Lec.
 Fig. 33. “ *versuta*, Horn.
 Fig. 34. “ *guttifera*, Lec.
 Fig. 35. “ *mariposa*, Horn.
 Fig. 36. “ *culta*, Weber.
 Fig. 37. “ *quadrivittata*, Horn.
 Fig. 38. “ *gibbula*, Lec.
 Fig. 39. “ *comata*, Lec.
 Fig. 40. “ *alacris*, Horn.
 A. Diagram of the prothorax beneath of the *Acmæoderæ sinuatae*.
 B. “ “ “ “ “ *Acmæoderæ emarginatae*.
 C. “ “ “ “ “ *Acmæoderæ truncatae*.
 D. “ “ “ “ “ *Acmæoderæ lobatae*.

NOTE.—The figures of the elytra are of double the size of nature, 31—37 inclusive are three times enlarged.

* There should be an additional spot on this elytron between the posterior one and the apex.

