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Tribe CREMASTOCHEILINI.

The moderately numerous genera of this important section of the Cetoniinae have a peculiar facies distinguishing them from either the preceding Cetoniini or the Trichiini, which follow, and their more specialized structural features, such as the cupuliform mentum, tetrahedral basal joint of the antennæ, serving to close the clypeo-frontal gap at the sides, and prominent tubuliform posterior spiracles of a large proportion of the species, as well as the inquiline habits of many others, also separate them widely from any of the neighboring groups, so that the proposal of full tribal rank for them seems amply justified. Sexual differences, at best not very marked in most of the Cetoniids, become virtually altogether unobservable here, so that the sexes will not be referred to separately. In a long series of *Cremastocheilus schaumii* Lec., at hand, I find that the mentum is flat, with abruptly reflexed margins in some specimens, and deeply, subevenly concave in others; this does not occur, at least in so marked a way, in any other species of *Cremastocheilus* before me, but is observable to exactly the same extent in the genus *Trinodia*, where it appeared to form a remarkable specific character, until accidentally noticed in the very homogeneous *schaumii* series mentioned; it is probably a sexual character.

Africa and North America are now, singularly enough, the principal abodes of these peculiar insects, the former doubtless being their place of origin, though some of the largest species of the tribe, such as *Cyclidius elongatus*, inhabit South America, whence the North American archetypes were derived through migration in geologic time probably not so very long ago. The rupture of the South American—African land connection was much more remote in time, as shown by the complete lack of harmony prevailing between the members of the tribe now inhabiting these two continents. The tribe is also represented in the East Indies and China, through migration from Africa by way of the Madagascar—Ceylon bridge, but it is wholly unknown in Australia apparently.

The North American species are assignable to five distinct genera as follows:

- Pronotum not trilobed 2
- Pronotum trilobed longitudinally; basal thoracic angles prominent . . . 5
- 2—Basal angles of the prothorax not at all prominent 3

- Basal angles prominent, abruptly shining, generally but not always subisolated by an obliquely impressed line.4
- 3—Body stout and massive, the basal thoracic angles broadly rounded; mes-epimera very feebly convex and not prominent from above, the elytra broadly convex, each with two feeble costules as in *Cetoniini*. [Type *Ps. leucosticta* Burm.]. **Psilocnemis**
- Body narrow and elongate, the basal thoracic angles obtuse but not broadly rounded; mes-epimera greatly visible from above, tumid; elytra abruptly flat on the disk, not bicostulate. [Type *G. velutinus* Westw.]. **Genuchinus**
- 4—Legs long, the anterior tarsi distorted; head elevated and cariniform along the sides and deeply transversely fossate at base; elytra with the deplanate discal part margined each side by an elevated ridge; body rather large in size. [Type *Cremast. planatus* Lec.].
- Macropodina**
- Legs short, the anterior tarsi not distorted; head not elevated along the sides or transversely fossate at base; elytra sometimes nearly flat but never having a sublateral abruptly elevated ridge; pronotum without trace of marginal beading as in *Macropodina*. [Type *C. castaneæ* Knoch]. **Cremastocheilus**
- 5—Body rather slender, parallel, the elytra convex laterally; legs short, the tarsi regular, nearly as in *Cremastocheilus*. [Type *Cremast. saucius* Lec.]. **Trinodia**

The vast majority of the species belong to the last two genera of the table and *Genuchinus* is the only genus that extends far to the southward and into South America. The South American *Cyclidius* of MacLeay is not defined above, as I only have *elongatus* Oliv., at present and there are apparently two genera confounded among its few described species.

Psilocnemis Burm.

Although suppressed for some unaccountable reason by Dr. Horn in his revision of *Cremastocheilus* (Proc. Am. Phil. Soc., 1879, p. 382), this genus is amply valid. The body is more ventricose than in any other, the head and prothorax being rather small in comparison with the hind body. The mentum is unusually large and transverse, nearly flat at the bottom, with strongly reflexed posterior edge, which is feebly and posteriorly lobed at the middle, the anterior margin broadly, transversely subtruncate, the lateral angles well marked but not sharp and the surface highly polished and sculptureless; the vertical anterior surface of the reflexed clypeal apex forms a large polished plate adjoining the anterior margin of the mentum and having its lower edge sharply defined,

at least at the sides, feebly sinuate and more obtuse medially. The outer face of the basal antennal joint is deeply concave, smooth and polished. The legs are almost of the usual type in *Cremastacheilus*, except that the anterior tibiae are slightly bent, the two teeth small and unusually remote. The tarsi are very short and compact, with the cross-section of the joints triangular. The type is individually rather rare in collections and may be described as follows:

Body stout, rather convex, deep black, highly polished and feebly, remotely sculptured throughout, the elytra sometimes with small cretaceous areas at the sides; head two-thirds as wide as the prothorax, feebly, evenly convex, finely, not densely punctate, the surface evenly and feebly sloping from the base to the reflexed apex of the clypeus, without break at the anterior part of the front, the clypeus slightly sloping laterally and with the edges there feebly reflexed, abruptly and rather deeply constricted above the antennae; prothorax transversely oval, two-fifths wider than long, two-thirds as wide as the elytra, widest at the middle, the sides subevenly and strongly rounded and continuously arcuate around the obliterated basal angles to outer third, where the groove just within the edge, continually wider internally, terminates abruptly; outer marginal bead rather fine but strong; feeble apical sinus as wide as the base and arcuately prominent at the middle; punctures sparse, moderate medially, gradually less sparse and larger laterally; scutellum of the usual basally broad, apically finely attenuate, form, with rather strong scattered punctures basally and thence posteriorly, near the sides, with fine feeble subconfluent punctulation; elytra a third longer than wide, the humeri laterally rather prominent, the sinus deep, the external apical angles broadly rounded, the sutural obtuse and rounded; surface with small narrow sparse angulate annuli, wanting on the broad costae and, on the flanks, becoming fine sparse punctures, faintly subrugose near the lower edges; pygidium strongly convex, with moderate close-set circular annuli, becoming very fine sparse punctures apically and transverse wavy lines basally; legs very sparsely, feebly sculptured, the femora and sterna with short or longer, very fine oblique scratches. Length 12.8 mm.; width 6.0 mm. North Carolina (Southern Pines),—Manee; also found in Maryland. [*Crem. polita* Schaum].....**leucosticta** Burm.

The small tomentose spots, because of which the name was given by Burmeister, seem to be very variable, since, on the Southern Pines examples, above described, there is no trace of any such spot, even the most minute, on any part of the surface, the integuments being smooth and extremely polished. It is of course possible that there may be more than one species and that the above is not really

leucosticta; the description of Horn would seem to indicate that the sides of the prothorax were more evidently angulate and the base at the sides less reflexed in the Maryland specimen of the Ulke collection, upon which his description was founded, and the thoracic base in that specimen is said to be feebly emarginate medially; it is transversely truncate here; the figure on the plate indicates a more elongate body, with relatively larger head and prothorax in the Maryland specimen, which doubtless represents the typical *leucosticta*.

Genuchinus Westw.

In many respects this genus comes much closer to the preceding than to any other, having the same uniform slope of the upper surface of the head from the base to the reflexed clypeal apex, but here the body is very elongate, depressed above, with the elytra opaque except on the flanks; the mentum is much less transverse, more pointed behind and nearly flat, reflexed posteriorly as in *Psilocnemis*, but it is always distinctly sculptured in rugulose lines; its lateral sinus is more evident. The anterior tibiæ are straight, slender and normally bidenticulate and the tarsi are longer, with freely articulated joints; the first antennal joint is rugulose and nearly flat on its outer face. The species may be known as follows:

- Elytra distinctly cuneiform; prothorax transverse, nearly one-half wider than long. Body black, feebly shining; form relatively elongate; head coarsely and closely variolate-punctate; occiput not transversely compressed; front flat, the clypeus narrowly reflexed; prothorax broader than long, the general form hexagonal; anterior angles slightly acute, the posterior obtuse; surface feebly convex, with very coarse, moderately deep and rather close-set punctures; elytra with the flat discal part having very elongate variolate foveæ, the sides very coarsely punctured; pygidium with coarse variolate punctures; legs ambulatorial, relatively slender, the anterior tibiæ bidentate near the tip, the middle and posterior toothed at the middle and with coarse teeth around the apex; tarsi nearly as long as the tibiæ, cylindric; under surface very coarsely but sparsely punctate. Length 12.5 mm. Arizona,—L. E. Ricksecker. A single example. [*Cremastocheilus ineptus* Horn].....*ineptus* Horn
- Prothorax much less transverse, never more than a fifth or sixth wider than long, with a dense line of tomentum along each side but abbreviated anteriorly; elytra parallel or nearly so and with minute scattered points of tomentum, particularly evident along the upper part of the flanks. Body very slender, black, rather shining, excepting the opaque flat discal part of the elytra, which is devoid of

any trace of costæ; head flat, gradually sloping above and with small shallow dense umbilicate areolæ, two-thirds as wide as the prothorax, the latter fully three-fourths as wide as the elytra, hexagonal, widest and laterally more or less evidently subangulate at the middle, the sides thence equally oblique and nearly straight apically and basally, the base evenly and strongly arcuate between the angles, which are obtuse but sharply defined; surface very evenly and moderately convex, with relatively rather coarse deep close-set punctures, the interspaces with partial opacity and some minute punctulation, which is very unevenly distributed; apex feebly sinuate, slightly narrower than the base and subprominently arcuate medially; bead along the side margins extremely fine; scutellum with rather coarse shallow annular areolæ and partial opacity; elytra three-fourths to four-fifths longer than wide, the humeri broadly rounded externally, the sinus long and shallow, the mes-epimera tumid and very conspicuous before the humeri and tomentose along the latter; punctures on the flattened opaque discal part close-set, in the form of very elongate incised annuli, smaller and shorter apically, those of the flanks rounded, deep, close-set and moderately coarse along the upper or polished tomentum-bearing part, and shallow, variolate and rounded on the lower or non-tomentose part; pygidium convex, with close-set and deeply incised, umbilicate annuli; sterna and hind coxal plate and abdomen with similar incised annuli, which are rather more separated, the punctures medially sparser, smaller and deeper; femora and tibiæ strongly punctate, the anterior as in the preceding, the hind tarsi three-fourths to four-fifths as long as the tibiæ. Length 12.0-13.8 mm.; width 4.2-5.0 mm. Arizona (Baboquivari and Santa Rita Mts.), also two examples from Dunn and Levette.

angustus n. sp.

If the figure of *ineptus*, given by Horn, is even approximately correct, *angustus* is in no way closely allied, being much more slender than that species and with the prothorax barely wider than long. No tomentose spots of any kind are mentioned in describing *ineptus*, but these are conspicuous in all my specimens of *angustus* and the lateral tomentose border of the pronotum is particularly noticeable. The above description of *ineptus* is derived from the original and also from the published figure.

Macropodina n. gen.

This genus is not closely allied to *Psilocnemis*, as thought by LeConte, because of the very different habitus of the body, which is oblong, much depressed and with radically different structure of the head and legs, more particularly the anterior tarsi, which, apparently in both sexes, have the last two joints abruptly much

enlarged and otherwise specially modified. The clypeus is very different from that of *Psilocnemis* in having the external apical surface strongly inflexed and not vertical. The mentum, also, is narrower, concave, shallowly punctate, not at all sinuate but evenly rounded at the sides and with the median part of the hind margin acutely prolonged. The singular lateral carinæ and transverse basal fossa of the head are generic in significance beyond a doubt. The legs are longer than in any other type of the tribe known to me, native or foreign. I have at hand two distinct species of this genus, definable as follows:

Prothorax not more than a fourth wider than long. Body moderately stout and shining, very depressed, deep black throughout, without cretaceous spots; head fully half as wide as the prothorax, the lateral carinæ sharp, highest behind, not quite attaining the reflexed clypeal apex, the obtusely elevated median part of the vertex gradually narrowing anteriorly, becoming a fine carina apically, not very coarsely but strongly, somewhat closely punctate, the lateral depression along the carinæ with very shallow foveæ anteriorly, becoming subimpunctate posteriorly like the transverse basal groove; clypeus with the apex strongly and rapidly reflexed, transversely truncate from a dorsal viewpoint; basal antennal joint gradually much attenuated basally; prothorax widest near apical third, the sides evenly rounded, converging and straighter basally; base broadly, evenly arcuate, the angles polished, subdetached by an oblique sulcus, their outer outline continuous with the sides, the apical angles obtusely nodular because of a coarse external fossa; surface rather depressed, feebly impressed along the middle, deplanate toward the sides, which are without vestige of beading, the punctures coarse, well separated, becoming closer and deep laterally; the punctuation crosses the depressed median line without change in character; scutellum well developed, gradually finely attenuated apically and having sparse shallow incised annuli; elytra slightly more than one-half longer than wide, almost one-half wider than the prothorax, parallel and rectilinear at the sides, rapidly rounding and obtuse at apex, the lateral sinus long and shallow; surface flat and with two feeble costæ, the summit of the flanks abruptly and strongly elevated, the punctures elongate incised annuli, open behind and with the incised lines slightly burred at the edges; on the flanks they become smaller, more rounded and very deep, except beneath, where they are again very shallow; pygidium convex, with scattered rounded annuli, strongly carinate except at base and apex; under surface with large scattered incised annuli, open behind; legs long, slender, the anterior tibiæ slender, slightly arcuate, obtusely bidentate apically, the anterior tarsi equal in length to the tibiæ, the fourth joint much swollen, transverse, more rounded within, obliquely sinuato-truncate and ciliate

apically, the fifth joint more than one-half longer than wide, narrowed apically, closely joined to the fourth but not quite so wide; hind tarsi slender, three-fourths as long as the tibiae. Length 15.0 mm.; width 6.3 mm. Arizona (San Bernardino Ranch, Cochise Co.). [*Cremast. planatus* Lec., and *depressus* Horn]. *Depressus* is from southern California..... **planata** Lec.

Prothorax larger and more transverse, nearly one-half wider than long. Body larger and stouter, rather dull in lustre, deep black and non-tomentose throughout; head larger, fully half as wide as the prothorax, nearly as in the preceding, except that the punctures are larger and subequal throughout, more shallow on the clypeus but extending, coarse and distinct, along the lateral depressions nearly to the deep basal fossa, which is impunctate; basal antennal joint with its outer face feebly concave, attenuate basally and with longitudinal rugulosity; prothorax widest near apical third but with the sides more evenly arcuate throughout, much less straight basally than in the preceding; base transverse medially, with a small projecting angulation at the middle, the angles nodular, with a deep oblique inner sulcus, the nodular part frequently lost; apical angles as in *planata* but with the outer fossa larger and deeper, the tuft of orange spongiöse pile internally at apex more distinct; surface more broadly and feebly impressed along the middle, the punctures larger, very shallow, dense in the median depression, gradually rather close and less shallow but not deep and of similar size laterally; scutellum large, acuminate, with large shallow annuli aggregated only at base and along the sides; elytra three-fifths longer than wide, barely more than a third wider than the prothorax, parallel, in general structure as in *planata*, except that the costae are almost completely obsolete, the very elongate annuli almost similar but longer and narrower and with the incised lines finer, the deep punctures on the lateral carina more elongate than in *planata*; pygidium similar but with the annuli larger and less incised; legs longer; anterior tibiae longer, not so slender, tumid externally at and near the apex but not dentate, the anterior tarsi much longer, even longer than the tibiae, the fourth joint more quadrate, somewhat longer than wide, similarly with an internal apical incisure to receive the fifth joint when internally flexed, but the notch is deeper, the fifth joint longer, almost twice as long as wide; posterior tarsi longer though scarcely three-fourths as long as the tibiae, each joint similarly somewhat inflated apically. Length 17.7 mm.; width 7.7 mm. California (Alameda Co.),—Nunenmacher..... **ampla** n. sp.

My single example identified above as *planata* Lec., is considerably smaller than the type of LeConte, which measures 18 mm., according to the description, but the prothorax is of the same form apparently, "latitudine paulo brevior," as it is also in *depressa*, "one-fourth broader than long"; this is very different from the dimensions noted in *ampla*, so that the latter, on this account, as

well as its very different habitat, is probably abundantly distinct from *planata*, whether *depressa* is really identical with the latter or not; no accurate description of the remarkable anterior tarsus is given by either author.

Cremastocheilus Knoch.

This is the typical genus and probably also the largest of the tribe; it is wholly confined to subarctic North America. Among the African genera *Scaptobius* Schaum, resembles it most closely, but even here it is merely a question of outline and subsimilarity of the hind thoracic angles, as the sculpture is of an entirely different order. The head in *Cremastocheilus* differs very much from that in any of the preceding genera, the vertex and front being uniformly convex, not at all carinate along the sides and sloping more or less abruptly anteriorly to the reflexed clypeus. The tarsi are varied in form, sometimes very short and compact as in *schaumi*, thence becoming longer, though still compact, as in *westwoodi*, to a rather long and slender form as in *canaliculatus*, or what is termed "ambulatorial" by Horn, though just why the short tarsi of *schaumi* will not admit of ambulatorial progress just as well, is not exactly clear. The anterior tibiae are bi- or tridentate, the latter condition very rare but distinctly developed in *tridens*.

The mentum is deeply concave as a rule, but may be flat, with reflexed posterior edges, this being probably often influenced by sex, since both forms occur occasionally in the same species, as for example in *schaumi*. In certain species, principally eastern, the mentum has a large deep posterior sinus; in others, such as *squamulosus*, this sinus becomes very small though still deep; in others, as *variolosus*, still smaller and at the same time shallower; again, as in *schaumi*, the sinus wholly disappears, leaving a rounded posterior edge and finally, in still other species, such as *knochii*, almost wholly western in habitat, the posterior edge becomes prominently angulate at the middle. It is because of this inconstancy that I am unable to admit the validity, even subgenerically, of the name *Myrmecoconus*—subsequently altered by pen in distributed separata to *Myrmeceicon*—recently proposed by Mr. W. M. Mann (Psyche, XXI, p. 179), to include those species having the mental plate entire and angulate behind. The author definitely stated the type of his new subdivision of the genus, leaving thus no doubt of his

meaning and, if one will but compare *knochi* with the other species, he will observe at once that there is no indication whatever of that difference of general habitus, which, though perhaps sometimes feeble, always accompanies to greater or less degree a valid generic or subgeneric group of species. If Mr. Mann had designated as his type such a species as *planatus*, for instance, which likewise has a posteriorly angulate mentum in common with *knochi*, as also in common with the genera *Psilocnemis* and *Genuchinus*, his name would perforce have had to be adopted as that of a distinct genus, notwithstanding its indecisive characterization.

After careful study of Westwood's descriptions in the "Thesaurus," I am convinced that the synonymy given by Horn is warranted by the literature, though possibly not by all the facts were the types accessible for study. The numerous species of *Cremastocheilus* now in my collection may be known as follows:

- Mentum with a large deep subparallel sinus at base; anterior tibiæ bidentate as usual. 2
 Mentum with a very small, though narrow and parallel notch. 7
 Mentum with a small shallow and sometimes almost completely obsolete triangular or rounded notch. 8
 Mentum entire at base, rounded to prominently angulate; anterior tibiæ sometimes tridentate. 9
 2—Pronotal punctures rather small and very uneven in distribution, a large transverse median area of the surface largely impunctate and having an impression near each side. Body deep black, very strongly shining, the legs black; head deeply, closely and sometimes confluent punctate, the clypeus strongly reflexed, truncate when viewed vertically; prothorax fully two-fifths wider than long, the sides peculiarly straight and parallel, the apical angles convex, the inner cavity large and deep, not extending to the outer edge, the hind angles sharp, defined externally by a moderately deep abrupt sinus; surface rather uneven, glabrous excepting a dense cluster of short thick hairs at each side behind the middle; upper surface of the depressed hind angles finely, densely punctate basally; scutellum with numerous moderate punctures throughout; elytra elongate, distinctly cuneiform, at base fully a third wider than the prothorax, the surface irregular, with two broad feeble longitudinal furrows, coarsely, densely and strongly punctate, the punctures inclosing oval flat opaque areolæ, smaller, deeper and still denser at the sides; hairs short, sparse and coarse; pygidium convex, closely punctate and with short coarse hairs; under surface with shallow, moderate, rather sparse annuli; hind tarsi rather short and compressed, nearly three-fourths as long as the tibiæ. Length 9.3–11.0 mm.; width 4.0–5.1 mm. New Jersey and New York. Nine examples.
harrisi Kirby

- Pronotal punctures larger, closer and almost uniformly distributed, sometimes sparser at base, the surface not strongly impressed medially at the sides. 3
- 3—Hind angles not completely delimited by an oblique impression; pronotal punctures moderately coarse and evenly dense to the basal margin. Body rather elongate, the elytra parallel to very feebly subcuneiform, rather shining, deep black, the erect hairs very short, sparse, moderately coarse, evenly distributed but usually lost on the pronotum, the elytra with a small transverse cretaceous spot at each side behind the middle; head deeply and subconfluently punctate, evenly, feebly convex, very steeply declivous to the abruptly reflexed clypeus, which is truncate from a vertical, evenly arched from an anterior, viewpoint; prothorax barely two-fifths wider than long, larger than in the preceding, subevenly convex, more or less distinctly impressed along the median line, broadly and feebly impressed along the sides, the punctures deep and close-set, not quite so close and rather larger and shallower near the sides; anterior angles with the inner fossa large, cavernous, not extending to the sides, the hind angles but little less than right, sharp, only very moderately retracted and finely, feebly punctate; scutellum with numerous shallow annuli, widely open behind; elytra two-fifths wider than the prothorax, not quite one-half longer than wide, the external angles broadly rounded; surface rather uneven, generally with two broad faint longitudinal impressions and more or less rugose transversely toward the suture, the shallow opaculate areolæ very elongate, rather close-set, becoming smaller, rounder, deeper and sparser on the upper part of the flanks as usual; pygidium strongly, subevenly convex, with rather small and close-set punctures and minute erect coarse hairs; hind tarsi more slender than in *harrisi* and almost as long as the tibiæ (♂), shorter (♀). Length 10.0–12.4 mm.; width 4.7–6.0 mm. Massachusetts (Framingham) to North Carolina (Asheville). [*Crem. hentzi* Harris]. *canaliculatus* Kirby
- Hind angles completely delimited by an oblique impression. 4
- 4—Hind angles moderately retracted. 5
- Hind angles conspicuously retracted. 6
- 5—Body shorter, smaller and more oblong, than in *canaliculatus*, the pronotal punctures very much coarser, the sparse erect hairs much longer, moderately coarse; elytra sometimes with a small cretaceous spot near each side behind the middle, usually indistinct however; head coarsely, irregularly punctate, the abruptly reflexed clypeus usually with fine punctulation; prothorax short, three-fifths wider than long, feebly impressed along the median line, very feebly impressed along each side behind the subimpunctate swelling just behind the cavity within the anterior angles, which are narrower and less continuous with the sides than in the preceding, the hind angles finely punctulate, much depressed below the general level, the depression abrupt; sides converging anteriorly from behind the middle; scutellum with few to many coarse opaque areolæ; elytra more or less uneven and subrugose, the large elongate-oval opaque areolæ rather close-set, becoming smaller and deeper but still coarse later-

ally; pygidium convex, with coarse, shallow but impressed, well separated areolæ, the apex more shining and with a transversely oval pit, deep to evanescent; hind tarsi moderately compressed, slightly shorter than the tibiæ. Length 8.2–10.5 mm.; width 4.0–5.1 mm. New York to North Carolina. Common. [*Crem. lecontei* Westw.].....**castaneæ** Knöch

Body nearly as in *castaneæ* but somewhat smaller and narrower, the sparse vestiture very short, moderately coarse, the elytra without lateral cretaceous spot in the type; head nearly similar; prothorax smaller in size, one-half wider than long, almost similar in form and in the coarse sculpture, except that the punctures are more close-set, the basal angles more acute and more densely punctulate, but otherwise almost similarly formed; scutellum and elytra nearly similar in general characters, but with the sculpture of the latter much coarser and more rugose; pygidium with smaller areolæ, the apical impression obsolete; legs almost as in *castaneæ*, the hind tarsi nearly as long as the tibiæ. Length 8.7 mm.; width 4.2 mm. Manitoba (Aweme), —Cridle.....**pocularis** n. sp.

Body somewhat as in *castaneæ* in form and size but with the prothorax more nearly as in *retractus*, except that the hind angles are less retracted, being scarcely more so than in *castaneæ*, the punctures much smaller than in that species and nearly as in *retractus* and, as in the latter species, becoming notably shallower and sparse basally; head deeply, subconfluently punctate, the abruptly reflexed clypeus broadly sinuate when viewed vertically, arched as usual viewed anteriorly; emargination of the mentum not so large as in *castaneæ*, deeper and relatively narrower than in *retractus*; prothorax in form and in the nature of the apical and basal angles almost exactly as in *castaneæ*, but not quite so short, with much less coarse and more close-set punctures, bearing each, not a long erect hair, but an extremely short broad scale-like hair, the nodule of the apical angles larger and more elongate, that of the hind angles similarly depressed but more rectangular; scutellum with shallow foveæ, sparse apically; elytra nearly as in *castaneæ* but with the areolæ less elongate and bearing very small erect hairs; pygidium convex, flattened and smooth at apex, having coarse uneven separated punctures, which, basally, become very fine, each bearing a minute hair; hind tarsi compressed, not quite as long as the tibiæ, each joint with a basal impression on the outer side. Length 10.0 mm.; width 4.5 mm. Iowa (locality unrecorded). A single specimen. . **brevisetosus** n. sp.

6—Legs and entire body deep black, dull above, shining beneath; vestiture rather abundant, moderately long, erect, very coarse, the hairs thick at their bases, becoming sharply pointed apically; head deeply and closely punctate, shining, the strongly reflexed and broadly sinuate clypeus polished and sculptureless; prothorax one-half wider than long, the sides abruptly transverse near basal third to the bottom of the deep sinus bounding the sharp depressed hind angles externally, feebly arcuate and slightly converging thence unbrokenly to the apex of the apical processes, which are bounded internally by large deep cavities having, as usual, a dense tuft of short setæ on

each of its side walls; surface opaculate, the punctures strong and rather close-set but much less coarse than in *castaneæ* or *pocularis*, very sparse basally and wanting in a small area just behind the apical cavities; median line barely impressed; scutellum with rather small feeble areolæ, wanting near the sides; elytra not quite one-half longer than wide, very feebly cuneiform, about a fourth wider than the prothorax, the surface with two very faint longitudinal impressed lines, nearly flat on the disk and subopaque, shining and with deeper punctures laterally, the shallow areolæ elongate-oval, open behind; pygidium convex, opaque, with moderate shallow punctures, gradually smaller basally, each bearing a distinct coarse hair, the surface at apex smooth and polished; hind tarsi moderately slender and compressed, barely three-fourths as long as the tibiæ, the basal external impression of each joint smaller and more sharply defined than in *brevisetosus*. Length 10.9 mm.; width 5.5 mm. Iowa (Keokuk). Texas—LeConte. A single specimen. [*Crem. walshi* Westw.].....**retractus** Lec.

Legs rufous or rufo-piceous; elytral foveolæ very much smaller than in any of the preceding species; body more slender, never very deep black, shining above, polished beneath; body blackish-piceous, the apical parts of the head and the apical and basal thoracic angles rufescent; erect hairs sparse, very short, attenuated from their bases; head with rather fine, irregularly sparse punctures, the clypeus strongly reflexed, sinuato-truncate, the apical inferior inflexed surface smooth; mental notch as in *castaneæ*; prothorax slightly less than one-half wider than long, the sides from the long oblique straight line limiting the hind angles nearly straight and feebly or scarcely at all converging to the rounded apex of the anterior processes, the internal cavities adjoining which are deep and large; hind angles piceo-rufous, acute, with arcuate external outline, much retracted and depressed below the general level; punctures only moderately large, not very deep or dense and somewhat unevenly distributed, sparse basally and coarser, though rather less well defined, laterally; scutellum with moderate areolæ, wanting toward the sides; elytra subparallel but with rather prominent humeri and broadly rounded external angles at apex, nearly one-half longer than wide and distinctly wider than the prothorax, the longitudinal impressed lines almost obsolete; surface feebly and vaguely subrugulose, the areolæ well separated, small and very narrow, the flanks with very moderate or rather small, deep and rounded punctures; pygidium convex, rather closely, moderately punctate, the apical part more sparsely punctate but not impressed; hind tarsi strongly compressed, slender on the edges, distinctly shorter than the tibiæ. Length 8.3–10.7 mm.; width 4.0–5.1 mm. Colorado (Denver and Fort Collins) and Kansas.
incisus n. sp.

7—Body small in size, rather elongate, not very depressed above, shining, black, the punctures of the upper surface bearing each a small erect whitish scale, which is deeply plumose at apex; head evenly convex, closely punctate, more gradually declivous anteriorly than usual, the clypeus abruptly and very strongly reflexed, sinuato-truncate;

prothorax convex, one-half wider than long, the sides arcuate, strongly converging basally to the small smooth polished nodular basal angles, which are thus much retracted, separated by an oblique groove; apical angles smooth and noduliform, the cavities moderate, not extending at all outward; median line feebly impressed; base slightly sinuato-truncate medially; punctures moderate, deep, not dense, rather sparser toward the sides; elytra widest at the rather prominent humeri, a third wider than the prothorax, distinctly elongate, the outer angles very broadly rounded; surface subeven, though slightly rugulose, the areolæ small, elongate and unusually close-set, becoming rather coarse deep dense punctures on the flanks; pygidium very convex, strongly and not densely punctate, sparsely squamose; two teeth of the anterior tibiæ well developed, acute, the hind tarsi not distinctly compressed, rather slender, as long as the tibiæ. Length 8.3–8.5 mm.; width 4.0–4.2 mm. North Carolina (Southern Pines). Florida—LeConte. [*Crem. junior* Westw.]

squamulosus Lec.

8—Form subparallel, rather depressed above, dull in lustre, shining at the sides of the elytra and beneath, deep black, the erect hairs simple and of very moderate length; head coarsely but not deeply, confluent punctate, the clypeus smooth, polished, strongly reflexed and sinuato-truncate; prothorax moderately convex and nearly one-half wider than long, without trace of impressed median line, coarsely, closely areolate, the areolæ shallow and opaque; basal angles very strongly retracted, polished, noduliform and separated by an oblique groove, the apical small, narrow, wholly isolated by a deep groove extending from the cavities to the sides; scutellum with very large shallow opaque areolæ; elytra with larger but less prominent humeri than in the preceding, subparallel, the outer angle broadly rounded, the post-humeral sinus shallow; surface dull, with large elongate-oval and very shallow, still more opaque areolæ, defined by fine but rather shining edges, the flanks with very coarse, deeper, subcontiguous punctures; pygidium strongly convex and dull, with small arcuate shining lines representing the outer sides of shallow areolæ; two teeth of the anterior tibiæ rather large and blunt, the hind tarsi distinctly compressed and much shorter than the tibiæ. Length 8.7–9.0 mm.; width 4.0 mm. North Carolina (Southern Pines),—Manee. Middle States—Horn. [*Crem. sayi* Harris and *cicatricosus* and *percheroni* Westw.]

variolosus Kirby

9—Posterior angles of the prothorax small, pointed, noduliform, greatly retracted and separated by a deep oblique groove. Body moderately slender, somewhat convex, very highly polished throughout, deep black, the elytra sometimes partially rufescent; erect hairs very short, sparse, sharply pointed; head evenly convex, deeply and densely punctate, rapidly declivous anteriorly to the strongly reflexed and broadly sinuate clypeus, which is finely, feebly and sparsely punctulate; prothorax convex, declivo-impressed basally, without an impressed median line, the punctures moderate in size, sparse, deeply impressed, with a large lateral space more or less impunctate; apical angles noduliform, the cavities not extending outward;

- scutellum with numerous small and some larger shallow foveolæ; elytra elongate, nearly one-half longer than wide, very feebly narrowed from the slightly prominent humeri, the external apical angles very broadly rounded; surface not in the least bilineate, but with the very small flat areolæ at the bottoms of coarse, sparse and deeply impressed punctures, in a manner differing from any other species, rendering the general surface decidedly rugose; punctures on the flanks of the same nature but much smaller; pygidium evenly convex, with deep sparse moderate punctures; two teeth of the anterior tibiæ well developed, the hind tarsi strongly compressed but long, slender on the edge, as long as the tibiæ. Length 10.0-10.8 mm.; width 4.2-4.7 mm. Kansas and Nebraska.....*nitens* Lec.
- Posterior angles of the prothorax not or but very slightly retracted, though well differentiated from the general surface by an oblique impression; anterior tibiæ always bidentate as usual.....10
- Posterior angles small, slightly projecting from the lateral part of the base, but not defined by an oblique impression; body generally of larger size, with more even, less depressed and more feebly sculptured elytra, the hind tarsi notably short, strongly compressed and compact as a rule. Southern California and neighboring parts of Arizona..22
- 10—Smooth hind angles notably large in size and reflexed.....11
- Smooth hind angles small in size and not reflexed in plane.....19
- 11—Clypeus carinate medially. Body oblong, parallel, deep black, feebly shining, the legs and under surface polished; erect pubescence sparse, fulvo-cinereous and only moderately long; head strongly, densely punctate, the punctures polygonally crowded, the surface flat, rather abruptly declivous anteriorly along a horizontally angulate line, the steep slope finely, feebly punctulate, the clypeus strongly reflexed, sinuato-truncate, barely as wide as the head, the carina fine but distinct, entire; mentum concave, evenly rounded, without trace of lateral sinus, the entire posterior edge forming an even angle with straight sides; prothorax large, two-fifths wider than long, with evenly rounded, anteriorly slightly more converging, sides, the apical cavities not at all tending to lateral extension; hind angles bordered internally by a small deep basal sinus, the base truncate; surface subevenly and feebly convex, with coarse, close-set, feebly impressed flat areolæ, coarser and polygonally crowded toward the sides, each bearing a very coarse short erect hair; scutellum with numerous large rounded areolæ; elytra more than two-fifths longer than wide, just visibly narrowed from the base and a fourth wider than the prothorax, the humeri scarcely at all prominent laterally, the apical angles broadly rounded; surface very depressed and flat on the disk, abruptly nearly vertical at the sides along a feebly tumid line, the areolæ rather close-set, large, flat, oval, shallow, very opaque black and, though only feebly impressed, thus giving a coarsely cribrate effect, the punctures coarse, deep and crowded at the sides; pygidium opaque, shining at apex, coarsely variolate; two anterior tibial teeth well developed, the hind tarsi strongly compressed, three-fourths as long as the tibiæ, the joints not impressed basally on their

outer faces; hind femora with very sparse larger and small punctures. Length 10.7 mm.; width 5.1 mm. California (Pasadena),—Fenyès. *cribripennis* n. sp.

Clypeus without distinct medial carina, though sometimes vestigially carinate. 12

- 12—Upper surface with very long erect hairs, which are not very coarse but conspicuous as in *crenatus*. Body deep black, dull above, shining beneath; elytra having numerous fine, transversely sinuous or broken short lines of white or yellowish tomentum throughout the surface, with a very large and conspicuous patch at the base of each elytron; head feebly convex, with dense coarse crowded punctures, becoming fine and close at base, not very abruptly declivous anteriorly, the clypeus strongly reflexed, broadly sinuate medially, finely, asperately punctulate laterally; mentum deeply concave and as in the preceding; prothorax as in *angularis* throughout but less transverse, the coarse punctures deeper, the lobes of the apical angles longer and the large shining hind angles more reflexed, the hairs much longer and less coarse; scutellum with numerous coarse opaque foveolæ; elytra evidently shorter than in *angularis*, two-fifths longer than wide, subparallel, the humeri and angles as in the preceding; surface much less flattened on the disk, the upper part of the flanks joining the discal part in a broadly convex, even and wholly non-tumid line; areolæ large, broadly oval, not very close-set, flat, of a densely opaque black and rather deeply sunken, giving a strongly cribrate appearance, wholly unlike that of *angularis* but somewhat as in *cribripennis*, the sculpture of the flanks differing hardly at all from that of the disk, a character observable also in *angularis* and *maritimus*; pygidium transversely oval, convex, with sparse opaque black areolæ; anterior tibiæ with the two teeth large, long and acute; hind tarsi compressed, evidently shorter than the tibiæ. Length 10.5–12.8 mm.; width 4.6–5.65 mm. Oregon (Corvallis, Dilley and Forest Grove); northern California—Horn; Vancouver—Walker. [*Crem. pilosicollis* Horn]

armatus Walk.

Upper surface with the sparse erect hairs in no case at all long and always inconspicuous. 13

- 13—Hind tarsi compressed but unusually long, fully as long as the tibiæ; elytral foveolæ rounded, entire, rather deeply impressed and conspicuous, giving a cribrate appearance. Body deep black, feebly shining above, polished beneath; head with strong opaque confluent punctures, smaller and discrete at base, feebly convex, not abruptly declivous anteriorly to the strongly reflexed truncate clypeus, the punctures of the front descending the slope in not much reduced form; sides of the upper surface above the eyes abruptly defined; prothorax large, nearly as in *angularis* but with the coarse close-set areolæ more impressed and with a very much deeper sinus at base just within each of the large shining hind angles, the latter therefore more nodiform, the impunctate basal margin narrower; scutellum with dense deep foveolæ, wanting along the sides; elytra less flattened on the disk than in *angularis*, the transition to the flanks being through a more broadly convex surface, subparallel, two-fifths longer than

wide, only a fifth or sixth wider than the prothorax, rarely having each a small broken transverse spot of tomentum at the side behind the middle; pygidium moderately convex, with rather large close-set deep opaque areolæ of circular to polygonal outline; sterna, femora and sides of the abdomen with coarse deep opaque foveolæ, densely crowded on the met-episterna, the sparse erect hairs extremely short; two anterior tibial teeth acute and well developed. Length 11.4–13.0 mm.; width 5.2–6.0 mm. California (San Francisco). Abundant.....

maritimus n. sp.

Hind tarsi much shorter than the tibiæ in both sexes, generally distinctly and sometimes very strongly compressed..... 14

14—Pronotum peculiarly sculptured, the punctures large, shallow, very densely opaque and extremely densely crowded, those of the head of the same character but not so coarse; each puncture has the minute puncture at its apex, bearing the erect hair, very distinct. Body rather elongate, black, the elytra slightly, the under surface strongly, shining; erect hairs extremely small, very coarse and fulvous; head nearly flat above, rather abruptly declivous anteriorly, the upper limit of the slope slightly and very obtusely tumid laterally; clypeus very strongly reflexed, as wide as the head as usual; prothorax fully one-half wider than long, the sides parallel, subevenly and strongly arcuate from the extreme basal to the apical tips of the angles, rather more converging apically than basally, the apical angles unusually oblique along the cavities, the basal acute at tip but much thickened, the outer aspect being rather broadly convex; transversely, they are separated from the median parts of the base, which is punctureless as usual, by a rather deep, evenly rounded sinus; scutellum with very shallow areolæ, the median line finely callous posteriorly; elytra very feebly cuneiform, one-half longer than wide, rather more than a fourth wider than the prothorax, very flat and with large, elongate-oval and very shallow opaque areolæ on the disk, rather abruptly vertical and more strongly and closely but less coarsely punctate at the sides; pygidium with large, very opaque and dense areolæ, smooth and sparsely punctulate at apex; hind tarsi two-thirds as long as the tibiæ, only moderately compressed and scarcely at all tapering, the last joint nearly one-half longer than the fourth. Length 12.0 mm.; width 5.4 mm. California (Humboldt Co.).

A single example..... *densicollis* n. sp.

Pronotum with better defined, more discrete and generally deeper punctuation as in *angularis*..... 15

15—Pronotum with a broad oblique area at each side, from near the apical angles to each side at base, in which the punctures are nearly wanting and coarser than those of the remainder of the surface; elytra with larger and smaller foveolæ intermingled. Body rather narrow, deep black, slightly shining above, polished beneath; erect hairs very small, sparse, coarse; head with dense larger and smaller punctures intermingled, flat above, the apical slope rather abrupt, its upper limit only feebly tumid at the sides however, the very strongly reflexed clypeus broadly sinuate medially; prothorax scarcely one-half wider than long, the parallel sides only feebly

arcuate, straighter and rather more oblique along the outer side of the large basal angles, the apical angles as in the preceding; surface rather depressed, sometimes with a very obsolete median impressed line, the punctures generally not very coarse, close-set except as above stated; scutellum with coarse, dense, extremely shallow areolæ; elytra a fourth wider than the prothorax, moderately elongate, with very broadly rounded apical angles, the humeri rather small and slightly prominent laterally; surface not quite flat and not very abruptly descending at the sides, the opaque areolæ only moderate to small in size, rather elongate and well separated, more even on the broader elytra of the female; pygidium strongly convex, with large rounded flat opaque areolæ, which are well separated and slightly impressed, the apical part polished and sparsely punctulate as usual; hind tarsi two-thirds as long as the tibiæ, only moderately compressed and slightly though evidently tapering, the last joint nearly one-half longer than the fourth, the bidentate anterior tibiæ as usual in the *angularis* section. Length 10.5–11.2 mm.; width 4.7–5.1 mm. Washington State (Pullman),—W. M. Mann. Found in the nests of a large pale brown ant, having the abdomen inflated and dark piceous in color. *obliquus* n. sp.

- Pronotum evenly punctate; elytral areolæ subeven in size. 16
- 16—Hind tarsi evidently tapering, strongly compressed and about two-thirds to nearly three-fourths as long as the tibiæ, but not compact in structure and with the second joint always distinctly longer than wide. 17
- Hind tarsi very short, though more than half as long as the tibiæ, strongly tapering, extremely compressed and rather compact, the second joint scarcely as long as wide. 18
- 17—Hind tarsi moderately slender, somewhat tapering on the flat side, strongly compressed, two-thirds as long as the tibiæ and with the joints much less elongate than in *armatus*, the second only a fourth longer than wide; body narrower and slightly more elongate than in *armatus*, similar in color, but with shorter erect hair; head and clypeus similar, the latter rather less abruptly but strongly reflexed; prothorax broader, fully one-half wider than long, the parallel sides more evenly arcuate, widest at about the middle, the surface and apical and basal angles nearly similar; scutellum almost similar but with the foveolæ less coarse and usually a little deeper; elytra distinctly more elongate, rather more than one-half longer than wide, subparallel or very feebly cuneiform, the surface almost as in *armatus* but with the somewhat flatter disk more abruptly declivous at the sides, the foveolæ similar but not quite so large, usually close-set, smaller, deep and well separated to rather dense along the sides; pygidium dull, with large opaque areolæ, becoming shining and sparsely punctulate apically; anterior tibiæ and moderately variolate under surface nearly similar; elytra with small irregular tomentose spots and one more conspicuous and transverse at the sides behind the middle as usual in this section, the spots generally visible only when the surface is free from exuded grease. Length 10.0–12.0 mm.; width 4.6–5.2 mm. California (Placer—the type locality,—El

Dorado, Shasta and Del Norte Cos.) and Oregon (Josephine Co.). Many examples; that from Josephine Co. is more coarsely and densely sculptured than those from the Sierras and has a slightly different appearance but identical tarsi. *montanus* n. sp.

Hind tarsi nearly as in *montanus*, the body a little larger in size and with a less transverse, laterally less rounded prothorax, which is relatively narrower when compared with the elytra, the latter nearly similar but not so narrow and differing especially in having the opaque areolæ more separated, rather narrower and extremely shallow, not at all impressed, gradually smaller and shorter but still very shallow on the flanks; pygidium nearly similar but with the areolæ extremely shallow and smaller in size; anterior tibiæ with the two teeth short, obtuse and rectilinearly truncated, evenly and equally so on each of the four anterior tibiæ of the two examples, the apical tooth less prominent than the others; hind tarsi partially broken in the types but with the first three joints almost exactly as in *montanus*, the second joint a fourth longer than wide. Length 11.5–12.2 mm.; width 5.0–5.3 mm. Washington State. Two specimens.

congener n. sp.

18—Body larger and stouter than in any other of this section, excepting *maritimus*, and differing very radically from that in its very short compact tarsi; color deep black, dull above, polished beneath, the erect hairs sparse, rather short and not conspicuous; elytra with some small and more or less transverse spots of tomentum, principally along the sides and a larger, more yellowish patch at base as in *armatus*; head not quite flat above, the punctures rather coarse, opaque and very densely crowded, the anterior slope not sharply defined at the summit, the clypeus very strongly reflexed; prothorax not quite one-half wider than long, parallel, with moderately and evenly rounded sides from apex to base, widest at about the middle, the basal angles large, convex, smooth, slightly reflexed, separated by a distinct oblique impression from the disk and, from the base, by a moderately deep sinus; punctures coarse but shallow, opaque and close-set, densely crowded and rather coarser at the sides; anterior angles defined internally by the usual cavities but not quite so long as in some of the allied species; scutellum with a very variable number of coarse opaque areolæ; elytra fully one-half longer than wide, subparallel, a fifth wider than the prothorax, flat and sometimes with traces of the two or three broad shallow lines of *knocchi* on the disk, the opaque areolæ very shallow, narrow and elongate, widely separated and open behind, the flanks rather rapidly declivous and subprominently defined, with smaller and deep punctures; pygidium with large shallow opaque areolæ, shining and sparsely punctulate apically as usual; hind tarsi very rapidly tapering on the flat side and barely three-fifths as long as the tibiæ, without sexual differences so far as observable. Length 11.8–13.2 mm.; width 5.6–6.0 mm. California (Alameda and Contra Costa Cos.). Sacramento—LeConte. Not very common. Five examples.

angularis Lec.

Body smaller and more slender than in *angularis* but similar in coloration,

lustre and sculpture, the elytra with similar small lateral and larger basal tomentose areas and the erect hairs sparse and rather short; head differing in being more flattened above, this surface feebly tumid along the middle and broadly, just visibly impressed at each side, the punctures smaller, deeper and, though confusedly dense, more discrete than in *angularis*; anterior slope rather abrupt, its upper limit evident, though not at all sharply marked, the clypeus strongly reflexed and broadly, deeply sinuate anteriorly; prothorax narrower, only two-fifths wider than long, parallel, evenly and strongly arcuate at the sides, widest at the middle, rather more convex than in *angularis*, feebly impressed along the middle, the punctures nearly similar, but not so coarse and rather deeper, the angles nearly similar; scutellum with large areolæ, almost smooth apically; elytra nearly as in *angularis* but narrower; pygidium evenly and strongly convex, with the usual coarse and very shallow areolæ; hind tarsi but little more than half as long as the tibiæ, extremely compressed and tapering on the flat side, which, on the second joint, is twice as wide as thick. Length 11.3–11.7 mm.; width 5.2–5.6 mm. California (Kaweah).—Hopping. Two examples.

compressipes n. sp.

- 19—Legs rufous, rather long, posterior spiracles more conspicuously prominent than in any other species. Body elongate, subrhombiform, strongly depressed, black, moderately shining above, more so beneath, the sparse erect hairs rather long but less so than in *armatus*, *pugetanus* or *crinitus* and much less conspicuous; head obscure rufous anteriorly, opaculate, the punctures small and well separated; upper surface nearly flat, distinctly impressed at each side over the antennæ, the steep anterior slope rather abruptly defined in a transversely arcuate line, which is broadly, feebly tumid; clypeus rather wider than the head as in *crinitus*, very strongly reflexed; prothorax fully one-half wider than long, rather depressed, feebly impressed along the median line, slightly widest just behind the middle, the sides feebly arcuate; foveolæ rather coarse and deep but widely separated; scutellum with numerous moderate, very shallow areolæ; elytra very flat, distinctly cuneiform, a third to two-fifths wider than the prothorax and nearly three-fifths longer than wide; disk with broad and feebly impressed longitudinal lines as in *knocchi*, the areolæ numerous, large, very elongate-oval, closed behind, not impressed and densely opaque, the flanks abruptly descending but with the upper line not tumid, deeply punctured, having each a small spot of tomentum behind the middle; pygidium with coarse impressed foveolæ; two anterior tibial teeth well developed; hind tarsi rather slender, not tapering, moderately compressed and four-fifths as long as the tibiæ; under surface with well separated coarse foveolæ throughout, less coarse on the abdomen as usual. Length 10.8–13.3 mm.; width 4.8–5.9 mm. Arizona (Santa Rita and Huachuca Mts.).

mexicanus Schaum

- Legs black; posterior spiracles moderately prominent. 20
20—Clypeus rather conspicuously expanded but obtuse laterally and somewhat wider than the head across the eyes, nearly as in *mexicanus*.

Body oblong, very depressed, black, opaculate above, shining beneath; erect hairs of the upper surface rather sparse but very long and conspicuous, cinereous, about a fifth as long as the width of the prothorax, rather easily broken or removed; head opaculate, with rather small, deep and close but discrete punctures, flat above, deeply impressed at each side over the antennæ, the anterior slope steep and abrupt, its upper line well defined, the surface slightly prominent longitudinally at the middle but not on the very strongly reflexed clypeus; prothorax depressed, one-half wider than long, widest perhaps somewhat behind the middle, the sides feebly arcuate, slightly sinuate at the hind angles; surface distinctly impressed along the median line, having coarse, moderately deep, well separated punctures; basal smooth angles very moderate, the oblique line separating them from the general surface scarcely at all impressed or otherwise traceable, except by contrast of lustre; elytra scarcely one-half longer than wide, very feebly cuneiform, only a fourth or fifth wider than the prothorax, the disk very flat, with the longitudinal impressed lines of *knocchi*, the areolæ opaque, moderate in size, broadly oval, not dense, very shallow and completely closed behind or entire in outline; flanks abruptly descending but without tumid upper line, coarsely, deeply and densely punctate; pygidium convex and with the usual areolæ; hind tarsi compressed but not tapering, three-fourths as long as the tibiæ. Length 10.8–12.0 mm.; width 4.5–5.2 mm. New Mexico (Magdalena) and Texas. Four examples. *crinitus* Lec.

Clypeus no wider than the front, strongly reflexed as usual. 21

21—Body somewhat as in *crinitus* and strongly depressed but a little larger and stouter, deep black, rather more shining above than in *crinitus*, the sparse erect hairs almost similar, not quite so long but conspicuous, longer and shorter intermingled and easily lost or broken; head not so flat above, with stronger, deeper, very close-set punctures and but very slightly impressed at the sides, the anterior slope very steep, rather abruptly but not prominently delimited along a transversely arcuate, strongly convex line, which is much less abruptly defined than in *knocchi*; prothorax nearly similar in form, somewhat convex, feebly impressed along the median line, generally widest evidently behind the middle and with coarse, rather deep and well separated punctures; basal angles rather more depressed below the general surface than in *crinitus*; scutellum with few areolæ; elytra subparallel, broader than in the preceding, a third to fourth wider than the prothorax, much longer than wide, the longitudinal impressed lines very feeble and indefinite, the disk nearly flat, the opaque areolæ and abruptly deflexed, punctate flanks nearly as in the preceding; opaque pygidium with well separated areolæ, polished and sparsely punctulate apically; hind tarsi nearly similar. Length 9.7–13.0 mm.; width 4.2–5.7 mm. Washington State, Idaho (Coeur d'Alene) and Utah. Abundant. *pugetanus* n. sp.

Body smaller, narrower and less depressed, black or piceous-black, slightly shining above, more so beneath, the sparse erect hairs always very small and inconspicuous; head strongly flattened above, with

rather small, deep and narrowly separated punctures, the flattened area obliquely impressed at each side within the tumid margins, which continue distinct arcuately across the front at the summit of the steep declivity, the clypeus strongly reflexed, sometimes with trace of a faint median carina; prothorax evidently less than one-half wider than long, rather convex, feebly impressed along the median line, parallel, widest at about the middle, the sides strongly rounded, feebly sinuate just before the basal angles, which are small, tumid and abruptly below the general level; punctures rather coarse, moderately deep, well separated, coarser and crowded near the sides; elytra fully one-half longer than wide, only a fourth or fifth wider than the prothorax, feebly convex, with a few evident broad, feebly impressed, longitudinal lines, the areolæ not impressed, opaque, entire, moderate in size, elongate-oval and well separated, the flanks not very abruptly descending and with small, slightly deeper and distinctly separated punctures; pygidium convex, with widely separated and rather small shallow areolæ, generally even but with vestiges of a median carina in one example from Colorado; anterior tibiæ with the two teeth large and thick, sometimes with a swelling above the upper tooth, suggesting a feeble and very obtuse third tooth; hind tarsi two-thirds as long as the tibiæ, compressed, the second and third joints on the flat side not quite one-half longer than wide. Length 9.8–11.8 mm.; width 4.3–5.2 mm. New Mexico, Kansas (Manhattan), Colorado (Fort Collins), Manitoba (Aweme), and eastward to Illinois and Wisconsin. Common. [*Crem. crenicollis* Westw.].....**knochii** Lec.

- A—Similar but rather smaller, the sparse hairs excessively minute; head similar but with the punctures still finer, becoming sparse toward the well defined summit of the anterior slope, the oblique lateral impressions as in *knochii*; prothorax nearly similar, except that the punctures are smaller, shallower and sparser; anterior angles similar, smaller than in the other species; elytra similar, except that the areolæ are smaller, sparser and tend more nearly to aggregation in three broad lines on each elytron; pygidium very convex, with small sparse areolæ; anterior tibiæ more slender, without trace of an upper external swelling; hind tarsi longer, three-fourths as long as the tibiæ, very slender, the second and third joints on the wider side fully twice as long as wide. Length 10.2 mm.; width 4.3 mm. Kansas (Wheeler, Cheyenne Co.). One example.....**gracilipes** n. subsp.
- B—Similar to *knochii* but shorter, the hind tarsi as in that species, the anterior tibiæ nearly similar but without trace of external swelling above the teeth; head similar but with the upper surface broadly impressed in transverse oval, which gradually becomes more impressed laterally, the punctures becoming shallow, ill-defined, with scabriculate surface in these large lateral impressions, the summit of the steep declivity more narrowly and sharply tumid than in any other species; prothorax similar but with the punctures very shallow and variolate; elytra much shorter, barely over two-fifths longer than wide, otherwise nearly as in *knochii*, except that the

areolæ are larger and closer, sometimes confluent, entire. Length 10.5 mm.; width 4.7 mm. A single example, without indication of locality, from the Levette collection; this specimen is uniformly dark red-brown in color throughout, possibly from immaturity.

- areolatus n. subsp.
- 22—Prothorax widest at or slightly behind the middle; pronotal punctures not coarser medially; erect hairs always setiform.....23
- Prothorax widest at the hind angles, which are not at all retracted, the pronotal punctures coarser medially, the coarse erect hairs there becoming squamiform.....27
- 23—Anterior tibiæ bidentate as usual, the teeth very obtuse, sometimes worn completely off in old examples.....24
- Anterior tibiæ slender, distinctly tridentate externally, the upper tooth more than half as long as the next and equally well defined.....26
- 24—Anterior tibiæ very short and broad, less than twice as long as wide, the two external teeth large, triangular; basal thoracic angles very small, feeble and obtuse, projecting about midway on the broadly arcuate edge joining the transversely truncate median part of the base with the sides at slightly behind basal third. Body elongate and rather narrow, very evenly, feebly convex above, the sides of the elytra broadly convex, becoming gradually steeply declivous to the lateral edge, deep black throughout, rather dull above, shining beneath, the upper surface without trace of erect hairs, the parapleura with short sparse stiff hairs; head densely, not coarsely punctate, feebly convex, very gradually declivous anteriorly, slightly tumid along the middle of the slope, the clypeus strongly reflexed, punctulate throughout; prothorax less than one-half wider than long, widest near basal third or fourth, the sides thence slightly converging and broadly, evenly arcuate to the apex of the apical processes, the latter well defined by the internal deep cavities, which have a tuft of fulvous hairs, borne from the inner side of the process; surface feebly convex, broadly and feebly impressed along the middle; punctures close, moderate and rather shallow, crescentiform laterally, smaller and densely crowded apically and along the feeble median impression; scutellum with small crescentic punctures, wanting broadly toward the sides; elytra fully three-fifths longer than wide, parallel and not wider than the prothorax, the punctures numerous, rather deep and in the form of acute incised angles or ovals, widely open behind, smaller, rounded and shallow on the flanks; pygidium evenly convex, very densely and rather strongly punctulato-reticulate; legs short and very strongly compressed, broad on the flat side, the hind tarsi rather slender, not very compressed and rather more than half as long as the tibiæ. Length 13.8 mm.; width 5.35 mm. Arizona,—G. W. Dunn.....*tibialis* n. sp.
- Anterior tibiæ less dilated and longer, always more than twice as long as wide, the two teeth never sharply defined and sometimes completely worn away; basal thoracic angles larger, sharp and right or less, more lateral than in *tibialis*, never abruptly retracted.....25
- 25—Body stout and massive, large in size, oblong, subparallel, black, the upper surface opaque, the lower shining; erect hairs rather long,

fulvous and conspicuous, abundant on the pronotum; head feebly convex, with rather small, dense punctures, the anterior slope long, rather gradual, the upper part somewhat tumid medially, the clypeal apex abruptly and strongly reflexed; prothorax large, fully one-half wider than long, evenly and feebly convex, widest at or slightly behind the middle, the sides rather strongly arcuate, the apical processes narrow, moderate in length, the cavities deep, with pubescent tuft as in the preceding; punctures rather coarse, close, still coarser and crowded laterally; elytra subparallel but with rather large subprominent humeri, fully one-half longer than wide and a fifth wider than the prothorax, the disk nearly even, not quite flat, rather abruptly declivous laterally, the flanks vertical; areolæ not impressed, well separated, very elongate and narrow, generally sharply pointed and always open behind, shorter, close, more punctiform but shallow on the flanks; surface with numerous small spots of white tomentum, usually transversely arranged; pygidium closely but not very coarsely, shallowly areolate; legs strongly compressed, the hind femora and tibiæ closely, coarsely asperate on the broad flat sides, the hind tarsi only slightly compressed but very compact, rapidly tapering and shorter than in any other species, being less than half as long as the tibiæ. Length 13.0-15.0 mm.; width 5.9-6.6 mm. Southern California. Abundant. [*Crem. crassipes* Westw.]

schaumi Lec.

Body not quite so stout but otherwise very similar to that of *schaumi* in color, lustre and sculpture, the erect hairs, however, very short and inconspicuous, easily lost; head almost exactly similar throughout; prothorax not so short, distinctly less than one-half wider than long, widest evidently behind the middle, the sides broadly, very evenly arcuate, gradually converging anteriorly, the apical and basal angles similar, the punctures dense, rather coarse but notably shallow; scutellum similar and with numerous foveolæ, the apex finely carinate; elytra almost exactly as in *schaumi*, except that the humeri are laterally less prominent, the small tomentose spots wanting and the very shallow narrow elongate and apically acute areolæ much denser; pygidium evenly and strongly convex, with small and rather close-set, very shallow rounded areolæ; femora and tibiæ strongly compressed but not quite so wide as in *schaumi*, with the flat surfaces not acutely asperulate but with obliquely waving, feebly ruguliform sculpture, the hind tarsi differing greatly, not so compact, more slender, less tapering, similarly moderately compressed but fully two-thirds as long as the tibiæ. Length 12.2-14.0 mm.; width 5.2-6.0 mm. Southern California (Freeman). [*Cremast-schaumi* Westw. nec Lec.].....*westwoodi* Horn

26—Form rather slender, much smaller than the preceding species, black, slightly shining above, more so beneath, the erect hairs coarse, rather short but very distinct, fulvous in color; head as in the two preceding species, having small dense punctures, but with the median line of the anterior slope slightly tumid to the base of the abruptly and strongly reflexed clypeal apex; prothorax two-fifths wider than long, with the sides subevenly, rather strongly arcuate, widest at or

just behind the middle, the apical processes shorter and more slender, the adjoining cavities more gradually shallowing internally than in either of the preceding species, the basal angles as in *schaumi*; punctures shallow, variolate, close-set, generally tending to unite longitudinally, forming a peculiar rugulosity, coarse and somewhat irregularly confluent toward the sides; surface evenly and feebly convex, not evidently impressed along the middle, the close sculpture extending to the basal margin; scutellum shorter than usual, with feeble areolæ, carinulate apically; elytra rather shining, without tomentose spots, fully one-half longer than wide, a fifth wider than the prothorax, subparallel, the humeri rather prominent laterally; surface subeven, not quite flat, rather gradually flexed downward at the sides, with close-set, elongate, posteriorly open areolæ, the side lines of which are unusually deeply incised, the punctures of the flanks small, rounded, shallow and rather close; pygidium very convex, with the usual small shallow areolæ; legs rather slender, the femora evidently compressed, the tibiæ slender and scarcely at all compressed, feebly and irregularly but closely punctato-rugulose; hind tarsi slender, not tapering, distinctly compressed, three-fourths as long as the tibiæ. Length 10.8–11.4 mm.; width 4.5–4.9 mm, Southern California. Two specimens..... *tridens* n. sp.

- 27—Form moderately slender, somewhat as in *westwoodi*, the pygidium more coarsely punctate, the tibiæ less stout, the front tarsi shorter and the mentum more deeply concave, black, subopaque above and with short, very sparse brownish erect hairs, which become, medially on the pronotum, distinctly squamiform and from two to three times as long as wide; mentum concave, with entire margins; head as in *schaumi*; prothorax nearly one-half wider than long, widest across the the hind angles, which are not at all retracted, the sides very broadly and just visibly sinuate before them, arcuately narrowed anteriorly, the apex three-fifths as wide as the base; apical angles with the usual attendant cavity, the hind angles right, triangularly smooth above and not defined by an impressed line; surface broadly convex, the median line impressed, the punctures coarse and shallow, dense at the sides, well separated and coarser toward the middle; elytra moderately flattened, rather more so than in *westwoodi*, the sculpture as in that species; pygidium coarsely cribrate; under surface coarsely, moderately closely punctate; tibiæ distinctly less broad than in *westwoodi*; front tarsi short, the intermediate subequal in length to the tibiæ, the posterior a little shorter than the tibiæ; all the tarsal joints are concavely compressed, more strongly so basally, so that when viewed from above they appear much narrower at base and in a very peculiar manner. Length 12.5–14.0 mm.; width 5.0–5.8 mm. Arizona (Fort Mojave, on the Colorado River). Three examples, *quadratus* Fall

There appears to be scarcely any doubt that *lecontei*, *walshi*, *junior*, *crenicollis* and *crassipes* of Westwood, are the same as *castaneæ*, *retractus*, *squamulosus*, *knocchi* and *schaumi* respectively,

and I think there can be no doubt that *percheroni* and *cicatricosus* of Westwood, as defined and figured by the author, are the same as *variolosus*, but there may be some question as to whether or not there may be several species closely allied to the latter. I do not think, for instance, that figure 7, on plate 14 of the "Thesaurus," representing Westwood's conception of *variolosus* and figure 9, of the same plate, representing *cicatricosus* Westw., could have been taken from individuals of the same species, unless drawn with extreme carelessness. Again the small notch of the mentum is well formed and distinct, though circularly rounded, in Westwood's specimens as figured, while in my North Carolina examples of *variolosus*, described above, the notch is subobsolete and there is barely a vestige of it—so feeble, in fact, that if it were not known that *variolosus* possessed a small notch in that particular position on the limb of the mentum, it would never be noticed. It is quite possible that the feeble clypeal carina of *cribripennis*, defined above, may be to a great extent an adventitious character in the single type example, and the species would never have been founded upon that feature alone; it is abundantly distinct in other ways, as for example in the tumid upper limits of the elytral flanks, coarse sculpture, very depressed surface and in other characters. In one of my examples of *westwoodi* there is a very singular mutilation. Just before each of the hind angles of the prothorax there is a large deep acute notch, with its anterior outline transverse to its inner angulation and from there outward evenly and sinuously oblique; the posterior part of the true thoracic angles therefore projects obliquely in a thin process. This is evidently caused by a part of the edge, just before the angles, being chipped out, possibly while in an immature state by the mandibles of ants, and would not be mentioned here were it not for the fact that the notch is exactly similar on both sides; it is the almost complete bilateral symmetry that is so remarkable. *Pugetanus*, described above, was assumed to be a larger flatter form of *knochii* by Horn, but is a very distinct species, more closely allied to *crinitus*, by reason of habitus and the very long erect hairs seen in perfect specimens.*

* As indicating that the habits of the species of this genus are not always intimately associated with ants, the following statement of Mr. Knaus, referring to *nitens*, is interesting:

"*Cremastocheilus nitens* is found almost every season during the hottest part of the

Trinodia n. gen.

The longitudinal division of the pronotum into three lobes by deep impressions of the surface, is a character the generic significance of which admits of scarcely any doubt; this, and the unusually parallel form of the body, gives to *Cremastocheilus saucius* Lec., and a number of allied species, a general habitus conspicuously distinguishing them from *Cremastocheilus*, as represented by the numerous foregoing species. This trilobate external feature must inevitably signify an arrangement of the internal organs of the prothorax correspondingly aberrant when compared with *Cremastocheilus*. The species are rather numerous, though less so than in the preceding genus, and those already discovered are assignable to two well marked subgeneric groups as follows:

- Pronotal impressions continuing from base to apex; hind angles deeply emarginate externally, the apical angles very aberrant in structure, having an external cavity delimiting a sometimes retracted slender oblique lobe; clypeus not dilated at the sides and having a very high and conspicuous median carina, longitudinally crossing the concavity; anterior tibiæ slender, the two teeth widely separated. . . . Group I
- Pronotal impressions extending from base to scarcely beyond the middle, the basal angles broad, convex, separated from the base by the usual deep sinus and not modified externally, the apical angles as in *Cremastocheilus* but projecting anteriorly and not inwardly oblique; clypeus strongly dilated laterally, not carinate; anterior tibiæ as in *Cremastocheilus*, broad, the two teeth much more approximate as usual in that genus. Group II

The mentum in the first group, or *Trinodia* proper, is deeply concave to flat, in the latter case with reflexed hind margins; this is a conspicuous difference and is almost undoubtedly of a sexual nature; the plate is more or less sinuate at each side and, at the hind margin, it is entire, sometimes slightly produced medially. In the second group, now represented by *Cremastocheilus wheeleri* alone, the mentum is very different; it is more transverse, deeply concave, having each side prolonged and lobiform and the hind margin is broadly bisinuate and transverse, a form of mentum

day, flying rarely over the sand dunes, but more commonly found early in the morning buried in the sand under sticks or other objects. They are not difficult to capture in the cooler part of the day, but during the warmer parts they must be picked up quickly when they alight on the sand, or a net thrown over them, as they sit quietly only a short time after alighting before they again take flight." (Bull. Bk. Ent. Soc.,

which, like that of the clypeus, differs from anything else known in the tribe.

In all the numerous African types the clypeus is entirely different from that of our genera, being nearly flat, subquadrate and very feebly or scarcely at all reflexed at tip, more nearly as in *Euphoria*, and the mentum assumes very diversified forms, being sometimes small or, as in *Scaptobius*, very large, generally flat, sometimes deeply sinuate at apex as in *Macroma*, or entire as is usual. It is probable, in fact, that structural peculiarities are more varied and radical in this tribe than in any other of the Cetoniinæ.

Group I.

Subgenus *Trinodia* in sp.

The species of this subgenus frequently have a pale testaceous coloration, quite unlike anything known in *Cremastocheilus* in this respect, and the integuments are strongly shining and feebly sculptured as a rule above as well as beneath; those known thus far are the following:

Anterior tibiæ slender, subpedunculate basally, the inner margin rather abruptly constricted behind about the middle, the upper of the two external teeth at about the middle of the length. Body rather small, parallel, slightly convex, shining, clear testaceous throughout, the erect hairs rather long but sparse and easily broken or removed; head evenly convex, finely but not densely punctate, the anterior slope steep but gradually formed, the clypeus strongly reflexed, the middle of the reflexed margin connected with the middle of the front at the beginning of the slope by a very high thin and conspicuous carina; sides of the clypeus, first antennal joint and the very prominent ocular canthus having many long coarse bristles; prothorax nearly three-fifths wider than the median length, the sides subparallel and feebly arcuate, slightly widest anteriorly, the lateral sections strongly convex, moderately punctured, smooth basally, the median less convex section moderately convex, distinctly impressed along the middle and with numerous moderate punctures bearing bristling setæ; scutellum very finely attenuate at apex, variably punctulate; elytra three-fifths longer than wide, subequal in width to the prothorax, parallel, rounded at apex; surface depressed on the disk, broadly convex and then steeply declivous at the sides, having, discally, very slender narrow shallow unimpressed areolæ, moderately close-set and not so opaque as in the preceding genus, the punctures at the sides small, rounded, not deep and well separated; pygidium large, strongly convex, evenly and very finely, rather densely punctato-scabriculate; legs slender; hind tarsi scarcely at all

- compressed, filiform and two-thirds as long as the tibiæ, the small external tooth at the middle of the latter more developed than usual. Length 9.7–10.5 mm.; width 3.8–4.6 mm. Kansas and Colorado. Five examples. [*Crem. saucius* Lec.].....**saucia** Lec.
- Anterior tibiæ moderately slender but not subpedunculate basally, the inner outline continuous and without constriction from apex to base; upper external tooth situated well beyond the middle, the teeth much less widely separated than in *saucia*.....2
- Anterior tibiæ, as well as all the femora and tibiæ, notably broad and compressed.....5
- 2—Hind angles of the prothorax rather long, slender and everted. Body very small in size, piceous, slightly shining; head coarsely, not densely punctured, the occipital region transversely depressed; clypeus, viewed from above, nearly semicircular, the margin widely reflexed, at middle very strongly carinate, the surface smooth; prothorax wider than long, narrower behind, the sides arcuate in front, sinuate posteriorly, the hind angles acute and prolonged externally; anterior angles with a deep incisure, forming in front an auriculate lobe, the surface trilobed, very coarsely but sparsely punctate, the median section somewhat depressed; elytra with the disk flat, the sides nearly vertical, the discal region with shallow elongate foveæ, the sides with coarse punctures; pygidium coarsely, sparsely punctured; under surface shining, with very coarse but sparse punctures; legs brownish; anterior tibiæ obtusely bidentate apically; middle and hind tibiæ acutely dentate near the middle; tarsi cylindrical, slightly compressed and but little shorter than the tibiæ. Length 7.5 mm. Texas. [*Crem. spinifer* Horn].....**spinifer** Horn
- Hind angles of the prothorax acute and projecting posteriorly.....3
- 3—Upper surface opaque; elytral punctures scratch-like. Body oblong, black, the dorsum very flat; clypeus strongly carinate at the middle; pronotum sharply divided into three regions; anterior angles auriculate, the posterior spiniform, the sides arcuate, sinuately narrowing to the hind angles, the base sinuate within the angles; surface coarsely punctured, the outer sections more coarsely and closely, the central part more sparsely and more opaque; elytra flat, with punctures in the form of elongate scratches on the disk, but decidedly punctiform at the sides; under surface shining, with coarse sparse punctures; legs slender; mentum entire. Length 11 mm. Lower California (Pescadero). [*Crem. opaculus* Horn].....**opacula** Horn
- Upper surface shining and as in *saucia*, the hind angles of the prothorax also as in that species, acute, projecting posteriorly and bordered externally by a deep emargination, which encloses a dense tuft of fulvous setæ.....4
- 4—Body slender, parallel, feebly convex, shining and clear testaceous in color and with rather long coarse fulvous hairs; head rather finely, closely punctate, the gradually formed anterior declivity beginning midway between base and the strongly reflexed apex, the median carina very strong but not attaining the upturned apex, the clypeus throughout, the basal antennal joint and the unusually prominent ocular canthus, bristling with coarse erect setæ; prothorax fully

one-half wider than long, strongly trilobate, parallel and feebly arcuate at the sides, the punctures small, sparse externally, feeble but close-set and bearing longer bristling setæ on the median section, which is only feebly convex, much depressed below the lateral sections and with the median line very feebly impressed; scutellum with small sparse foveolæ; elytra nearly three-fifths longer than wide, barely at all wider than the prothorax, parallel, the humeri not laterally prominent but moderately so dorsally; disk somewhat impressed toward base suturally, convex laterally to the steep deep slopes; foveolæ nearly as in *saucia* but larger, the lateral punctures small, feeble and well separated; pygidium very convex, with small foveolæ and in part scabriculate, having sparse, very minute hairs as in *saucia*; legs slender; external tooth of the hind tibiæ beyond the middle and obsolescent, barely traceable; hind tarsi slender, rather short. Length 11.5 mm.; width 4.7 mm. Kansas (Clark Co., elevation 1962 feet).—F. H. SNOW.....**setosifrons** n. sp.

Body less slender, larger in size, parallel, black throughout; erect setæ bristling and rather long, fulvous as usual; head as in the preceding but still more convex; almost tumidulous and with a large oval punctureless spot on the occipital slope, not suggested in *setosifrons*, also with the anterior carina not attaining the strongly reflexed apex and obsolete posteriorly at a long distance from the foot of the anterior slope, and not almost attaining the latter as in the preceding species; bristling setæ nearly similar, the eye-canthus even more prominent and acute; prothorax less transverse, not quite one-half wider than long, parallel, evenly and very feebly arcuate at the sides, the lobe of the apical angles similarly much retracted; surface almost similarly trilobed and punctate; elytra about as wide as the prothorax, three-fifths longer than wide, in all respects nearly as in *setosifrons* and similarly impressed suturally toward the scutellum, but with the foveolæ still narrower, more elongate and decidedly denser, also deeper; propygidium with transverse wavy incised lines; pygidium large, strongly convex, differing greatly from that of any of the preceding species in having concentric sculpture of short fine irregular incised lines and with a few small foveolæ basally, the hairs sparse and very minute; anterior tibiæ as in *setosifrons*, the upper tooth, at apical third, slender; hind tibiæ with barely a vestige of an external cariniform protuberance well beyond the middle; hind femora strongly compressed, four times as wide as the tibiæ, somewhat as in the preceding. Length 12.3 mm.; width 5.2 mm. Texas (Waco). A single example.....**quadricollis** n. sp.

5—Form stout, piceous in color, feebly shining, the legs reddish-brown; punctures all bearing short erect black hairs; head coarsely, not densely punctate, the occipital region transversely depressed; clypeus semicircular, the margin widely reflexed and fimbriate with short hairs, strongly carinate at the middle, the surface smooth; prothorax transverse, narrower behind, the sides slightly arcuate in front, oblique behind, the hind angles acute, smooth and shining, the anterior deeply incised, forming an auriculate lobe; disk trilobed, the median section much the widest and depressed; surface with rather

close-set variolate foveæ, densely placed near the side margin; disk of the elytra flat, with very elongate foveæ, the sides nearly vertical and with coarse variolate punctures; pygidium with coarse variolate punctures; under surface coarsely, sparsely punctured; legs broad and flat, sparsely punctured on the under side, smooth above; anterior tibiæ bidentate apically, the middle and posterior with the outer edge acutely bidentate near the tip; tarsi cylindric, slightly compressed, shorter than the tibiæ. Length 13 mm. Arizona. [*Crem. planipes* Horn].....*planipes* Horn

Three of the above species, *opacula*, *spinifer* and *planipes* of Horn, are unknown to me and the descriptions here given are derived directly from the originals; there is probably some kind of an emargination outside of the acute hind angles of *spinifer*, analogous to that so well developed in *saucia*, *quadricollis* and *setosifrons*, but no such abrupt sinus is indicated in the published descriptions. All the species are very rare, excepting *saucia*, and even that is not over abundant in collections.

Group II.

Subgenus *Anatrinodia* nov.

Although apparently intermediate between the preceding species and *Cremastocheilus* in many respects, and with curtailed pronotal sulci, there are so many peculiar characters pertaining to the unique type of this group, such as the remarkable abdominal structure, that it evidently should be considered as at least subgeneric in value. The hind angles of the prothorax seem at first to be very different from those of *saucia* and more nearly as in the *angularis* section of *Cremastocheilus*, there being a very slight oblique impression delimiting them from the lateral sections of the surface, but on viewing these angles from the sides obliquely below, the emargination filled with fulvous setæ is observable, though wholly concealed from above. The type may be described as follows:

Body oblong, parallel, black, in great part opaque above and still more opaque beneath; sparse yellowish hairs of the upper surface very moderate in length, numerous on the abdomen and on the sterna medially; head large, feebly biimpressed on the upper surface and with small sparse punctures, the sides over the antennæ slightly prominent; eye-canthus not prominent as it is in the preceding group, anterior slope shallow and gradually formed, the clypeus much wider than the head, truncate, slightly reflexed medially and broadly deplanate and obtusely angulate at the sides; prothorax two-fifths

wider than long, the sides just visibly converging from base to apex and slightly sinuate at the middle, the exterior of the apical angles continuing the lateral outline and bearing internally, on the oblique surface, a dense mass of fulvous setæ; base transverse, without sinuses adjoining the basal angles; surface medially depressed basally, feebly impressed along the middle and with small shallow punctures, the punctures laterally smaller, very sparse, wanting toward the apical and basal angles; elytra oblong, parallel, not quite one-half longer than wide, obtusely rounded at apex, fully a fifth wider than the prothorax, the subapical umbones small and prominent, the humeri not prominent, the callus polished; surface flat, with elongate-oval, shallow, rather widely separated and very opaque areolæ, convex and then very declivous at the sides, where the punctures are fine and very sparse; pygidium moderately convex, with small sparse shallow areolæ and feebly subcarinate along the middle; abdomen very opaque, not coarsely, rather closely punctured and with short yellowish plumose hairs, closely placed throughout, the apices of all the segments bearing a dense even spongiöse fringe; legs polished, black, smooth, with very fine sparse punctures, rather compressed, the hind tibiæ but little narrower than the femora and with a small spiculiform tooth externally beyond the middle, the hind tarsi three-fourths as long as the tibiæ and strongly compressed; anterior tibiæ rather broad, bidentate apically. Length 10.7-11.1 mm.; width 4.7-4.9 mm. Nebraska and Colorado. [*Crem. wheeleri* Lec.]. *wheeleri* Lec.

This is the most isolated species in this part of the series and the extraordinary abdominal modifications are not suggested, even vestigially, in any other known to me. It does not seem to be abundant and my series consists of but four examples; these are remarkably uniform in size, as is the case also among the individuals of *saucia* and probably all others of this genus.

Tribe TRICHIINI.

The chief distinguishing character of this tribe is the absence of the post-humeral sinus at the sides of the elytra, constituting so constant a feature in all the preceding Cetoniids; the mes-epimera are sometimes indistinct from a dorsal viewpoint, but in *Osmoderma*, are as conspicuous as in most of the subfamily. The species are small and floricolous as a rule, most of them with very elongate slender tarsi, but the genera *Inca* and *Osmoderma* are composed of species much larger in size and of less active habits. We have within our faunal limits the following six genera, most of the characters being as stated by Lacordaire:

Hind coxæ contiguous; basal joint of the hind tarsi moderately elongate. 2