

STUDIES IN THE MELYRIDAE (COLEOPTERA)

NUMBER TWO

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Studies in the Melyridae, Number One, appeared in the Canadian Entomologist of January, 1921. Species which cannot be referred to those already described are constantly coming to hand. In the present contribution to Science a number of non-descriptors have been given names: one species of *Eudasytes* with a synoptic table; fourteen species of *Trichochrous*; one species of *Cradytes*, and a synoptic table. A complete and revised synoptic table of the species of *Trichochrous* is under way and as soon as the undescribed species are made known, it will be completed. Col. Casey's contributions to the knowledge of the Melyridae have stood the test of time and has only to be modified to permit of the interpolation of the new species.

*Description of New Species***Eudasytes desertus** new species

Form oblong, slightly narrowed anteriorly, moderately convex, about a third longer than wide. Color black; basal joints of the antennae, mouth-parts, apical third of tibiae, more or less rufopiceous; tarsi more or less rufous. Surface shining, pronotal disk somewhat polished.

Pubescence sparse and luteo-cinereous in color, nearly recumbent, laterally on the declivous sides of the elytra some of the paler hairs are semi-erect; sparsely intermixed on the upper surface with longer and more or less erect blackish hairs, these are stiffer, more irregular on the head and pronotum, not forming a regular and close-set fringe on the pronotal side margins. Fimbriae of the elytral margins pale, sparsely intermixed near the humeri with blackish hairs. The body beneath is clothed with pale and rather fine recumbent hairs.

Head very sparsely punctate and smooth; surface flat, very feebly and broadly bi-impressed anteriorly. Antennae moderately stout, not serrate; fifth joint triangular, wider than the fourth, scarcely wider than the sixth; ninth and tenth feebly transverse.

Pronotum rather transversely oblong, about a half wider than long; sides parallel, feebly and broadly sinuate before the basal angles, thence feebly and broadly arcuate to the apex, the latter broadly and moderately deeply emarginate between the rather broad, anteriorly prominent and obtusely rounded angles, the emargination is quite transverse at bottom; base broadly arcuate, feebly sinuate in lateral fifths; basal angles obtusely rectangular; disk very moderately convex, very sparsely punctate, punctures small and separated by a distance equal to three or four times their diameter, interstices smooth throughout.

Elytra oblong, about a third longer than wide, broadly and evenly rounded at apex; sutural angles evenly rounded; sides parallel, scarcely arcuate, margin slightly explanate; disk feebly convex on the dorsum, arcuately declivous at the sides, rather abruptly so at the humeri, the latter obtusely subrectangular; humeral umbone rather large; surface not closely punctured, punctures small, surface more or less rugulose. Scutellum as long as wide and obtusely rounded at apex.

Abdomen very finely punctate.

Male.—Sides rather more parallel, fifth ventral segment arcuato-truncate at apex.

Female.—Elytra slightly broader than the pronotum; sides slightly arcuate. Abdomen more convex, fifth ventral longer and strongly rounded at apex.

Measurements.—Length (types), 3 to 3.5 mm.; width, 1.3 to 1.6 mm.

Type, male, and *allotype*, female, as well as paratypes, in my own collection. A paratype will be placed in the collection of the California Academy of Sciences and in that of the American Entomological Society in Philadelphia, as well as in that of the United States National Museum in Washington, D. C.

Type locality.—The male type was collected at Isabella, Kern County, California, on June 5, 1913. The allotype and paratypes were secured at Mojave, Kern County, California, on June 1, 1917.

Desertus can be separated from *amplus* Casey and *oblongus* Casey by its dark legs; by its pale vestiture from *ursinus* Casey and *hirsutus* Blaisdell. Both *reynoldsi* Blaisdell and *grandicollis* Blaisdell are larger and have the pronotal apical angles markedly prominent anteriorly and more acute. Many specimens of *desertus* have a more or less aeneous luster.

Synoptic Table of the Species of Eudasytes Casey

Vestiture blackish throughout.....	1
Vestiture pale; legs more or less rufous.....	2
1. Apical angles feebly produced anteriorly, rounded and deflexed; basal angles slightly obtuse, distinct and not rounded; sides of the pronotum slightly convergent anteriorly. (Southern California).....	<i>ursinus</i> Casey
Apical angles broad and rounded, not deflexed; basal angles rectangular and slightly prominent laterally; sides of the pronotum parallel. (Nevada)	<i>hirsutus</i> Blaisdell
2. Basal angles of the pronotum prominent laterally.....	3
Basal angles not prominent laterally.....	4
3. Basal angles large, acute, divergent, and prominent posteriorly; humeri broadly dentiform, pronotum large (male). Female less strongly developed. (Arizona).....	<i>reynoldsi</i> Blaisdell
Basal angles nearly rectangular, not rounded, distinctly prominent laterally. (Utah).....	<i>oblongus</i> Casey
4. Legs pale throughout; prothorax large.....	5
Legs partly piceous; head and pronotum with erect black setae; apical pronotal angles broadly and anteriorly prominent and obtusely rounded in both sexes. (Kern County, California).....	<i>desertus</i> new species
5. Erect setae of the elytra short; apical pronotal angles right and scarcely at all rounded; basal angles obtuse and not at all rounded (female). (California).....	<i>amplus</i> Casey
Erect setae moderately long; apical angles anteriorly prominent, subacute and deflexed; basal angles obtusely rounded (female), adjacent surface of the pronotal disk impressed in both sexes. (Nevada)	<i>grandicollis</i> Blaisdell

Eudasytes is a valid genus and is characterized as follows: Form broad and oblong, pronotum transversely oblong with the angles usually well developed; epipleura comparatively broad, horizontal and nearly or quite attaining the elytral apex, and with their surface plane inward at apex, sometimes remaining horizontal throughout.

In *Trichochoirus* the epipleura are much narrower and have their surface plane turned outward at apex, sometimes remaining horizontal to point of termination.

Trichochrous pratensis new species

Form elongate oblong, subparallel, slightly narrowed anteriorly. Color piceous black; legs, anal segment beneath and fifth ventral more or less pale ferruginous; elytral apex more or less similarly pale. Antennae pale, distal joints blackish, others more or less black on their anterior angle. Color variable, sometimes nearly ferruginous throughout; prothorax alone pale at times.

Pubescence sparse and semi-recumbent, hairs slender and lance-like, even in distribution, pale in color; fimbriae whitish and moderate in length.

Head subtriangular, sides rather rapidly converging in front of the eyes, the latter moderately prominent and evenly convex; front flat, evenly and sparsely punctate, punctures small. Antennae stout, moderate in length, extending to base of the prosternum.

Pronotum about as long as wide; apex scarcely arcuate in circular arc; base broadly but not strongly arcuate; sides broadly and feebly arcuate, slightly convergent anteriorly, marginal bead fine; angles subequally and broadly rounded; disk strongly and evenly convex from side to side, finely and very sparsely punctate; lateral fimbriae moderately short and quite even.

Elytra oblong, about a half longer than wide, moderately convex; sides feebly arcuate and parallel, apex arcuato-truncate, sutural angles acute and slightly produced; disk finely and sparsely punctate, surface somewhat finely impressed about the punctures; humeri slightly prominent and rounded.

Legs moderate in length; tarsi rather stout.

Male.—Narrower; fifth ventral abdominal segment apparently sinuato-truncate at apex; genital segment rather deeply excavated.

Female.—Broader; fifth ventral broadly rounded at apex.

Measurements.—Length (types), 2.3 to 2.6 mm.; width, 1 to 1.2 mm.

Type, male, and *allotype*, female, in my own collection. Paratypes in the collection of Mr. Warren Knaus and in that of my own. A paratype will also be deposited in the collection of the American Entomological Society, Philadelphia.

Type locality.—Ash Meadows, Nye County, Nevada. Collected August 14 to 19, 1921, by Mr. Warren Knaus while on the Nininger-Hoover Expedition. A series of fourteen specimens studied.

Pratensis belongs to the group of small species having the body clothed with subdecumbent hairs without intermixed erect setae, and the elytral pubescence uniform in structure and distribution; color pale or bicolored. It falls near *innocens* according to Casey's table.

Trichochrous tinctipes new species

Form oblong-oval and convex. Color black and shining; basal joints of the antennae more or less rufous, remaining joints rufo-piceous; femora bright rufous, tibiae and tarsi dark rufous. Surface of head and pronotum polished.

Pubescence consisting of moderately long cinereous hairs which are quite decumbent, intermixed abundantly with long, black, erect hispid and bristling hairs. The latter are very irregularly directed and abundant on the pronotal disk, on the head less so. Paler hairs of the elytra not dense nor hiding the general surface; on the pronotum longer and coarser and not forming a regular lateral fringe; on the under surface of the body grayish and recumbent; quite dense on the meso- and metasternum, on abdomen darker, shorter and less abundant. Elytral fringe very long, dark and rather widely spaced; disk with dark brown hairs forming an indefinite area in basal fourth, and which is not always discernible. Pronotal fimbriae coarse, long, irregular and not close set.

Head moderate in size, width across the eyes equal to that of the pronotal apex; front very slightly convex or feebly and broadly bi-impressed between the antennae, very sparsely punctate, punctures moderately small and separated by a distance equal to three to five times their diameter, becoming rather abruptly denser on the occiput and tempora, interstices flat and glabrous; epistoma impunctate at middle and rather coarsely punctate laterally, apical border narrowly pale. Eyes rather large and moderately prominent. Antennae stout and subserrate.

Pronotum rather large, transversely suboblong, about a third wider than long, not wider than the elytra; apex broadly and feebly emarginate in circular arc, margin with a row of coarse punctures; sides broadly and moderately arcuate, converging feebly toward apex, marginal bead coarse and moderately reflexed, especially toward base; apical angles obtuse and narrowly rounded and somewhat prominent anteriorly; base feebly and broadly arcuate, about a fifth wider than the apex and very coarsely margined; basal angles strong, obtuse, rather broadly

and feebly reflexed, strongly beaded; disk strongly and evenly convex, feebly so antero-posteriorly, impressed within the angles, very sparsely punctate, punctures sharply defined, moderately small, interstices flat and glabrous throughout with some evidence of a narrow median impunctate line in middle third.

Elytra oblong, parallel, broadly rounded at apex, less than twice as long as wide; feebly impressed at basal fourth and within the humeral umbones; humeri obtusely rounded; punctures larger than on the pronotum, rather shallow and separated by a distance equal to two or three times their diameter, finer toward apex; surface more or less feebly rugulose.

Abdomen rather densely punctulato-rugulose; pubescence abundant. Legs moderate in stoutness and length.

Male.—Larger than the female in the series at hand. Prothorax large, strongly convex, often denuded of hairs and highly polished; antennae stout. Fifth abdominal segment sinuato-truncate at apex.

Female.—Smaller. Prothorax slightly smaller, less strongly convex; also frequently denuded and glabrous. Antennae rather less stout. Fifth ventral segment rather strongly rounded at apex.

Measurements.—Length (types), 4.5 to 4 mm.; width, 1.7 to 1.5 mm.

Type, male, and *allotype*, female, in my own collection. Paratypes in Mr. J. O. Martin's collection and that of my own, also one in that of the American Entomological Society, Philadelphia. Eighteen specimens studied. Mr. Martin collected the series on July 10, 1919.

Type locality.—Bear Lake, San Bernardino County, California.

Tinctipes is a fine species and apparently distinct from anything yet described. It evidently belongs to Casey's third group, and from the color of the pubescence and even distribution, it resembles *aenescens*, which has black legs, or *pedalis* a smaller species with red legs. If the pubescence can be called unevenly distributed it would have to be placed near *curticollis*, which likewise has red legs and two black discal spots on each elytron. In all probability it is most closely related to the latter species and should therefore follow it in our lists.

Trichochrous palpalis new species

Form oblong-oval and moderately convex, less than three times as long as wide. Color deep black; tibiae and tarsi clear rufous; basal joints of antennae and mouth parts more or less rufous. Surface polished and with a slight aeneous luster.

Pubescence dual, consisting of semi-erect and of bristling hairs. Semi-erect hairs brownish or brownish-gray in color, rather long and slightly coarse, very sparse. Bristling hairs black, erect, long and coarse. Marginal cilia of the sides of the pronotum black, those of the elytra gray.

Head about four-fifths as wide as the pronotum; frontal impressions broad and shallow, separated by a feebly convex area near the epistomal base; surface coarsely and distinctly reticulate, occiput densely so; punctures sparse, well defined and moderate in size. Eyes moderately prominent. Antennae with the outer joints incrassate.

Pronotum about a half wider than long; sides broadly and more or less evenly arcuate from apex to base, or straighter anteriorly and posteriorly, and subangulate just behind the middle; apex arcuato-truncate, apical angles rounded but not broadly so; base broadly arcuate and continuous with the broadly rounded basal angles; disk moderately convex, punctures very sparse and sharply defined in the central two-fourths with the interstices smooth and polished, lateral fourths coarsely and distinctly reticulate.

Elytra oblong and nearly parallel, about twice as long as wide; humeri rather prominent, smooth and shining; apex rather broadly and evenly rounded, sutural angles rounded separately; punctures rather coarse and unevenly distributed; surface somewhat transversely rugose between the almost transversely arranged punctures, the latter finer and the surface smoother toward apex.

Abdomen finely and densely punctate; cinereous hairs abundant and recumbent.

Male.—Narrower; pronotum slightly wider than the elytra, with sides sometimes subangulate; antennae stouter. Fifth ventral abdominal segment sinuato-truncate at apex, surface opposite to the sinuation impressed; impression glabrous and with two or three scattered punctures, at the periphery of the impression the punctures are noticeably denser and the hairs more numerous.

Female.—Broader; elytra slightly wider than the pronotum, sides of latter broadly and evenly arcuate. Fifth ventral broadly and not very strongly arcuate at apex.

Measurements.—Length (types), 2.9 to 3.1 mm.; width, 1 to 1.1 mm.

Type, male, and *allotype*, female, in my own collection. Paratypes in my own and Mr. J. O. Martin's collection, as well as that of American Entomological Society of Philadelphia.

Type locality and *habitat*.—Bear Lake, San Bernardino County, California. Types were collected on May 3 and June 6, 1919, by Mr. Martin. Twenty-six specimens studied.

At first sight *palpalis* greatly resembles *aenescens* Casey. I have before me typical *aenescens* taken on the Island of Santa Cruz off the coast of southern California; these specimens answer absolutely to Casey's description and the pronotal disk is not at all rugose laterally, besides the fifth ventral segment in the male is simply truncate at apex.

In *palpalis* the front of the head and sides of the pronotal disk in lateral fourth are coarsely and distinctly reticulate, the fifth ventral in the male is sinuato-truncate at apex and the adjacent surface modified; marginal cilia of the elytra whitish and those of the pronotum black. *Palpalis* should follow *sexualis* Casey in our lists.

Trichochrous vanduzeei new species

Form elongate, parallel and moderately convex. Color deep black; surface polished and shining and with a slight purpureo-aeneous luster; tarsi slightly rufo-piceous.

Pubescence black to brownish, sparse; shorter hairs more or less semi-erect, intermixed with long and more or less erect hairs; along the declivous sides of the elytral disk the shorter hairs may be slightly grayish; on the head and pronotum the hairs are longer and more bristling. Pronotal and elytral fimbriae quite long and not forming a regular close-set fringe.

Head subequal in width to the pronotal apex; front flattened, impressions broad and shallow; punctures moderately fine, sparse, and the surface longitudinally rugulose against the eyes. Muzzle triangular and rather short.

Pronotum about a third wider than long; sides parallel and broadly arcuate, more strongly so towards the base, less so

anteriorly and moderately convergent to apex, the latter arcuato-truncate; apical angles obtuse and moderately rounded; base broadly arcuate; basal angles broadly rounded with the sides and base; disk moderately convex, punctures rather coarse and separated by a distance equal to about twice their diameter; surface distinctly reticulato-punctate laterally.

Elytra less than twice as long as wide, parallel; disk rather strongly declivous laterally, margins only moderately reflexed, punctures rather coarse and separated by a distance equal to about twice their diameter; surface very finely crinkled. Humeri rather prominent. Scutellum pubescent.

Abdomen densely punctured, punctures rather fine; pubescence somewhat grayish.

Male.—Fifth ventral abdominal segment distinctly emarginate, sinus moderately broad, bottom of which is transverse, and the lateral lobes broadly arcuate; surface anterior to the sinus feebly impressed and more or less slightly glabrous, pubescence unmodified; pygidium horizontal and densely punctate, margin densely clothed with black hairs.

Female.—Fifth ventral broadly rounded at apex.

Measurements.—Length (types), 3.1 to 4.0 mm.; width, 1.4 to 1.6 mm.

Type, male, and *allotype*, female, in the collection of the California Academy of Sciences. Paratypes in the California Academy's collection and in that of my own, as well as one in that of the American Entomological Society in Philadelphia.

Type locality.—Salada Beach, San Mateo County, California. Types collected on April 21, 1921, by Mr. E. P. Van Duzee, to whom I take pleasure in dedicating the species.

Vanduzeei has also been taken at Bryson, Monterey County, California, on April 26. It should follow *palpalis* in the list of species. The above two species make an interesting addition to the group of species in which the fifth ventral abdominal segment shows sexual modification.

Trichochochrous instabilis new species

Form oblong-oval, moderately convex. Color black; legs bright rufous; basal joints of antennae and mandibles more or less rufous; surface rather shining.

Pubescence pale, flavo-argenteous in color, moderately short, evenly distributed, not dense and not completely hiding the surface, recumbent and without any erect hairs; slightly longer on the head and pronotum. Fimbriae of the pronotal sides rather short and backwardly curved and not conspicuous. Marginal fimbriae of the elytra rather long and somewhat widely spaced.

Head about two-thirds as wide as the pronotum; front broadly and feebly bi-impressed, punctures moderately small, sparse and rather evenly distributed. Eyes moderately large, not very prominent and finely setulose.

Pronotum moderately transverse, a little less than a half wider than long; apex broadly and feebly arcuate, a little narrower than the base; the latter broadly arcuate in middle three-fifths, thence broadly and not strongly sinuate to the more or less rounded or subobtuse basal angles; sides parallel, moderately evenly arcuate; apical angles obtusely rounded; disk evenly but not strongly convex, punctures moderately small, rather sparse, separated by a distance equal to two or three times their diameter, intervals smooth and shining.

Elytra oblong, sides parallel, very slightly arcuate, almost semicircularly rounded at apex; punctures moderately small, about equal to those of the pronotum and similarly spaced, finer apically; surface very finely microscopically rugulose.

Abdomen rather finely and closely punctate.

Male.—Usually smaller and narrower than the female. Antennae somewhat stouter. Fifth ventral abdominal segment sinuato-truncate.

Female.—Larger and slightly broader. Fifth ventral abdominal segment arcuate at apex.

Measurements.—Length (types), 2 to 2.2 mm.; width, .9 to 1.9 mm.

Type, female, and *allotype*, male, in my own collection. Paratypes in my own and Mr. J. O. Martin's collection. A paratype will also be placed in the American Entomological Society's collection, Philadelphia.

Type locality.—Bear Lake, San Bernardino County, California. Twenty specimens studied; collected June 5, 1919.

According to Casey's synoptic table *instabilis* is related to *discipulus* and *caseyi*, and belongs to the group of species clothed

with subdecumbent hairs, without trace of intermixed erect setae. The four species of the group that have the sides of the pronotum parallel or very nearly so are *fulvotarsis* Bland, *antennatus* Motschulsky, both from near San Francisco and well known, *discipulus* Casey and *caseyi* Champion. In the last two the thoracic cilia are long and not fimbriiform and the legs are more or less dark. In *instabilis* the legs are clear rufous and the pronotal cilia are distinctly fimbriiform and rather short. It should precede *discipulus* in the list.

Trichochoerus borealis new species

Form oblong-oval to ovate, convex. Color black and more or less shining; tibiae and tarsi sometimes dark rufo-piceous, antennae paler toward base.

Pubescence moderately long, rather coarse, quite dense and cinereous in color; some of the hairs at the sides of the elytra appear to be semi-erect; lateral cilia of the pronotum, moderately long and fimbriiform, those of the elytral sides longer and similar.

Head across the eyes about as wide as the pronotal apex; front flat, broadly and rather deeply impressed—almost bi-impressed; epistomal region nearly impunctate, elsewhere the punctures are sparse.

Pronotum transverse, about a third wider than long; sides quite broadly arcuate, moderately convergent anteriorly; apex arcuato-truncate, angles rather broadly rounded; base broadly arcuate, angles subobtuse and more or less distinct; disk evenly convex from side to side, punctures sparse, rather strong and moderate in size, separated by a distance equal to two or three times their diameter, interspaces glabrous, punctures somewhat denser laterally.

Elytra less than twice as long as wide; sides more or less parallel, margins not conspicuous and narrow; disk slightly depressed especially toward base, rather densely punctate, punctures rather smaller than on the pronotum; surface very finely wrinkled; apex broadly rounded.

Abdomen rather densely and finely punctate.

Male.—Fifth ventral abdominal segment quite truncate at apex.

Female.—Fifth ventral segment very broadly arcuate at apex.

Measurements.—Length (types), 2.8 to 3.3 mm.; width, 1.2 to 1.4 mm.

Type, male, and *allotype*, female, in the collection of the California Academy of Sciences; collected by Mr. E. P. Van Duzee on July 31, 1918. Two paratypes in my own collection.

Type locality.—Colestin, Jackson County, Oregon.

Borealis is most closely related to *antennatus* Motschulsky, its legs are dark and the pronotum is transverse, the pronotal and elytral fimbriae are well developed, besides it is a larger species.

Trichochrous ruficauda new species

Form small, elongate oblong-ovate and moderately convex. Color black; abdomen, legs and elytral apex and margin in apical third broadly rufous; head, pronotum and elytra with a feeble brassy luster.

Pubescence grayish, rather short and not intermixed with longer hairs; recumbent and not dense. Marginal hairs of the pronotum long, pale and bristling, not forming a regular fringe; those of the elytra shorter and more orderly.

Head rather flat between the eyes, frontal impressions broad and feeble, punctures small and sparse. Antennae stout; fifth joint wider than the preceding or succeeding joint, those beyond the fifth subequal in width, the tenth slightly wider than the others.

Pronotum very convex from side to side, declivous laterally; slightly wider than long; sides broadly arcuate in basal half and continuously so with the slightly rounded base, anteriorly less arcuate and moderately convergent to apex; apical angles obtuse, and the apex a little narrower than the base; disk finely and very sparsely punctate, intervals smooth.

Elytra about twice as long as wide, sides parallel; disk rather evenly, finely and sparsely punctate.

Abdomen very finely and sparsely punctate; surface very feebly rugulose.

Male.—Head broader and stouter. Fifth ventral abdominal segment truncate at apex, rufous in apical half with the genital segments of the same color.

Female.—Head smaller. Fifth ventral segment broadly rounded at apex. Abdominal segments pale in color, sometimes blackish in their basal half.

Measurements.—Length (type), 2.2 mm.; width, .9 mm.

Type in the collection of the California Academy of Sciences; a paratype in the author's collection.

Type locality.—Palm Springs, Imperial County, California. Collected by Mr. E. P. Van Duzee on May 20th.

Ruficauda must be associated with *antennatus* Motschulsky on account of the absence of long erect hairs and the lateral pronotal fringe not being fimbriiform; the color is rather characteristic.

Trichochrous argenteus new species

Form oblong, twice as long as wide and moderately convex. Color black; tarsi piceous to rufo-piceous.

Pubescence quite dense, recumbent and luteo-argenteous in color, intermixed with short erect setae on the elytra, which become longer at the sides and apex; discal setae sparse and subserial in arrangement and pale throughout; fringe of the pronotal sides short, even and closely set.

Head small, front sparsely punctate, surface densely and finely rugulose.

Pronotum transverse, less than a half wider than long; disk moderately and evenly convex, punctures moderate in size and separated by a distance equal to two times their own diameter, intervening surface finely and feebly indentato-reticulate; base arcuate and the apex feebly arcuate; sides evenly and rather strongly arcuate in posterior half, thence almost straight and quite strongly convergent to the apical angles which are sub-obtuse; lateral margin not serrulate; basal angles broadly rounded and continuously so with the sides and base.

Elytra about a third longer than wide, punctures moderate, rather densely placed, the intervening surface very finely rugulose; sides feebly arcuate, margin narrowly reflexed; slightly wider posteriorly.

Abdomen rather finely and densely punctate.

Males.—More oblong, head larger, erect setae longer, pubescence somewhat coarser and more fulvous; sides of the pronotum rather more evenly and broadly arcuate from apex to base, less convergent anteriorly, apex about equal to the base, lateral margin rather narrowly explanate and arcuately reflexed. Antennae stout. Fifth ventral abdominal segment short and truncate at apex.

Female.—Fifth ventral rounded at apex.

Measurements.—Length (type), 3.4 mm.; width, 1.3 mm.

Type, male, and *allotype*, female, in the collection of the California Academy of Sciences. A paratype is in my own collection and one is to be placed in that of the American Entomological Society in Philadelphia.

Type locality.—Keen Camp, Riverside County, California. Collected by Mr. E. P. Van Duzee, on June 6 to 12, 1917.

Argenteus belongs to Casey's second group of species, those with the pubescence pale and intermixed with short sparse, erect, cinereous setae, and with the pronotal fringe even and closely set. It should follow *seriellus* Casey in the arrangement of species. *Argenteus* is more elongate, with the pubescence coarser and the head and pronotum differently sculptured; the lateral pronotal margin is explanate behind the middle and quite coarsely punctate. *Argenteus* has been very carefully compared with a specimen of *seriellus* kindly given me by Col. Casey, which came from Utah, the type locality.

Trichochochrous certus new species

Form elongate oblong, parallel, about two and a half times longer than wide. Color black; tibiae toward apex and tarsi more or less rufo-piceous. Surface shining, pronotum polished. Epistomal margin and border of labrum pale.

Pubescence abundant, quite dense, almost hiding the body surface; luteo-cinereous in color, ashy on the sterna and parapleura; recumbent, with a few longer and semi-erect ashy setae on the declivous sides of the elytra; longest on the under surface of the body. Lateral pronotal fimbriae moderate in length, regular and not very closely set; elytral fimbriae longer, most so at the humeri.

Head sparsely punctate, punctures small, slightly denser anteriorly near base of the epistoma; surface smooth, feebly bi-impressed anteriorly. Eyes large and moderately prominent. Antennae rather short and stout; fourth joint triangular, fifth to the tenth quite transverse and subserrate anteriorly.

Pronotum rather transversely suboval, about a fourth wider than long; sides slightly convergent anteriorly from basal third, very feebly arcuate and not in the least explanate; apex arcuato-truncate, apical angles quite broadly rounded into the sides and apex; base broadly and distinctly arcuate, passing broadly and arcuately into the sides, which are most strongly rounded in basal third, the point of greatest width; disk evenly and rather strongly convex from side to side, evenly and sparsely punctate,

punctures small and sharp, separated by a distance equal to two or four times their diameter; surface smooth and shining throughout.

Elytra oblong, about twice as long as wide, apex broadly and evenly rounded, sutural angles rounded; disk moderately convex, quite evenly punctate, punctures small; surface smooth and scarcely rugulose toward base; humeri obtusely rounded, umbone rather large and evenly convex. Scutellum feebly transversely oblong, not strongly arcuate at apex, clothed with fine hairs.

Abdomen rather densely and finely punctate.

Male.—Narrower. *Elytra* not wider than the pronotum. Fifth ventral abdominal segment sinuato-truncate at apex.

Female.—Broader. *Elytra* slightly wider than the pronotum. Fifth ventral broadly rounded at apex.

Measurements.—Length (types), 3.2 to 4 mm.; width 1.3 to 1.6 mm.

Type, male, and *allotype*, female, in my own collection. A paratype has been deposited in the collection of the American Entomological Society in Philadelphia. All of the specimens were collected in Waterman Canyon, San Bernardino County, California, on May 27, 1916.

Certus belongs to Casey's second section of the genus. It should be placed near *mucidus* Casey. The latter species has the legs and antennae rufous.

***Trichochrous subvittiger* new species**

Form subovate, slightly more than twice as long as wide and moderately convex. Color black, the legs rufous throughout; antennae more or less pale, fuscous beyond the middle; surface polished.

Pubescence uniform and subdecumbent, sparse, and argenteo-cinereous in color, with a subsutural vitta of blackish or brownish hairs on each elytron; the vittae are usually short or may be entirely absent. Lateral pronotal and elytral fimbriae moderate in length, regularly spaced and longer on both at base.

Head scarcely impressed, surface flat, sparsely punctate, with an impunctate area at middle just behind the epistoma; width across the eyes about equal to the pronotal apex. Antennae stout, joints five to eight serrate, equal in width and transverse; ninth and tenth, stouter and more transverse.

Pronotum rather strongly and evenly convex from side to side, apex almost equal to the length, base about a third wider than the length; sides convergent, feebly and evenly arcuate in the anterior two-thirds, more strongly so in basal third where the width is greatest; apex truncate in almost circular arc; apical angles moderately rounded; base broadly arcuate; basal angles broadly rounded with the sides; disk very sparsely punctate, interstices smooth throughout.

Elytra slightly widest posteriorly, sides straight, scarcely arcuate; apex broadly rounded, sutural angles rounded; disk sparsely and rather coarsely punctate, surface slightly transversely rugose.

Abdomen finely and rather sparsely punctate.

Male.—Rather narrower and less ovate. Fifth ventral abdominal segment evenly truncate at apex.

Female.—Broader and more ovate. Fifth ventral evenly rounded at apex, with the margin at middle clothed with brownish hairs; surface somewhat broadly flattened or very feebly impressed.

Measurements.—Length (types), 3 to 3 mm.; width, 1.2 to 1.4 mm.

Type, male, and *allotype*, female, in the collection of the California Academy of Sciences. Paratypes in the collection of the California Academy of Sciences, the author's and that of the American Entomological Society, Philadelphia.

Type locality.—San Antonio, Socorro County, New Mexico. Collected on June 22, 1921, by Mr. C. D. Duncan. Sixteen specimens studied.

Subvittiger resembles *vittiger* Casey in color and distribution of the pubescence. In *vittiger* the elytral vittae are usually well developed, although atrophic or entirely absent at times, in the latter case resembling *sparsus* Casey. In *subvittiger* the vittae are scarcely ever well developed and more often absent; the body form is different from that of *vittiger*; in the latter species the fifth ventral abdominal segment is subangulate at middle of apex in the female, and at that point quite densely clothed with brownish or blackish hairs. *Subvittiger* should follow *vittiger* in our lists.

Trichochrous niveus new species

Form elongate-oblong, a little more than twice as long as wide, moderately convex. Color black; antennae, legs and mouth-parts more or less rufo- or nigro-piceous; labrum frequently pale.

Pubescence dense, hiding the general surface, moderately long, coarse and recumbent; cinerous to flavo-cinereous in color. Intermixed toward the sides and apex with a few semi-erect or erect pale setae. Lateral marginal fimbriae of the pronotum rather short, even and quite close, increasing somewhat in length toward the basal angles. Elytral fimbriae a little longer and more widely spaced.

Head flat between the eyes, impressions broad and very shallow, separated behind the epistomal base by a slight, glabrous convexity. Very sparsely punctate.

Pronotum about a fourth wider than long, widest at posterior third; sides evenly arcuate posteriorly, thence parallel and feebly arcuate to apical third, then strongly and continuously arcuate with the apex, behind the point of greatest width, feebly convergent, straight or slightly sinuate (sometimes slightly arcuate) to the basal angles, the latter distinct, feebly prominent and obtuse to very small and scarcely discernible; base about equal to the apex, broadly arcuate at middle, oblique and straight laterally to the angles; disk moderately and evenly convex from side to side, punctures moderately small and not close, slightly denser laterally, surface scarcely asperate.

Elytra parallel, oblong, less than twice as long as wide, lateral margins narrowly explanate; sides scarcely arcuate; punctures moderately small, rather close and scarcely discernible on account of the dense pubescence; humeri slightly tumid and not broadly rounded.

Abdomen rather densely pubescent and punctate.

Male.—Sexes similar in form. Fifth ventral abdominal segment sinuato-truncate at apex and more or less slightly impressed on the disk.

Female.—Fifth ventral longer and arcuate at apex.

Measurements.—Length (types), 2.6 to 3 mm.; width, 1.2 to 1.4 mm.

Type, male, and *allotype*, female, in my own collection, and paratypes in that of Mr. Ralph Hopping, who collected the five specimens studied, on May 27, 1913.

Type locality.—Havilah, Kern County, California.

According to Casey's synoptic table *niveus* falls between *mucidus* Casey and *brevicornis* LeConte. In *niveus* the pubescence is dense and hides the general surface, the pronotum is transversely suboblong-oval and varies considerably in outline before the basal angles as indicated above. In *certus* the pubescence is shorter, less dense, not so coarse; the pronotal surface is polished; the form is usually larger and the pronotal sides are more evidently convergent anteriorly. The epipleura are moderately broad, quite horizontal and the inner margin very distinct to the apical curve; not in the least inflexed, the outer margin being less marked at the apical curve.

Trichochrous basalis new species

Form oblong and elongate, moderately convex and more or less shining. Color black; epistoma, antennae in basal half, knees, tibiae toward apex and tarsi more or less rufo-piceous at times.

Pubescence gray, rather short, moderately sparse, decumbent, with longer semi-erect hairs sparsely scattered over the elytra, especially along the sides, these are less noticeable on the pronotum. Lateral marginal fimbriae of the pronotum moderately short and rather close, becoming longer toward the basal angles; elytral fimbriae less close and slightly longer.

Head flat between the eyes, lateral impressions broad and vague, punctures sparse and moderately small; muzzle rather small with the sides convergent.

Pronotum different in the sexes.

Elytra not quite twice as long as wide; margins narrowly reflexed and somewhat evenly serrulate; disk not very convex, punctures moderately small and separated by a distance equal to two or three times their diameter.

Abdomen rather strongly, densely punctate and more or less rugulose.

Male.—Form parallel. Pronotum rather large, about a fourth wider than long, widest at the posterior fourth, sides thence rather straight to apical fourth, then rather strongly and continuously arcuate with the apex, slightly convergent in basal fourth, sinuate to almost straight before the angles, margin somewhat irregularly serrulate; apex rather truncate at middle; base about equal to the apex, arcuately lobed in middle two-fourths, thence oblique and feebly sinuate to the obtuse and distinct basal

angles; disk broadly and rather strongly arcuate from side to side, sparsely punctate, more or less asperate along the lateral margins and at the basal angles which are somewhat flattened. Fifth ventral abdominal segment short, about as long as the fourth and sinuato-truncate at apex.

Female.—Slightly wider behind. Pronotum more transverse, a little smaller; sides less prominent and sinuate behind, slightly sinuate in middle two-fourths then slightly obtusely angulate, passing arcuately into the apex; base a little broader than the apex, otherwise as in the male. Fourth and fifth ventral segments longer, the latter longer than the preceding and arcuate at apex.

Measurements.—Length (types), 3.4 to 3.5 mm.; width, 1.5 to 1.6 mm.

Type, male, and *allotype*, female, in my own collection, and paratypes in that of Mr. Ralph Hopping, who collected the specimens on June 5, 1913, at an elevation of 2525 feet. Five specimens studied.

Type locality.—Isabella, Kern County, California.

The species must be placed after *fimbriatus* Casey. It differs from *niveus* in its shorter, sparser pubescence, which does not hide the general surface, and the pronotal sides are more irregular. *Basalis* is larger and more elongate, besides other differences given in the description.

Trichochrous acutus new species

Form oblong, stout, elongate and convex. Color black and shining; basal half of the femora rufous, or the legs entirely so.

Pubescence cinereous or flavo-cinereous in color, rather short and recumbent, sparse on the upper surface, dark on the central area of the pronotum and in a longitudinal stripe, that extends on each elytron to the apical declivity, nearer to the suture than to the sides and about equal to a fourth of the width of each elytron; abundantly intermixed with long, more or less erect black hairs, which are longer, erect and bristling at the sides of the pronotum and elytra, but not forming a regular and closely set fringe.

Head sparsely and moderately coarsely punctate, surface glabrous between the punctures; frontal impressions longitudinal, long and broad, the intervening surface rather convex in a rounded area behind the epistomal base. Muzzle quadrate and the epistoma long. Antennae stout.

Pronotum strongly convex, wider than long, apex about equal in width to the base; sides broadly arcuate, less so anteriorly where they become straighter, feebly and broadly sinuate behind the strongly advanced and slightly everted, acute apical angles; lateral margins rather broad and reflexed; apex deeply emarginate between the prominent angles and quite transverse in middle two-fourths; base broadly arcuate; basal angles obtuse, the margin flattened and reflexed; disk punctate, punctures moderate and sparse, slightly denser laterally.

Elytra almost twice as long as wide, oblong, rather strongly convex, slightly flattened on the disk, punctures moderate and separated by a distance equal to twice their diameter; surface slightly transversely rugose posteriorly.

Abdomen rather finely punctate; genital segments at apex more or less set with blackish hairs.

Male.—Fifth ventral abdominal segment about a third shorter than the fourth, truncate and slightly sinuate at middle of apex.

Female.—Fifth ventral segment broadly arcuate at apex.

Measurements.—Length (types), 4 to 3.6 mm.; width, 1.7 to 1.6 mm.

Type, male, and *allotype*, female, in the collection of the California Academy of Sciences. Collected by Mr. E. P. Van Duzee on June 2. A paratype has been deposited in the collection of the American Entomological Society in Philadelphia; also, one in that of the author.

Type locality.—Soboba Springs, Riverside County, California. The species has been taken at Colton, San Bernardino County, California, May 26 and 28.

Acutus can easily be recognized by its very acute and anteriorly prominent apical angles of the pronotum, and the color and pubescence as given above; surface shining and with a somewhat purplish luster. It is related to *tinctipes*, which has a distinct purpureo-aeneous luster and obtuse apical angles which are not prominent anteriorly. The coloration is somewhat similar in the two species. Both species should follow *curticollis* Casey in our lists and cabinet arrangement.

Trichochrous dubitans new species

Form elongate, parallel to suboval and very moderately convex. Color deep black and more or less shining, surface with a very

feeble metallic tinge; antennae toward base, tibiae and tarsi more or less dark rufo-piceous.

Pubescence grayish to brownish in color, moderately long, sparse and more or less recumbent; the dark brownish hairs form a longitudinal vitta on each elytron, these extend from the base to near the apex, blending imperceptibly with the paler hairs laterally and along the suture; black semi-erect hairs are sparsely distributed on the elytra, they are of moderate length, inconspicuous, more or less decurved and not bristling. In the types these dark hairs are not discernible from the others on the pronotal disk, but more or less so on the head. Lateral pronotal fimbriae regular and moderate in length, not very closely placed and blackish in color; the fimbriae of the elytral margins are grayish and less closely placed.

Head as wide as the pronotal apex, eyes large; front flat, very feebly impressed and sparsely punctate.

Pronotum transverse, about a third wider than long; sides parallel and broadly arcuate, angles broadly rounded, the apical less strongly than the basal; apex truncate and the base broadly arcuate; disk moderately convex from side to side, very sparsely punctate in the central area where the punctures are separated by a distance equal to three or four times their diameter, denser and punctato-reticulate laterally.

Elytra about twice as long as wide, somewhat transversely impressed across the base a short distance behind the humeri; punctures not coarse and separated by a distance equal to two or three times their diameter; apex broadly rounded.

Abdomen moderately, finely and somewhat thickly punctate.

Male.—Parallel in form. Fifth ventral abdominal segment distinctly but not deeply emarginate at apex; emargination evenly rounded; surface feebly flattened at middle, pubescence not modified; longer than the fourth.

Female.—Suboval. Fifth ventral abdominal segment broadly rounded at apex.

Measurements.—Length (types), 2.9 to 3 mm.; width, 1 to 1.3 mm.

Type, male, and *allotype*, female, in the collection of the California Academy of Sciences. Collected on April 10th, 1918, by Mr. J. T. Carlson.

Type locality.—El Cajon, San Diego County, California.

Dubitans shows a beginning modification of the fifth ventral abdominal segment at apex, and therefore affinity with *sexualis* Casey; the lateral pronotal fringe is not in keeping with that of other members of the group.

Cradytes ursinus new species

Form elongate oval, two and a half times longer than wide, convex. Color black; legs rufo-testaceous; antennae piceous, basal joints somewhat rufous. Surface somewhat shining.

Pubescence rather dense but not hiding the body surface, moderately long and almost coarse and shaggy; consisting of black erect setae, and flavo-cinereous and more or less recumbent hairs, both most abundant on the head and pronotum; sides of the body not distinctly fimbriate; beneath the hairs are recumbent.

Head relatively small, a little more than half the width of the pronotum; rather coarsely and not closely punctate; antennae stout, club of seven joints which are subequal in width, fifth slightly shorter than the succeeding joints.

Pronotum a little wider than long; sides parallel and broadly arcuate, continuously so with the apical angles and apex; basal angles almost broadly rounded and subobtuse; base arcuate. Lateral margin more or less distinctly and rather coarsely dentate anteriorly; disk broadly and rather strongly convex, shining, coarsely punctate, punctures separated by a distance equal to one or two times their own diameter, sculpturing almost hidden by the long shaggy pubescence.

Elytra scarcely twice as long as wide; sides parallel, apex parabolically rounded, apices slightly dehiscent; surface rather strongly convex and coarsely punctate.

Abdomen rather densely punctate.

Male.—Prothorax somewhat larger than in the known females. Sexual characters not very evident.

Measurements.—Length (types), 4.3 to 6 mm.; width, 1.75 to 2.4 mm.

Type, male, and *allotype*, female, in my own collection. A paratype has been placed in the collection of the American Entomological Society in Philadelphia, another in that of the California Academy of Sciences, San Francisco, a third in that of Mr. F. W. Nunenmacher and one in my own.

Type locality.—Nogales, Arizona. Collected by Mr. F. W. Nunenmacher, on Sept. 4, 1906.

The species is obviously not *serricollis* LeConte; *longicollis* Casey has the erect setae pale and the legs black; *serrulatus* LeConte has the legs black and differs in other particulars as well. *Ursinus* may possibly prove to be a race of the latter species. The other species are before me.

The four species of *Cradytes* may be recognized as follows:

Body black, elytra pale rufo-ferruginous. . . 1. *serricollis* LeConte

Body black throughout; legs black or pale;
smaller species.

Erect setae of elytra pale; legs black. 2. *longicollis* Casey

Erect setae black; body very slightly stouter.

Legs black; pubescence very short. . . 3. *serrulatus* LeConte

Legs rufo-testaceous; pubescence long and shaggy.

4. *ursinus* new species