

Utah State University

DigitalCommons@USU

Ca

Bee Lab

5-13-1909

Descriptions of Some Bees in the U.S. National Museum

T. D. A. Cockerell

University of Colorado

Follow this and additional works at: https://digitalcommons.usu.edu/bee_lab_ca



Part of the [Entomology Commons](#)

Recommended Citation

Cockerell, T. D. A., "Descriptions of Some Bees in the U.S. National Museum" (1909). *Ca*. Paper 414.
https://digitalcommons.usu.edu/bee_lab_ca/414

This Conference Paper is brought to you for free and open access by the Bee Lab at DigitalCommons@USU. It has been accepted for inclusion in Ca by an authorized administrator of DigitalCommons@USU. For more information, please contact digitalcommons@usu.edu.



217

CALIFORNIA ACADEMY OF SCIENCES
DEPARTMENT OF ENTOMOLOGY

9. M. 1909d

Dupl.

1909
Cat.
DESCRIPTIONS OF SOME BEES IN THE
U. S. NATIONAL MUSEUM

Caenonomada brunnei,
* *Emphoropsis muricharta*,
murina n. sp.

BY

T. D. A. COCKERELL
Of the University of Colorado, Boulder

Propolis philippinensis
Coelioxys manihoti
Megachile robbii

No. 1674.—From the Proceedings of the United States National Museum,
Vol. XXXVI, pages 411-420

Published May 13, 1909



Washington
Government Printing Office
1909

Property of G. E. BOHART

[*Caenonomada*
Emphoropsis
Allosdape
Coelioxys
Megachile
Mesochorus
Perithous
Nomia
Halictus

Micrandrena
Andrena }

Pyrenopoda *Apidae*



DESCRIPTIONS OF SOME BEES IN THE U. S. NATIONAL MUSEUM

BY

T. D. A. COCKERELL

Of the University of Colorado, Boulder

No. 1674.—From the Proceedings of the United States National Museum,
Vol. XXXVI, pages 411-420

Published May 13, 1909



Washington
Government Printing Office
1909

217

DESCRIPTIONS OF SOME BEES IN THE U. S. NATIONAL
MUSEUM.

By T. D. A. COCKERELL,
Of the University of Colorado, Boulder.

The late Doctor Ashmead described many genera of bees, some of which were based on species hitherto unknown. The descriptions were mostly in the form of tables, and in several cases the new species were merely mentioned by name, the detailed descriptions being reserved for a later occasion. Owing to the pressure of other work and Doctor Ashmead's illness, the opportunity for preparing the projected descriptions never came, and in consequence the species concerned remained very imperfectly known. Through the kindness of the National Museum authorities, I have been allowed to borrow the principal species referred to, and accordingly offer detailed descriptions of them. In the cases of the species of *Micrandrena*, *Crociaspidia*, *Perditomorpha*, and *Cænonomada*, although Ashmead gave no separate specific descriptions, he published enough information in the course of the generic diagnoses to satisfy the technical requirements, and the specific names must be credited to him and dated from 1899.

I have added some notes on the Philippine Island bees described by Doctor Ashmead, which I examined a few years ago when in Washington.

Genus CÆNONOMADA Ashmead.

CÆNONOMADA BRUNERI Ashmead.

Cænonomada bruneri ASHMEAD, Trans. Amer. Ent. Soc., XXVI, 1899, p. 68
(no locality given).

Tetrapedia gaullei VACHAL, Revue d'Entomologie, January, 1904, p. 22.
(Tucuman, Argentine.)

Male.—Length about 10 mm.; black and lemon yellow; hair of head and thorax above very pale fulvous, of cheeks, pleura, etc., white; wings dusky, the nervures and stigma ferruginous. Head broad; eyes large and prominent, pale green, converging below; facial quad-

range higher than its breadth in middle; labrum, basal half of mandibles, clypeus except upper part (where the lower edge of the black has the outline of a very broad W), a triangular supraclypeal mark, lateral face marks narrowing to a point on orbit nearly level with anterior ocellus, and line along posterior orbits, all yellow; scape much dilated, yellow with a large black triangle on one side above; flagellum ferruginous, strongly blackened above, reaching about to anterior part of scutellum, the apical joint attenuated and directed to one side at end, forming a sort of hook; second antennal joint sunken in apex of scape; third much longer than fourth, though not long; ninth and tenth more or less tuberculate beneath; mandibles with a strong inner tooth; tongue long and slender, its length about $4,165\mu$; labial palpi normal for the genus, four-jointed, second joint about 765μ long, first about $1,920\mu$; blade of maxilla elongated, broad basally, but the apical two-thirds slender, with small erect bristles along the inner edge; maxillary palpi six-jointed, the first three joints at least twice as thick as the other three, the first less than half length of second; lengths of joints in μ : (1) 102, (2) 255, (3) 255, (4) 204, (5) 170, (6) 136; maxillary comb very strongly developed,^a paraglossæ about $1,020\mu$ long, thus much shorter than first joint of labial palpi; mesothorax and scutellum dull, yellowish-brown, the hind part of scutellum dull orange; pleura and metathorax black, the pleura shining with sparse punctures; postscutellum yellow, as also upper edge of prothorax, interrupted in the middle, two short stripes on anterior middle of mesothorax, a dull spot above each tegula, and small spots on axillæ; tubercles orange, strongly produced and pointed; tegulæ fulvous, rather large; stigma small; marginal cell broadly rounded at end; basal nervure meeting transversomedial; third submarginal cell longest, receiving second recurrent nervure at beginning of its last third; second submarginal broad, almost if not quite as long below as first, and receiving first recurrent nervure beyond the middle; third transversocubital nervure strongly and abruptly bent; tibiæ all yellow (hind tibiæ black at extreme base); anterior and middle femora yellow, partly black above; hind femora greatly swollen and thickened, bulging beneath near base, black, with a broad yellow stripe on outer side; hind tibiæ thick but not conspicuously abnormal, but with an extremely large and broad dark ferru-

^a The mouth-parts are described from a slide-mount made by Mr. Crawford. Compared with *Exomalopsis* (*E. solani* Cockerell), the paraglossæ of *C. bruneri* are much longer, the tongue is longer, and the maxillary palpi are very much shorter in comparison with the blade or galea, being hardly half its length, whereas in the *Exomalopsis* the palpus is little shorter than the galea. The maxillary blade of *C. bruneri* shows some approach to the condition found in *Entechnia*.

ginous spur; anterior basitarsus yellow and the small joints ferruginous, both with dense white hair behind; middle basitarsus yellow with the apex black, the small joints dark, the last ferruginous; hind basitarsus black, broadened and flattened, with short dark fuscous hair on inner side; small joints of hind tarsi dark, the first three with successively decreasing pencils of fuscous hair; abdomen yellow, with the hind margins of the segments very broadly black, so that in the middle line there is more black than yellow; extreme base of fifth segment black (probably also the others, were they uncovered); apical plate broadly truncate, yellow with the apex broadly and the sides very narrowly black; venter yellow at sides and black in the middle.

Female.—More robust, but very similar in general appearance. Scutellum and lateral margins of mesothorax dull orange; post-scutellum yellow, but the yellow marks on prothorax and mesothorax wanting; face much broader; scape slender and with more black; flagellum normal, but the third antennal joint is at least as long as the next three together; clypeus with more black; lateral face marks reduced to irregular triangles, not going above level of antennæ; legs without yellow, except on the anterior and middle knees; middle tibiæ and tarsi brownish with curious short glittering hair; hair on inner side of middle and hind basitarsi dark fuscous; hind tibiæ and basitarsi broad, with a large glittering scopa; hind tibial spurs slender and normal; abdomen marked as in the male, but first segment black with a transverse yellow band not quite reaching the margins; fifth segment with a heavy fringe of fuscous hair; venter black, with long white hairs fringing the segments.

Habitat.—Carcara, Argentine Republic (*L. Bruner*). One of each sex. In Friese's table of *Tetrapedia*^a this runs to 31, and runs out because of the coloration of the venter of abdomen. It thus falls into the *T. picta* group of Friese. Since writing the above, I have corresponded with Doctor Friese, who would place the insect (along with Holmberg's *Chacoana*) in *Epicharis*. To this I can not assent, as *Epicharis* is derived from *Tetrapedia*, mainly by the reduction in the joints of the maxillary palpi; the subgenus *Epicharoides*, which most resembles *Cænonomada*, has these palpi three-jointed. *Cænonomada* has six-jointed maxillary palpi, and thus goes with *Tetrapedia*. On the other hand, I must agree with Doctor Friese that *Cænonomada* is the same as *Chacoana*. Holmberg's description of *Chacoana melanoxantha* appeared in 1903, and so *Cænonomada* has priority. Mr. Schrottky wrote me in 1906 that he had seen a specimen of *Chacoana melanoxantha* from Asunción and ascertained that it was not an *Epicharis*.

^a Ann. k. k. Naturhist. Hofmuseums, Wien, 1899, p. 278.

Genus EMPHOROPSIS Ashmead.

EMPHOROPSIS MURIHIRTAE MURINA (Ashmead MS.), new subspecies.

Meliturgopsis ASHMEAD, Trans. Amer. Ent. Soc., XXVI, 1899, p. 62.—Cockerell, Ann. Mag. Nat. Hist., Jan., 1901, p. 49. (No species cited in either place.)

Male.—In all respects like *E. murihirta* Cockerell, except that the face markings are ivory white instead of yellowish; the hair of the thorax* is mouse-grey mixed with black, without the yellow tint; and the abdomen beyond the first segment is rather densely beset with long pale hair, not mixed with black.

Habitat.—San Francisco County, California, October (collector unknown). Typical *E. murihirta* is from Los Angeles. It has in the male much black hair on the second and following abdominal segments, and a silvery-white fringe just before the apex.

Type.—Cat. No. 12237, U.S.N.M.

A male specimen without locality, labeled as representing another species of *Meliturgopsis*, is *Anthophora pacifica* Cresson. This insect is much like the male of *A. porterae* Cockerell, but among other characters the labrum is longer and conspicuously turned up at the end. It occurs in California.

EMPHOROPSIS VIERECKI, new species.

Emphoropsis, new species, COCKERELL, Canadian Entomologist, July, 1905, p. 265.

Allied to *E. pascoensis* Cockerell, but hair of face and vertex without black intermixed. Colorado and New Mexico. I supposed in 1905 that Mr. Viereck was about to describe it, but as he did not do so, I provide a name.

The type is in the collection of the American Entomological Society.

ALLODAPE PHILIPPINENSIS (Ashmead).

Prosopis philippinensis ASHMEAD, Journ. N. Y. Ent. Soc., XII, 1904, p. 5.

Allodape philippinensis ASHMEAD, Proc. U. S. Nat. Mus., XXVIII, 1904, p. 149.

Although Doctor Ashmead corrected the generic reference in his list, he did not indicate that the species was previously described under *Prosopis*. The original description included a note stating that the reference to *Prosopis* was provisional, and not really correct. I have examined the type, an interesting little species, best distinguished by the fact that the hind margins of the abdominal segments are very narrowly testaceous. The description almost exactly agrees with that given by Bingham for *Allodape marginata* Smith, an insect only known by the unique type in the British Museum, reputed with doubt to be from the East Indies. I suspect that *A. marginata* really came from the Philippines, and is the same as *A. philippinensis*.

COELIOXYS MANILÆ (Ashmead).

Coelioxys manilæ ASHMEAD, Canad. Entomologist, XXXVI, p. 281.

The last dorsal segment (female) is broadly rounded, much like that of *C. lanceolata* Nylander.

MEGACHILE ROBBII (Ashmead).

Megachile robbii ASHMEAD, Proc. U. S. Nat. Mus., XXVIII, p. 128. (Female.)

The ventral scopa is very pale fulvous, black at tip; the tegulæ are red with a black basal spot. The unique type is from Manila.

Genus MESOTRICHIA Westwood.

This genus, usually considered a synonym of *Xylocopa*, appears to be valid, as Ashmead states.^a I can not satisfactorily separate *Cyaneoderes* from it.

MESOTRICHIA CÆRULEA (Fabricius).

Bombus cæruleus FABRICIUS, Syst. Piez., 1804, p. 345. ("New Caledonia.")

Xylocopa semiarmenia LATREILLE; WIEDEMAN, Mag. f. Ent., IV (1821), p. 421.—LEPELETIER, Hist. Nat. Ins. Hym., II, 1841, p. 200, as synonym. (Java.)

Xylocopa cærulea LEPELETIER, Hist. Nat. Ins. Hym., II, 1841, p. 200.—FRIESE, Abt. Nat. Ver. Bremen, 1904, p. 134. (Buitenzorg, Java.)

Koptorthosoma cæruleum CAMERON, Proc. Zool. Soc., London, May, 1901, p. 34. (Malay Peninsula.)

Cyaneoderes fairchildi ASHMEAD, Trans. Amer. Ent. Soc., XXVI, 1899, p. 70. (Java; the specimens collected by D. G. Fairchild at Buitenzorg, 1896.)

MESOTRICHIA ABBOTTI, new species.

Differing from *M. cærulea* as follows:

M. cærulea (female).

Larger; anterior wing 19-20 mm. long.

Only two submarginal cells, the first transverso-cubital nervure absent, or represented by a faint streak.

First abdominal segment quite densely clothed with blue hair; sides of second fringed with blue.

Wings fuscous, with pinkish-purple iridescence.

Supraclypeal ridge prominent and shining.

M. abbotti (female).

Smaller; anterior wing not over 16 mm. long.

Three complete submarginal cells, the first transverso-cubital nervure strong.

First abdominal sparsely and inconspicuously clothed with blue hair; sides of second without blue.

Wings darker, the purple stronger.

Supraclypeal ridge less prominent.

Habitat.—Trong, Lower Siam (Dr. W. L. Abbott). Three females. Also from Trong, collected by Doctor Abbott, is a female of genuine *M. cærulea*, with the face narrower than the average of the Javan specimens, but evidently conspecific with them. I accept as the genu-

^a Trans. Am. Ent. Soc., XXVI, p. 71.

ine *M. carulea* the insect described by Lepeletier, who particularly calls attention to the peculiarity in the venation. The *Xylocopa carulea* of Bingham,^a is *M. abbotti*, as his figure very clearly shows.

Fabricius described his *Bombus caruleus* from New Caledonia, and Bingham says that it ranges to New Caledonia. Vachal has recently reported on a collection of bees from New Caledonia, and includes neither *M. carulea* nor any relative of it. I think there can be no doubt that "New Caledonia" was an error, the real range of the insect being from Java to Siam. Another blue-haired species, *Xylocopa grubaueri* Friese, has been described Upper Perak, Malacca. It is very distinct from those now under discussion.

The male of *M. carulea* was briefly indicated by Ashmead from the Javan specimens under his generic description of *Cyaneoderes*. It is large, black, with the hair of the head and thorax (so far as can be seen from the specimens, which have been in spirit) greenish or olivaceous brown, not at all blue. The eyes are very large, and approach above, leaving only a narrow space between them and the large ocelli. The face is without light markings; the copper-red hairs on the labrum are very brilliant. The wings are a little lighter than in the female. The abdominal segments are red at the extreme base, as becomes conspicuous when they are unusually extended. The hind tibiae have at the apex within a large obtuse shining tubercle, the end of which is directed posteriorly. The flagellum beyond the base is ferruginous beneath.

Type.—Cat. No. 12238, U.S.N.M.

Genus PERDITOMORPHA Ashmead.

Perditomorpha ASHMEAD, Trans. Amer. Ent. Soc., XXVI, 1899, p. 86.

This is a genus of Panurgines close to *Camptopæum*, from which it is distinguished by the absence of light markings on the face, the simple spur of middle tibia, the very narrowly subtruncate marginal cell, and the transversomedial nervure meeting the basal. These remarks all apply to the female, the male of *Perditomorpha* being unknown. In the type of *Camptopæum* (*C. frontale* Fabricius from Europe) the basal nervure falls far short of the transversomedial, and the second submarginal cell is longer than the first. In the South American *C. ochraceum* Friese, *C. submetallicum* Spinola, and *C. flaviventre* Friese, which are before me, the basal nervure also falls far short of the transversomedial, and the apex of the marginal cell is much more remote from the costa than it is in *Perditomorpha*. The spur of the middle tibia is finely denticulate in all these species, as also in *Parafriesea*^b *prinii* (*P. brasiliensis* Schrottky, *Camptopæum prinii* Holmberg).

^a Fauna of British India, Hymenoptera, I, p. 544, pl. iv, fig. 8.

^b Friese refers this genus to *Perdita*. It is very distinct from *Perdita*, but scarcely separable from *Calliopsis*.

In *Acamptopæum*^a the body is somewhat hairy, the basal nervure meets the transversomedial, and the second submarginal cell is scarcely longer than the first. In all this there is close approximation to *Perditomorpha*, but in other respects the bees are not very similar.

In *Spinoliella* (*S. zebrata* Cresson, *S. obscurella* Cresson) the venation is essentially as in *Camptopæum*, and the middle tibial spur (female) is very finely denticulate.

In *Psanythia* (*P. philanthoides* Gerstaecker, *P. annulata* Gerstaecker) the middle tibial spur is strongly obliquely dentate; the basal nervure almost meets the transversomedial in *P. philanthoides*, but falls some distance short of it in *P. annulata*.

In *Hypomacrotera* the end of the marginal cell is as in *Perditomorpha*, but the basal nervure falls short of the transversomedial.

In *Greeleyella* the basal nervure meets the transversomedial, but the end of the marginal cell is not at all as in *Perditomorpha*, and the first recurrent nervure meets the first transversocubital.

In *Hesperapis* the shape of the third discoidal cell and the end of the marginal are very different from those in *Perditomorpha*.

Parandrena is easily known from *Perditomorpha* by the broad foveæ, which are as in *Andrena*.

All things considered, *Perditomorpha* is nearest to *Acamptopæum*, but apparently sufficiently distinct. Should they be merged, Ashmead's genus has priority.

In regard to the mouth parts *Perditomorpha* runs in the table in Annals and Magazine of Natural History, July, 1902, p. 42, to *Hesperapis*, to which it is not closely allied.

PERDITOMORPHA BRUNERII Ashmead.

Female.—Length 9–10 mm.; *Andrena*-like in appearance; black, with a shining ferruginous-red abdomen; pubescence rather short, white, fuscous at apex of abdomen, a few infuscated hairs on scutellum, more or less fuscous on middle tibiæ in front, and coarse and strongly fuscous on upper outer side of hind tibiæ. The white hair of the face, cheeks, pleura, and sides of metathorax is abundant and conspicuous. Head broad, facial quadrangle about square, the inner orbits practically parallel; clypeus shining, densely punctured, with a median raised line; no *Andreniform* facial foveæ; front closely punctured; sides of vertex shining, with a considerable impunctate area; ocelli rather large, in an extremely low triangle; antennæ very short, scape black, flagellum black basally and suffused with black above, but otherwise deep chestnut-red; second antennal joint rather large; third much longer than fourth, the latter being broader than long; labrum

^a Cockerell, Trans. Am. Ent. Soc., XXXI, 1905, p. 320.

ordinary, not notched; mandibles with strong inner tooth; labial palpi short, four-jointed, the first joint conspicuously shorter than the other three combined (its length about $145\ \mu$), and the whole palpus hardly $340\ \mu$ long; mentum long, about $1,530\ \mu$, its breadth near apex about $290\ \mu$; maxillary palpi short and rather thick, six-jointed, much shorter than blade of maxilla, though considerably more than half its length, the joints measuring in μ : (1) 135, (2) 69, (3) 50, (4) 42, (5) 35, (6) 60; the ends of the fourth and fifth joints are very oblique; maxillary blade narrow, obtusely pointed, about $600\ \mu$ long, with subapical bristles; maxillary comb well developed, but the teeth rather short and blunt; maxillary stipes about $1,275\ \mu$ long, with plumose hairs at the base.^a By some accident the tongue was lost in the single preparation I was able to make.

Thorax robust, shining; the scutellum moderately convex, very sparsely punctured, but the hind margin delicately fluted; mesothorax rather sparsely but strongly punctured, with distinct median and parapsidal grooves; postscutellum very hairy; as also the metathorax, except the large triangular nude basal area, which is smooth and shining, without sculpture; legs ordinary, the hind legs, and also the ventral hairs of the abdomen, carrying much yellow pollen; claws cleft; pulvillus large; spurs simple; tegulae dark brown; wings dusky hyaline, distinctly reddish, nervures and stigma ferruginous; stigma large; marginal cell narrowly subtruncate, appendiculate; two submarginal cells, the second at least as long as the first below, narrowed a little more than half to marginal above, receiving both recurrent nervures, the first fully twice as far from its base as the second from its end; transversomedial nervure very oblique; abdomen dull, the broad hind margins of the segments more shiny, and pale golden-hyaline; segments two to four very sparsely fringed with white hairs, not enough to form bands; venter very hairy.

Habitat.—Carcarana, Argentine Republic (*L. Bruner*). Two females, one being Ashmead's type.

NOMIA (CROCISASPIDIA) CHANDLERI (Ashmead).

Crocisaspidia chandleri ASHMEAD, Trans. Amer. Ent. Soc., XXVI, 1899, p. 68.

Female.—Length about 14 mm., robust, dull black, the first four abdominal segments with broad marginal bands, of which the middle third is lacking, of a most brilliant turquoise blue; face, prothorax, pleura, and sides of metathorax with much white hair; sides of mesothorax posteriorly, and basin of postscutellum covered with

^a In *Hesperapis* (*H. rhodocera* Cockerell) the maxillary palpi are really very different, in that the first joint is much shorter than the second, and the joints are more narrowed basally. The stipes is also very much shorter in proportion. The maxillary palpi of *Perditomorpha* are nearly the same as those of *Hypomacrotera* (Cockerell and Porter, Ann. Mag. Nat. Hist., Dec., 1899, p. 419), but the labial palpi are very different.

dense white tomentum; scutellum with lateral lobes, and postscutellum produced, exactly as in *N. scutellaris* Saussure, from Madagascar; antennæ black, the flagellum stout, greyish-pruinose; mesothorax with dense but rather shallow punctures; scutellum very densely punctured; tegulæ large; anterior wings fuscous-black, with violaceous tints; posterior wings hyaline; legs black, the coarse scopa of hind legs black; anterior and middle tibiæ each with a large patch of white hair on outer side, occupying all but apical part of anterior, but little more than basal half of middle ones; some white hair also behind the hind knees.

Habitat.—Jombene Range, East Africa (Chanler-Hohnel Expedition). The specific name should apparently have been *chanleri*, not *chandleri*. The above description disagrees in some important particulars with Ashmead's brief account, and the type specimen bears a specific name dedicating the insect to Doctor Abbott. It is, however, the true (and unique) type, as Doctor Ashmead showed it to me when I was in Washington some years ago, remarking that he had labeled it under the impression that it was caught by Doctor Abbott, and would have to change the name. The name *Crocisaspidia* may very well be used in a subgeneric sense, for the species of the group of *Nomia scutellaris*, namely:

(1) *N. scutellaris* Saussure. Madagascar. With entire white bands; wings not very dark.

(2) *N. maculata* (Fries). Grotfontein, Southwest Africa; Langenburg, Lake Nyassa. Abdominal segments one to four with bluish-white spots on each side; scopa white.

(3) *N. nigripes* (Fries). Ondonga, Southwest Africa; Old Calabar, West Africa; Chinchoxa, Africa; Togo, Africa. Much like *maculata*, but scopa black, etc.

(4) *N. amabilis* Cockerell. Benguella. Similar in most respects to *chandleri*, but postscutellum without white tomentum, and its lobes much more pointed; while the abdominal markings are of quite a different tint, a clear blue with purplish shading, whereas in *chandleri*, they are of a deeper and greenish-blue by comparison.

(5) *N. chandleri* [*chanleri*] (Ashmead).

NOMIA (HOPLO NOMIA) QUADRIFASCIATA (Ashmead).

Hoplonomia quadrifasciata ASHMEAD, Journ. N. Y. Ent. Soc., XII, p. 4.

I have examined the type; the abdominal bands are green, tinged with orange-vermilion.

HALICTUS PHILIPPINENSIS Ashmead.

Halictus philippinensis ASHMEAD, Proc. U. S. Nat. Mus., XXVIII, p. 128.

A species with the general aspect of *H. pectoralis*; the hind spur of hind tibiæ long pectinate; third submarginal cell of the short type; hair of abdomen at lateral bases of segments one and two, and across on three and four.

HALICTUS MANILÆ Ashmead.

Halictus manilæ ASHMEAD, Canadian Entomologist, XXXVI, p. 281.

A very ordinary looking species, with basal hair-bands on abdomen; hind spur of hind tibia pectinate with four teeth, two long; third submarginal cell short.

Genus MICRANDRENA Ashmead.

The group which Robertson^a calls *Opandrena* is readily divisible into two very distinct series, which seem to deserve subgeneric rank under *Andrena*. These are as follows:

Abdomen evidently punctured; basal nervure practically meeting transversomedial; apex of marginal cell rounded, not on costa; end of first transversocubital nervure not close to stigma.

Opandrena Robertson (type, *cressonii* Robertson)

Abdomen impunctate or practically so; basal nervure falling some distance short of transversomedial; apex of marginal cell more pointed, and on costa; end of first transversocubital nervure very near to the large stigma.

Micrandrena Ashmead (type, *pacifica* Ashmead)

Micrandrena also includes *Andrena ziziæ* Robertson, *A. personata* Robertson, and *A. fragariana* Graenicher. Unfortunately there is another type of *Andrena*, that of *A. flavoclypeata* Smith, which though placed by Robertson in *Opandrena*, does not fit into either of the groups defined above. It is near to *Micrandrena*, but the basal nervure almost meets the transversomedial, falling only a little short of it, and the end of the first transversocubital is not close to the stigma. *A. flavoclypeata* is larger than *Micrandrena*, but *A. ziziæformis* Cockerell, from Virginia, falls with it according to the characters cited, and yet has the stature and appearance of a *Micrandrena*.

Those who accept the whole series as one, following Robertson, must use Ashmead's name *Micrandrena*, which was published in 1899, while *Opandrena* was not published until 1902. In Ashmead's description of *Micrandrena* it appears that the facial foveæ are wanting; this is not really the case, they are quite distinct and practically as in *A. ziziæ*, of a seal-brown color, appearing white in certain lights.

ANDRENA PACIFICA (Ashmead).

Micrandrena pacifica ASHMEAD, Trans. Amer. Ent. Soc., XXVI, 1899, p. 89 (no locality cited).—COCKERELL, Psyche, X, 1903, p. 75 (California).

Female.—Stature and appearance as in *A. ziziæ* Robertson; differing from *ziziæ* as follows: Anterior middle of clypeus very shiny, with sparse punctures; flagellum dark, not ferruginous beneath; area of metathorax rougher; wings yellowish, nervures clear ferruginous, second submarginal cell broader; apical depression of second abdominal segment stronger and a little larger.

Habitat.—Alameda County, California; June (collector not stated on label.)

^aTrans. Amer. Ent. Soc., XXVIII, p. 193.

