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1898

Tables for the Determination of New Mexico Bees.

By T. D. A. COCKERELL,

Professor of Entomology in the New Mexico Agricultural College.

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VOLUME I, NO. 1.

TABLES FOR THE DETERMINATION OF NEW MEXICO BEES.*

By T. D. A. COCKERELL,
Professor of Entomology in the New Mexico Agricultural College.

The student should use E. T. Cresson's *Synopsis of the Families and Genera of Hymenoptera of America, North of Mexico*, (1887), to determine the genera. Thirteen genera given herein which are absent from Cresson's work may be determined as follows :

Hemihalictus, Ckll., is black, and resembles *Halictus* in structure, but has only two submarginal cells.

Parandrena, Rob., resembles *Andrena*, but has only two submarginal cells. It was formerly confounded with *Panurgus*.

Protandrena, Ckll., will run in Cresson's table to *Andrena*, but differs in having the marginal cell truncate at the end.

Halictoides, Nyl., has been confused with *Panurgus*, but it has a pointed marginal cell, whereas that of true *Panurgus* is truncate. The long tongue separates it from *Parandrena* and *Hemihalictus*.

Pseudopanurgus, Ckll., has been confused with *Calliopsis*, to which it will run in Cresson's table. The species are black, nearly naked, strongly punctured, with the wings fuliginous; marginal cell distinctly but obliquely truncate at tip; two submarginals, first recurrent nervure joining second submarginal cell no great distance before its middle, second recurrent joining it just before its tip; basal process of labrum large, subquadrate.

Panurginus, Nyl., includes part of what has been known as *Calliopsis*, namely the black species with no abdominal hair-bands, or light marks on the abdomen; and with yellow or yellowish-white on the faces of the males, with few exceptions.

Hesperapis, Ckll., has two submarginal cells, resembles *Phileremus*, but has a short dagger-like tongue. Mr. Ashmead refers it to *Rhopitosdes*, but the tongue is not at all as in that genus.

Neolarra, Ashm., is a *Phileremine* bee, easily known by its very small marginal cell.

Phileremulus, Ckll., is a minute bee resembling *Neolarra*, but with only one submarginal cell.

Ashmeadiella, Ckll., has been confused with *Heriades*, but is known by its clear wings, small or subobscure stigma, first recurrent nervure reaching submarginal cell further from the origin of the first transverso-cubital, and the abdomen of the males ending with four projections.

*Reprinted from the Bulletin of the Scientific Laboratories of Denison University, Vol. XI.

Anthophorula, Ckll., is like a small *Podalirius*, but has only two submarginal cells. Tip of marginal cell away from costa.

Oxaea, Klug., differs from *Megacilissa* in that the first recurrent nervure unites with the second transverso-cubital instead of with the first. The labrum is very large, and the eyes in the males strongly converge above.

Exomalopsis, Spin., will run in Cresson's table to *Nomia*, but it is a long-tongued bee, in no way related to *Nomia*. The species are short and compact, shiny, with a very large loose scopa on the hind legs of the females.

Family. ANDRENIDÆ.

Subfamily. PROSOPIDINÆ.

COLLETES.

- Large, *Andrena*-like species, with dark, often scarcely banded abdomen in the ♀ 1
- Large, ♂ only known, black hairs on dorsum of thorax, very large punctures and five white hair-bands on abdomen. Length about 15 mm (Gila R., July.) *gilensis*, Ckll. 3
- Smaller species, with banded abdomen, 3
1. No dark hairs on thorax. (Mesilla Valley, March.) *utilis*, Ckll. ♀. With dark hairs on thorax 2
 2. Tegulæ piceous, punctuation very strong and close, wings smoky. (Sacramento Mts., October,) . . . *bigelovia*, Ckll. ♀. Tegulæ rufo-testaceous, punctuation not so close, wings perfectly clear. (Mesilla Valley, late summer.) . . . *armata*, Patton. ♀.
 3. Distance between eyes and base of mandibles greater than breadth of latter; no black hairs on thorax 4
Distance between eyes and base of mandibles less than breadth of latter, 5
 4. About 10 mm. long, pubescence of thorax tinged with ochreous. (Sacramento Mts. and Mesilla Valley, July.) . . . *wootoni*, Ckll. ♂.
About 7 mm. long, pubescence white or greyish-white, not at all ochreous. (Mesilla Valley, June.) . . . *dalea*, Ckll. ♂.
 5. Dorsum of thorax with some black hairs; length about 10 mm. (Mesilla Valley, May, at willow blossom.) . . . *texana*, Cress, ♀.
Thorax without black hair, 6
 6. Pubescence of thorax short, the hairs stout, pubescent, moss-like; length about 11 mm. (Santa Fé, July.) . . . *aberrans*, Ckll., ♀.
Pubescence of thorax normal, 7
 7. Flagellum ferruginous beneath, tarsi ferruginous; small species. (Mesilla Valley, May, at flowers of mesquite.) . . . *prosopidis*, Ckll., ♂.
Flagellum dark, 8

- Note.*—For descriptions, see Ann. Mag. Nat. Hist., Jan., 1897. Some other species have been collected, but await study in the light of more abundant material.

Males.

- | | |
|--|---|
| Upper part of lateral face-marks receding from orbital margin, | 1 |
| Upper part of lateral face-marks continuous along orbital margin, | 4 |
| 1. Upper part of lateral face-marks arising away from the orbital margin, | 2 |
| Upper part of lateral face-marks touching orbital margin at the base, | 3 |
| 2. Wings not brownish, face yellow. (Santa Fé.) | |
| | <i>rudbeckiae</i> , Ckll. & Csd. |
| Wings tinged brownish, face yellowish-white. (Ruidoso Creek.) | <i>rudbeckiae</i> race <i>ruidosensis</i> , Ckll. |
| 3. Small species, with the upward extension of lateral face-marks itself little curved, and not greatly prolonged. (Mesilla Valley.) | <i>mesilla</i> , Ckll. |
| Larger species, with the upward extension of lateral face-marks narrow and inclined to be curved; face-marks strongly yellow. (Ruidoso Creek.) | <i>tridentula</i> , Ckll. |
| 4. Supraclypeal mark small and narrow; face much narrowed below. (Mesilla Valley.) | <i>asinina</i> , Ckll. & Casad. |
| Supraclypeal mark broad and short. (Ruidoso Creek.) | <i>wootoni</i> , Ckll. |

Females.

- First abdominal segment distinctly punctured; lateral face-marks
 shaped like feet on tiptoe, *asinina*, Ckll. & Csd.
 First abdominal segment indistinctly or not punctured; small species;
 clypeus with a light mark, *mesilla*, Ckll.

Note.—Some other species have been collected, but not yet satisfactorily identified.

Subfamily. SPHECODINÆ.

SPHECODES.

Females.

- Under 5 mm. long, abdomen long and narrow, orange. (*Mesilla* Val-
 ley.) *semicoloratus*, Ckll.
 Larger, abdomen ferruginous, 1
1. Small, about 6 mm. long, abdomen black at the tip. (*Mesilla* Valley.) *mandibularis*, Cresson.
 Large, abdomen not black at tip, nervures and stigma
 very dark brown, 2
 2. Mesothorax very strongly punctured, but the punctures
 separate, showing the shining surface between, 3
 Mesothorax not so punctured; very shining, with scat-
 tered punctures, 4
 3. 8 to 8½ mm. long, mandibles simple, labrum not notched,
 head broad, flagellum ferruginous beneath towards end,
 wings dull hyaline, legs black, spurs of hind tibiæ fer-
 ruginous, abdomen punctured only on the basal parts
 of the second and following segments, except for a few
 small scattered inconspicuous punctures; basal enclos-
 ure of metathorax distinct, semi-lunar, very strongly ir-
 regularly wrinkled, so as to be cancellate. (*Mesilla*
 Park, N. M., at flowers of *Sophia*, April 12; also at El
 Paso, Texas, May 13.) *fortior*, Ckll. n. sp.
 7 to 7½ mm. long, mandibles with a large tooth within;
 labrum scarcely produced, not notched; head broad,
 orbits more converging below than in *fortior*; metathor-
 acic enclosure shorter, with radiating wrinkles, and
 feebler cross ones; otherwise much as in the last. (*Mesilla*
 Park, at flowers of *Sophia*, April 12, also at flowers
 of plum, March 23,) *sophie*, Ckll., n. sp.
 4. Considerably more robust than *mandibularis*; 6 mm. long,
 head large and broad, mandibles dentate within, la-
 brum not produced or notched, flagellum wholly dark
 brown; mesothorax with very sparse punctures; meta-
 thoracic enclosure distinct, semilunar, strongly irregu-
 larly wrinkled; wings dusky hyaline; legs piceous,
 tarsi becoming ferruginous; abdomen sparsely punc-

tured. (Santa Fé, on white umbelliferous flowers, July 16, 1894.) *asclepiadis*, Kthl., n. sp. (so-called because a pollen-body of *Asclepias* is adherent to the mouth of the type specimen.)

About 7 mm. long; resembles *asclepiadis*, but differs in the broader face, the flagellum more inclined to ferruginous beneath; the metathoracic enclosure with fewer, more radiating wrinkles; the upper part of the sides of the metathorax more bulging and less strongly sculptured; femora black, tibiae and tarsi dull ferruginous, tibiae with a suffused dark spot; mandibles simple; labrum inclined to be notched. (Mesilla Valley, at flowers of *Sophia*, April 12.) . *perlustrans*, Ckll., n. sp.

Subfamily. ANDRENINÆ.

HALICTUS.

Females.

- | | |
|--|----|
| Head and thorax black, abdomen rufous, | 1 |
| Head and thorax black, abdomen black with well formed hair-bands, | 2 |
| Head and thorax black, abdomen not distinctly banded, but often pubescent, | 7 |
| Head and thorax black, with a faint greenish tinge, or quite green, abdomen with well-formed hair-bands; size not over 7 mm., | 9 |
| Head and thorax green or blue, abdomen without distinct hair-bands, | 10 |
| <p>1. Ocelli; extremely large, stigma honey-color, abdomen apricot color. (Mesilla Valley.) . <i>texanus</i>, Cress, (<i>Parasphcodes</i>.)</p> <p>Looks exactly like a <i>Sphcodes</i>; 7 mm. long, abdomen broad, dark apricot color, basal half of first segment black. Head and thorax strongly and very closely punctured, especially the head; head longitudinally oval, face much longer than broad, clypeus with large sparse punctures, scape thickly punctured, ocelli ordinary, antennæ short, flagellum except the first two joints ferruginous beneath; mesothorax with median and parapsidal grooves distinct; base of metathorax rugose, enclosure not defined, but bounded behind by a smooth shining area; tegulæ amber-color; wings hyaline, nervures and stigma dark sepia; legs dark, with light pubescence, first joint of hind tarsus with a brush of bright orange hair at its tip; abdomen with close small punctures, first segment nearly impunctate. (Santa Fè, Aug. 1, probably either on <i>Solidago</i> or <i>Clematis</i>, caught by either Myrtle Boyle or Veer Boyle.)</p> <p style="text-align: right;">. <i>ovaliceps</i>, Kll., n. sp.</p> | |
| 2. Cheeks produced to a prominent angle beneath; rather large species. (Mesilla Valley, Santa Fè. &c.) . <i>ligatus</i> , Say. | |
| Cheeks not produced beneath, | 3 |

3. Stigma honey-color, or at least not dark brown, 4
Stigma dark brown or black, 6
4. Tegulae dark piceous, larger species, 5
Tegulae dark testaceous, smaller species, $8\frac{1}{2}$ mm. long.
(Mesilla Valley.) *amicus*, Ckll.
5. Wings tinged yellowish, nervures honey-color. (Ruidoso
Creek, Bernalillo, Paraje.), *coriaceus*, Smith.
Wings clear, nervures fuscous, hair-bands of abdomen
white. (Mesilla Valley.) *bardus*, Cresson.
6. Tegulae testaceous; metathoracic enclosure truncate be-
hind, with a sharp rim. (Mesilla Valley, Watrous.)
. *sisymbrii*, Ckll.
Tegulae black; metathoracic enclosure semilunar. (Me-
silla Valley.) *angustior*, Ckll.
7. Abdomen black, the segments not margined with testa-
ceous; first segment impunctate; lateral white hair-
patches present; stigma piceous. (Mesilla Valley, Ros-
well, Santa Fé.) *pectoraloides*, Ckll.
Abdomen rather brownish, the hind margins of the seg-
ments more or less testaceous, first segment punctured,
stigma honey color, 8
8. Flagellum more or less testaceous beneath, tarsi rufous,
first segment of abdomen transversely striate. (Mesilla
Valley, Santa Fé.) *subobscurus*, Ckll.
Flagellum wholly dark, tarsi dark, first segment of abdo-
men not transversely striate, *amicus*, Ckll, (when worn.)
9. Mesothorax blue-black, scutellum and postcutellum dark
greenish. (Santa Fé.) *tripartitus*, Ckll.
Mesothorax bronze-green or olive-green. (Mesilla Valley.)
. *meliloti*, Ckll.
10. Very small; tegulae punctured. (Mesilla.) *pseudotegularis*, Ckll.
Tegulae not punctured, II
11. Cheeks with a conspicuous tubercle beneath. Length
about 6 mm., head and thorax dark bluish-green vary-
ing to olive green; abdomen very dark brown, with a
distinct green lustre; hind margins of abdominal seg-
ments more or less testaceous; legs piceous; pubescence
scanty, dirty white; abdomen pruinose-pubescent.
Wings hyaline, stigma and nervures honey-color; tegulae
dark brown. Head very large, facial quadrangle about
square; apical portion of clypeus purplish-back; front
and sides of the face with small close punctures; meso-
thorax and scutellum with distinct but very sparse
punctures; base of metathorax shining, obscurely
roughened, with very faint longitudinal wrinkles towards
the sides. Abdomen shining, hardly punctured. Al-
lied to *H. connexus* and *H. cephalotes*. (Las Cruces,

May, Miss Agnes Williams; Mesilla, April 27, at flowers of *Rosa blanda* in cultivation, C. M. Barber.)

- oleus, Ckll., n. sp.
- Cheeks not tuberculate, 12
12. Thorax blue; stigma pale yellowish, 13
- Thorax green, 14
13. Mesothorax with very large and strong punctures. (Santa Fé.) *semicæruleus*, Ckll.
- Thorax small, mesothorax shiny, hardly punctured. (Mesilla Valley.) *semibrunneus*, Ckll.
14. Abdomen green like the head and thorax. (Mesilla Valley.) *pruinus*, Rob.
- Abdomen apricot color, often dark at the apex. This species, common in the Mesilla Valley, has formerly been recorded as *H. stultus*, but it differs from that, and resembles *H. nymphalis*, in having the mesothorax strongly and rather closely punctured. It differs from *nymphalis* in the bluer green of the head and thorax, but seems to be only a geographical race of that insect.
- nymphalis*, Smith, race *mesillensis*, Ckll., n. race.
- Abdomen black or piceous, 15
15. Stigma pale honey-color; metathorax dark blue; abdomen hoary. (Santa Fé.) *perdifficilis*, Ckll.
- Stigma dark or light brown, when light a dilute sepia tint, 16
16. Tegulae very dark; clypeus coppery or brassy, contrasting with the face. (Ruidoso Creek, Santa Fé, Mesilla Valley.) *ruidosensis*, Ckll.
- Tegulae reddish-testaceous; face narrower. (Mesilla Valley.) *ashmeadii*, Rob.

Note.—Several other green species of *Halictus* have been collected, but not yet sufficiently studied.

HEMIHALICTUS.

8 mm. long, black. (Lone mtn., at flowers of *Pyrrhopappus* early in the morning.) *lustrans*, Ckll.

AUGOCHLORA.

Entirely bluish-green, very brilliant; fourth ventral segment of male abdomen not emarginate. (Mesilla Valley, Organ Mts.) *neglectula*, Ckll.

AGAPOSTEMON.

Females.

- Abdomen honey-color, *melliventris*, Cresson.
- Abdomen green, like the head and thorax, 1
1. Mesothorax with punctures of two sizes, *texanus*, Cresson.
- Mesothorax roughened, *radiatus*, Say.

These three are all found in the Mesilla Valley; *texanus* goes north to Embudo and Santa Fé; *melliventris* to Rincon and Vega S. José. The males of all have yellow abdomens banded with black.

ANDRENA.

- Abdomen partly or wholly rufous, 1
 Abdomen black or dark brown, at most pale-banded, 7
 Abdomen blue. (Santa Fé, July) *cerasifolii*, Ckll.
1. Pubescence black. (Mesilla Valley, April.) *prima*, Casad.
 Pubescence grey or fulvous, 2
 2. Wings clear or almost so; abdomen not closely punctured.
 (Mesilla Valley, Paraje, April.) *sphecodina*, Casad and Ckll.
 Wings clouded at apex at least, 3
 3. Clypeus dark, at most with a yellow spot, 4
 Clypeus yellow, at least in the ♂, 5
 4. First segment of abdomen very feebly and sparsely punctured. Mesilla Valley, April.) *jessica*, Ckll.
 First segment of abdomen strongly punctured. (Santa Fé, Aug.) *argemonis*, Ckll.
 5. Dorsum of thorax honey yellow. (Northern N. M.) *mellea*, Cress.
 Thorax entirely black, 6
 6. Second segment of abdomen without a black band. (Mesilla Valley, Paraje, April.) *prunorum*, Ckll.
 Second segment of abdomen with a black band. (Mesilla Valley, April.) *casada*, Ckll.
 7. Pubescence black. (Mesilla Valley, April.) *nigerrima*, Casad.
 Pubescence at least partly pale, 8
 8. Clypeus and part of sides of face yellow or white, 9
 Clypeus only yellow, 12
 Sides of face yellow, clypeus mostly dark. (Mesilla Valley, Oct.) *pulchella*, Rob., ♀.
 Face all dark, 13
 9. Wings dusky at apex, clypeus dark at sides, first two segments of abdomen with apical rufotestaceous bands.
 (Organ Mts., Sept.) *aliciarum*, Ckll., ♀.
 Wings clear, 10
 10. Lower edge of clypeus broadly black, *pulchella*, Rob., ♂.
 Clypeus cream-color, edge not broadly black, 11
 11. Larger, flagellum dark, lateral face-marks pointed above.
 (Mesilla Valley, April.) *capricornis*, Csd. and Ckll., ♂.
 Smaller, flagellum ferruginous beneath. (Mesilla Valley, April.) *primulifrons*, Casad., ♂.
 12. Abdomen with orange color-bands. (Santa Fé.) *aureocincta*, Ckll., ♂.
 Abdomen without color-bands, strongly punctured; wings dusky at apex. (Mesilla Valley, April.) *fracta*, Csd. and Ckll., ♂.

13. Pubescence of thorax bright ferruginous; wings very dark,
especially at apex. (Embudo, Sept., at flowers of
Bigelovia.) *vulpicolor*, Ckll., ♀.
Pubescence of thorax not ferruginous, or wings not very
dark, 14
14. Hair at apex of abdomen black or fuscous, 15
Hair at apex of abdomen pale or reddish, 17
15. Abdomen shining, strongly punctured. (Paraje, April.)
. *prunifloris*, Ckll., ♀.
Abdomen microscopically tessellate, 16
16. Tarsi with fuscous hair. (Sacramento Mts., Aug.)
. *apacheorum*, Ckll., ♀.
Tarsi with pale hair. (Mesilla Valley, March, April.)
. *electrica*, Csd. and Ckll., ♀.
17. Abdomen with continuous hair-bands, even on first seg-
ment 18
Abdomen with hair-bands more or less interrupted 19
Abdomen without any distinct hair-bands or well-defined
patches, 25
18. Pubescence all white. (Mesilla Valley, April.)
. *electrica*, Csd. and Ckll., ♂.
Pubescence strongly yellowish. (Santa Fé, Aug.) *mentzeliae*, Ckll., ♀.
19. Head very large, keeled behind eyes. (Santa Fé Canon,
8000 ft., Aug.) *platyparia*, Rob ♂. (var. *occidentalis*, Ckll.)
Head ordinary, 20
20. Abdomen distinctly punctured, 21
Abdomen more or less tessellate, hardly punctured, 22
21. Wings strongly clouded at apex, . . . *fracta*, Csd. and Ckll., ♀.
Much smaller, wings perfectly clear, *primulifrons* Casad., ♀.
22. Length 15 mm. (Albuquerque, at sunflowers, Sept.)
. *helianthi*, Rob., ♀.
Length 12 mm. or less, 23
23. Tarsi ferruginous; small species. (Mesilla Valley, Paraje,
April.), *salicinella*, Ckll.
Tarsi dark, 24
24. Pubescence pale grey to white. (Mesilla Valley, March,
April.), *monilicornis*, Ckll., ♂.
Pubescence of thorax tinged with ochraceous; wings
strongly yellowish. (Paraje, April.), *subaustralis*, Ckll., ♀.
25. Abdomen minutely tessellate, . . . *subaustralis*, Ckll., ♂.
Abdomen distinctly punctured. (Mesilla Valley, March.)
. *mesillae*, Ckll., ♂.

Note.—The species of *Andrena* which fly in spring are to be taken in great number at the flowers of plum trees.

- ## PROTANDRENA.

Very small, about 6 mm. long. (Organ mts., at *Gymnolomia* fls.),
tinsleyi, Ckll., ♀.
 Larger, 8 mm. or over; ♀ with hind margins of abdominal segments
 testaceous. (Santa Fe, Rinconada, Mesilla Valley, at fls. of *Helian-*
thus and *Verbesina*, Aug. to Oct.), *marginatus*, Cress.
Note.—*H. tinsleyi* is perhaps not strictly congeneric with *marginatus*.

PANURGINUS.

- Face with light markings, 1
Face without light markings, 7
1. Females, face with only a kidney-shaped yellow mark.
(Mesilla Valley.) *renimaculatus*, Ckll.
- Males, 2
2. Pale color of face confined to clypeus; first recurrent nerv-
ure not uniting with second transverso-cubital. (Organ
Mts.) *townsendi*, Ckll.
- Pale color of face not confined to clypeus, 3
3. Pale color confined to clypeus and lateral marks, 4
Pale color not confined to clypeus and lateral marks, 6
4. Face-marks yellowish-white, face with long white hair.
(Albuquerque.) *hirsutifrons*, Ckll.
- Face-marks lemon yellow, face little or not hairy, 5
5. Front hairy; lateral face-marks extending some distance
above level of top of clypeus. (Santa Fé at fls. of *Rud-
beckia*.) *albitarsis*, Cress., ♂.
- Front not hairy; lateral face-marks hardly extending above
level of top of clypeus. Length 5 mm., flagellum fer-
ruginous beneath, except at base; eyes dark sage green;
wings very faintly dusky, nervures and stigma dark
brown. Tubercles with a testaceous spot. (Santa Fé,
Aug. 5.) *pauper*, Cress., var. *flavotinctus*, n. var.
6. Scape wholly black. (Santa Fé.)
. *boylei*, Ckll. (? var. of *ornatipes* Cress.)
7. Flagellum dark; nervures and stigma testaceous,
. *albitarsis*, Cress., ♀.
- Flagellum largely testaceous beneath; very smooth spe-
cies 8 mm. long. (Las Cruces, at fls. of *Helianthus*.)
. *perlævis*, Ckll., ♀.

CALLIOPSIS.

- Abdomen bright ferruginous. (Mesilla Valley, at fls. of *Sphaeralcea*.)
semirufus, Ckll.
- Abdomen dark, with or without light markings, 1
1. Face with light markings, 2
 Face without light markings, abdomen with white bands.
 (Mesilla Valley.) *meliloti*, Ckll., ♀
 2. Abdomen with color-bands or spots, 3
 Abdomen without bands or spots, 5
 3. Clypeus only partly light, 4
 Clypeus all light except the dots and edge, face densely
 bearded with white hair, *australior*, Ckll., ♂.
 4. Band on third abdominal segment always interrupted, 5th
 segment black, with neither band nor spots. (Albu-
 querre, Mesilla, at *Cleome* fls., &c.) *australior*, Ckll., ♀.
 Band on third segment usually entire, 5th segment largely
 pale. (Santa Fé, at fls. of *Cleome*.) *scitulus*, Cress. ♀.
 5. Females, 6
 Males, 7
 6. Clypeus yellow except two cuneiform black marks; lateral
 face-marks going nearly to summit of eyes. (Santa
 Fé, Embudo, Organ Mts.) *coloradensis*, Cress.
 Clypeus with a longitudinal yellow mark or band on disk.
 (Santa Fé) *rhodophilus*, Ckll.
 7. Legs mostly black; a black spot at tip of wing. (Mesilla
 Valley, at fls. of *Sphaeralcea*.) *subalpinus*, Ckll.
 Legs mostly yellow; no black spot at tip of wing. (Santa
 Fé, at fls. of *Sphaeralcea*.) *rhodophilus*, Ckll.
 Femora black, pale orange at apex; tibiae all pale orange
 in front, largely black behind, tarsi yellow, the small
 joints becoming fuscous. Differs from *rhodophilus* in
 being larger and more pubescent; face-marks cream-
 color, lateral marks ending in a point above; eyes light
 chocolate color; no black spot at tip of wing. (Mesilla,
 Aug. 21.) *flavifrons*, Smith, race *coloratipes*, n. race.

PERDITA.

- Yellow, without conspicuous markings, 1
- Yellow or orange, with conspicuous dark markings, 2
- Head and thorax dark, with or without light markings, 3
1. 8 mm. long, mesothorax pubescent, pleura with a black
 patch. (Mesilla Valley, Sept., at fls. of *Verbesina*.)
 *beata*, Ckll.
 Not over 6 mm. long, pale yellow, pleura with a black
 patch. (Near Tularosa, Aug., at fls. of *Mentzelia*.)
 *wootonæ*, Ckll.
 About the size of *wootonæ*, but very bright yellow, pleura
 without a black patch. (Mesilla Valley, Sept., at fls.
 of *Bigelovia*, *luteola*, Ckll.

- About 4 mm. long, head very large, cheeks armed with a stout spine. (San Marcial, June, at fls. of *Larrea*.)
larrea, Ckll., ♂.
- Like *larrea*, but head not nearly so large. (Mesilla Valley, at fls. of *Larrea*.)
larrea, var. *modesta*, Ckll., ♂.
2. Extremely small, cheeks armed, mesothorax mostly green. (San Marcial, at fls. of *Larrea*.)
marcialis, Ckll., ♂.
- Not so small, vertex with a black band from eye to eye, thorax with black markings, abdomen with distinct bands. (Mesilla Valley, at fls. of Mesquite.)
punctosignata, Ckll., ♂.
- Much like the last, but easily known by stigma, white basally, otherwise occupied by a large black spot. (Mesilla Valley, at willow.)
maculigera, Ckll.
3. Abdomen orange, or orange brown, or pale brown, or ferruginous; not banded, unless at base, 4
 Abdomen dark brown or black, or spotted, or banded, 11
4. Head large, abdomen short and broad, ferruginous, marginal cell obliquely truncate, mandibles bidentate; head and thorax dark green. (Mesilla Valley, at fls. of *Sphaeralcea*.)
latior, Ckll., ♂.
- Not so, 5
5. Cheeks toothed beneath, legs entirely yellow. (Albuquerque, Mesilla Valley.)
pallidior, var. *pulchrior*, Ckll., ♂.
- Cheeks unarmed, 6
6. Face all dark, nervures colorless, abdomen orange. (Mesilla Valley, at fls. of *Bigelovia*, *Solidago* and *Gutierrezia*.)
semicrocea, Ckll., ♀.
- Face partly pale, 7
7. The pale color confined to clypeus and triangular marks at sides of face. (Albuquerque, Santa Fé, at fls. of *Chamaesaracha*.)
chamaesarachæ, Ckll., ♀.
- Face all light below antennæ, 8
8. Vertex smooth and shining, 9
 Vertex distinctly granular, 10
9. Abdomen orange, head and thorax dark olive green,
semicrocea, Ckll., ♂.
- Abdomen light brown, head and thorax dark blue. (Mesilla, at fls. of *Sida*.)
sida, Ckll., ♂.
10. Face very bright yellow, head and thorax green. (Embu-do, at fls. of *Bigelovia*.)
rhodura, Ckll., ♂.
- Face yellowish-white, head and thorax dark blue,
chamaesarachæ, Ckll., ♂.
11. Clypeus entirely dark (upper edge whitish in *sida* ♀,) 12
 Clypeus not entirely dark, 22
12. Abdomen piceous with yellow spots or dots, legs with yellow markings. (Santa Fé, July.)
sexmaculata, Ckll., ♀.
- Abdomen not spotted, 13

13. Abdomen black, with pale yellowish bands, or yellow,
with dark bands, 14
Abdomen dark brown, with a short white band on second
segment; size very small. (Mesilla Valley, at fls. of
Cladothrix.) *cladothricis*, Ckll., ♀.
Abdomen not banded, 18
14. Stigma brownish, mesothorax hairy; length 7 mm. or
over, 15
Stigma pallid; length not over 6 mm., 16
15. Nervures almost colorless. (Mesilla Valley, at fls. of
Sphaeralcea.) *sphaeralcea*, Ckll., ♀.
Nervures dark brown. (Santa Fé, at fls. of *Sphaeralcea*.)
. *sphaeralcea* race *alticola*, Ckll., ♀.
16. Face with pale lateral marks, 17
Face all dark; abdomen brown-black, with three dull yellow
bands terminating abruptly before reaching the
lateral margin. (Embudo, Sept., at fls. of *Bigelovia*.)
. *subfasciata*, Ckll., ♀.
17. Anterior femora mostly black, abdomen with heavy dark
bands. (Santa Fé, at fls. of *Mentzelia*.)
. *mentzeliae*, Ckll., ♀.
Anterior femora entirely pale, abdomen with evanescent
bands. (Albuquerque, Mesilla Valley, at fls. of *Mentzelia*.)
. *pallidior*, Ckll., ♀.
18. Head and thorax black, size small. (Organ Mts., at fls.
of *Pectis*.) *solitaria*, Ckll., ♀.
Thorax black except the green metathorax; head green,
front æneous. (Mesilla Valley, at fls. of *Bigelovia*)
. *æneifrons*, Ckll., ♀.
Thorax black except the blue metathorax; head blue; a
yellow spot on each side of the clypeus. (San Marcial,
at fls. of *Larrea*.) *semicærulea*, Ckll., ♀.
Head and thorax green, or greenish-blue, 19
19. Males, 5½ mm. long, clypeus black, supraclypeal area
æneous; hind margins of abdominal segments rather
broadly hyaline. (Organ Mts., at fls. of *Verbesina*)
. *chrysophila*, Ckll.
Females, 20
20. Abdomen broad, mandibles bidentate, marginal cell ob-
liquely truncate, *latior*, Ckll., ♀.
Not so, 21
21. Small, about 4½ mm. long, nervures brown. (Mesilla Val-
ley, at fls. of *Bigelovia* and *Gutierrezia*.) *phymatæ*, Ckll.
A little larger, nervures white, upper edge of clypeus
whitish, *side*, Ckll., ♀.
Over 6 mm. long, nervures nearly colorless,
. *verbesinæ*, var. *nigrior*, Ckll.

22. Face below level of antennæ all yellow or white, except clypeal dots in some. (Males) . . . 23
Face below level of antennæ not all pale, . . . 43
23. Face below antennæ white, . . . 24
Face below antennæ yellow, . . . 26
24. Abdomen oval, reddish brown, suffused with darker; clypeus tinged with yellow; front nude and very shiny. (Las Cruces, Aug.) . . . *crassiceps*, Ckll. var.
Abdomen yellowish-white, banded; face below antennæ pellucid white; first four legs all dull white except a dark streak on middle tibiæ. (Mesilla Valley, at fls. of *Bigelovia*.) . . . *pellucida*, Ckll.
Last three segments of abdomen rufous, the others banded. (Albuquerque, La Tenaja, at fls. of *Croton*.) . . . *crotonis*, Ckll.
Abdomen dark brown with white markings, . . . 25
25. Abdomen with about 6 white marks, or fewer yellowish spots. (Mesilla Valley, at fls. of *Pectis*.) . . . *pectidis*, Ckll.
Abdomen with two more or less developed white bands, . . . *cladothricis*, Ckll.
26. Anterior and middle femora marked with black, . . . 27
Anterior femora all yellow, the four anterior tibiæ not all yellow, . . . 33
First four legs all yellow, or at least not marked with black or brown, . . . 34
27. Nervures pallid, . . . 28
Nervures dark, . . . 29
28. Stigma margined with brown; venter of abdomen immaculate in middle, . . . *sphæralceæ*, Ckll.
Stigma pale orange, not margined with brown; venter with a series of large black patches down the middle. (Mesilla Valley, at fls. of *Verbesina*.) . . . *perpulchra*, Ckll.
29. Face nearly bare, bright yellow below antennæ, . . . 30
Face and disc of mesothorax hairy, . . . 32
30. Very small, abdomen yellow with pale suffused brown bands. (Mesilla Valley, at fls. of *Pectis*.) . . . *biparticeps*, Ckll.
Abdomen dark with clean-cut interrupted yellow bands, . . . 31
31. Small, 4½ mm. long. (Mesilla Valley, May, at fls. of *Erigeron*.) . . . *erigeronis*, Ckll.
Larger. (Embudo, Sept., at fls. of *Bigelovia*.) . . . *affinis*, Cress.
32. Head broader than long; distal band on 2nd abdominal segment broadly continued to lateral margin, . . . *sphæralceæ* race *alticola*, Ckll.
Head round: distal band of 2nd abdominal segment failing some distance before lateral margin. (Mesilla Valley, May.) . . . *hirsuta*, Ckll.
33. Face not all yellow up to middle ocellus. (Mesilla Valley, at fls. of *Bigelovia*.) . . . *maculipes*, Ckll.

34. Legs entirely orange-rufous, abdomen black. (Santa Fé, June.) *foxi*, Ckll.
 Legs not orange-rufous, abdomen banded, 35
35. The yellow extending above antennæ in median line, 36
 The yellow not extending above antennæ in median line, 41
36. The yellow extending above across the face, 37
 The yellow extending above only at sides and middle line, 39
37. Larger, about 5 mm. long, face-marking resembling *gutierrezia*. (Albuquerque, Mesilla Valley, at fls. of *Bigelovia*.) *bigelovia*, Ckll.
 Smaller, about 4 mm. long, 38
38. Face yellow up to anterior ocellus. (Mesilla Valley, April.) *martini*, Ckll.
 Face not yellow up to anterior ocellus. (Albuquerque, at fls. of *Gutierrezia*.) *gutierrezia*, Ckll.
39. Upward extension of yellow in median line linear; nervures colorless. (Organ Mts., at fls. of *Mentzelia*.) *mentzeliarum*, Ckll.
 Upward extension of yellow in median line shaped like a spear-head; nervures brown. (Mesilla Valley, at fls. of willow.) *salicis*, Ckll.
 Upward extension of yellow in median line broader, 40
40. Incursion of blue downward terminating at a right angle; pleura dark. (Mesilla Valley, at fls. of *Bigelovia*.) *nitidella*, Ckll.
 Incursion of blue terminating at an acute angle; pleura largely yellow. (Mesilla Valley, at fls. of mesquite.) *exclamans*, Ckll.
41. Cheeks armed, abdomen heavily banded, *mentzelia*, Ckll.
 Cheeks unarmed, 42
42. Abdomen not heavily marked, *pallidior*, Ckll.
 Abdomen heavily marked with broad black bands. (Embudo, White Sands, at fls. of *Bigelovia*.) *townsendi*, Ckll.
43. The pale color confined to clypeus and sides of face, 44
 The pale color not confined to clypeus and sides of face, 70
44. Abdomen dark, not banded, or the bands discontinuous, 45
 Abdomen with continuous bands, 60
45. Larger species, length over 6 mm. 46
 Smaller species, 6 mm. or less, 50
46. Mesothorax practically nude, 47
 Mesothorax hairy, 48
47. Abdomen dark brown without pale marks, *nuda*, Ckll., ♀.
 Abdomen with creamy-white marks. (Mesilla Valley, at fls. of *Senecio*.) *senecionis*, Ckll., ♀.
48. Female: abdomen more or less spotted. (Mesilla Valley, at fls. of *Verbesina*.) *verbesina*, Ckll.
 Males, 49

49. Head and thorax brassy green. (Santa Fé, Socorro, at fls. of *Lepachys*.) *lepachidis*, Ckll.
Head and thorax rather bluish green. (at fls. of *Helianthus*.) *albipennis*, Cress.
50. Abdomen without distinct light markings, 51
Abdomen with yellow or white markings, 56
51. Pale face-marks reduced to a spot on clypeus; nervures brown, *phymate*, Ckll., var. ♀.
Pale face-marks not so reduced, lateral marks present; nervures pallid, 52
52. Clypeus with two large dark patches on hind margin; mesothorax very hairy. (Mesilla Valley, at fls. of *Aster*.) *asteris*, Ckll., ♀.
Clypeus pale except the usual dots, 53
53. Anterior tibiae black in front; face extremely hairy. (Mesilla Valley, at fls. of *Verbesina*.) *albovittata*, Ckll., ♂.
Anterior tibiae yellow or rufotestaceous in front, 54
54. Marginal cell with the substigmatal portion very much larger than the poststigmatal; size very small. (San Marcial, at fls. of *Larrea*.) *larrearum*, Ckll., ♀.
Marginal cell ordinary, 55
55. Larger (4½ mm.), face less hairy, lateral face-marks shaped like the mainsail of a schooner. (Mesilla Valley, at fls. of *Verbesina*, Sept.) *vagans*, Ckll., ♂.
Smaller (4 mm.), hairy, lateral face-marks triangular. (Mesilla Valley, at fls. of *Chrysopsis*.) *vespertilio*, Ckll., ♂.
56. Abdomen with cream-colored bands, interrupted sublaterally, 57
Abdomen with 6 or 8 white marks, 58
Abdomen with yellowish marks; mesothorax dull, granulated, *affinis*, Cress., ♂.
57. Only the broad lower margin of clypeus white. (Mesilla Valley.) (var. *chrysoceras* differs from *callicerata* principally in its large, subquadrate head.) *callicerata*
var. *chrysoceras*, Ckll., ♂.
Clypeus entirely cream-color, except the usual black specks, *callicerata*, Ckll., ♀.
58. Marks on abdomen straight; clypeus white; length about 5 mm. (Mesilla, at fls. of *Aster spinosus*.) *ignota*, Ckll., ♀.
Marks on abdomen oblique, 59
59. Mesothorax shiny; clypeus dark with a light spot; face-marks white, *pectidis*, Ckll., ♀.
Mesothorax dull; clypeus light with dark spots or bars; face-marks yellowish. (Mesilla Valley, at fls. of *Bigelovia*, etc.) *fallax*, Ckll., ♀.
60. Large species, length over 6 mm., 61
Smaller species, 6 mm. or less, 64

61. Males, abdominal bands narrow, inconspicuous, dull yellow, emarginate at sides, 62
 Females, bands conspicuous, 63
62. Front comparative shining, flagellum blackish. (Mesilla Valley.) *albipennis*, race *helianthi*, Ckll.
 Front dull, flagellum orange, *verbesinae*, Ckll.
63. Abdomen with, white black bands, clypeus white, with two black dots, *perpulchra*, Ckll.
 Abdomen dark, with yellow bands, *albipennis*, Cress.
64. Clypeus hairy, face-marks and abdominal bands white or cream color, 65
 Not so, 66
65. Legs black, *albovittata*, Ckll., ♀.
 Legs black and yellow. (Mesilla Valley, at fls. of *Baileya*). *callicerata*, Ckll., ♂.
66. Yellow at sides of face extending above level of insertion of antennæ; size very small. (Albuquerque, Mesilla Valley, at fls. of *Gutierrezia* and *Bigelovia*.) *austini*, Ckll., ♂.
 Yellow or whitish at sides of face only extending to level of insertion of antennæ; size not so small, 67
67. Abdomen dark, with light bands, *bigelovia*, Ckll., ♀.
 Abdomen light, with dark bands, 68
68. Nervures colorless. (At fls. of *Mentzelia*.) *mentzeliarum*, Ckll., ♀.
 Nervures dark brown, 69
69. Mesothorax very shiny, dark blue-green, *nitidella*, Ckll., ♀.
 Mesothorax granular, dark olive-green; end of abdomen brownish-orange, *rhodura*, Ckll., ♀.
70. Dog-ear marks absent, 71
 Dog-ear marks present, or at least represented by dots, 77
71. Abdomen with the last two segments bright rufous, the others white, with black bands, *crotonis*, Ckll., ♀.
 Not so, 72
72. Bands of abdomen at least mostly entire, 73
 Bands of abdomen all interrupted, *affinis*, Cress, ♀, var.
 Abdomen dark without bands, 76
73. Stigma solid dark brown or black. (Mesilla Valley, May, at fls. of willow.) *numerata*, Ckll., ♀.
 Stigma hyaline, at least centrally, 74
74. Lateral face-marks truncate above, with a linear extension beyond the truncation; femora entirely yellow; length about $7\frac{1}{2}$ mm., *townsendi*, Ckll., ♀.
 Lateral face-marks obliquely truncate above; femora partly black, *bigelovia*, Ckll., ♀, var.
 Lateral face-marks coming to a point above, 75
75. About 6 mm. long, resembling *townsendi*; ventral surface of abdomen pale yellow; face-marks yellow. (Sacramento Mts., at fls. of *Bigelovia*.) *stottleri*, Ckll., ♀.

- Face-markings pallid. (Albuquerque, Santa Fé, &c., abundant at fls. of *Cleome*.) . . . *zebrata*, Cress, ♀.
76. Head large, quadrate, face very hairy. (Mesilla Valley.) . . . *albovittata* var. *laticeps*, Ckll., ♂.
- Head ordinary, face not so hairy, . . . *asteris*, Ckll., ♀, var.
77. Abdomen black or dark brown, without pale marks, . . . 78
- Abdomen not banded, but with yellow marks, which are small and straight. (Mesilla Valley, at fls. of *Gutierrezia*.) . . . *tarda*, Ckll., ♂.
- Abdomen distinctly banded, . . . 79
78. Cheeks armed, head large; clypeus with a narrow median line and broad anterior border yellow. (Mesilla Valley, at fls. of *Solidago*.) . . . *grandiceps*, Ckll., ♂.
- Cheeks unarmed, clypeus all pale except the usual dots. (Albuquerque.) . . . *crassiceps*, Ckll., ♂.
79. Males, . . . 80
- Females, . . . 81
80. Mesothorax granular; face-markings deep yellow, . . . *sphaeralcea*, var.
- Mesothorax smooth and shining, . . . *zebrata*, Cress.
81. Nervures colorless. (At fls. of willow.) . . . *salicis*, Ckll.
- Nervures dark. (At fls. of mesquite.) . . . *exclamans*, Ckll.

Subfamily. NOMADINÆ.

NOMADA.

- Entirely ferruginous, without light markings. (Mesilla Valley, at fls. of plum.) . . . *americana*, Kirby, race *incerta*, Cress.
- Ferruginous, with cream-colored markings; sides of face cream-color, but clypeus ferruginous. (Mesilla Valley, at fls. of *Gutierrezia*.) . . . *gutierrezia*, Ckll.
- Head and thorax black, with yellow markings; abdomen banded; legs ferruginous. (Mesilla Valley, Santa Fé.) . . . *modesta*, Cress.
- Head and thorax black, abdomen black and rufous . . . I
- I. Clypeus reddish; basal part of first abdominal segment black; legs rufous. (Mesilla Valley, July.) . . . *pennigera*, Ckll.
- Clypeus black; first abdominal segment entirely red; legs black. (Mesilla, July 21, at fls. of *Sida hederacea*.) . . . *pennigera*, var. *sideifloris*, n. var.

Family. APIDÆ.

Subfamily. PHILEREMINÆ.

HESPERAPIS.

- About 6 mm. long; head and thorax black, with short pubescence; abdomen dull ferruginous, with light hair-bands; hind tibiæ and tarsi with very short white tomentum, and long black bristles. (Mesilla Park, April, C. M. Barber.) . . . *elegantula*, Ckll.

NEOLARRA.

- 6 to 7 mm. long, form elongate, abdomen pointed; head and thorax black, abdomen and legs rufous. (Mesilla Valley, Sept., at fls. of *Verbesina*.) *verbesina*, Ckll.
 Much smaller, hardly 4 mm.; abdomen shorter, not so brightly colored. (Mesilla Park, May 7, at fls. of *Dithyrea wislizenii*.) . *pruinosa*, Ashm.

PHILEREMULUS.

- ♂ $3\frac{1}{2}$, ♀ 3 mm. long, ♂ dull black, ♀ with rufous abdomen. (Mesilla Valley, Sept.) *vigilans*, Ckll.
 ♀ $3\frac{1}{2}$ mm. long, head a little larger, mandibles more rufous, clypeus not white with scales, last joint of antennæ obliquely truncate. (Santa Fé, August.) *nanus*, Ckll.

PHILEREMUS.

- Less than 6 mm. long, abdomen orange and black, with spots of white pubescence. (Santa Fé, August,) *pulchellus*, Ckll.
 Length 6 mm. or over, abdomen with continuous white bands of pubescence. I

1. Length 6 mm., abdomen subglobose, with no red tinge. (Mesilla Valley, April.) *mesilla*, Ckll., ♂.
 Length 9 to 10 mm., abdomen elongate-pyriform, tinged with dull red; legs entirely ferruginous; scutellum with an apical spine. (Mesilla Park, April, at fls. of *Sophia*; Ckll. and Miss J. E. Casad,)
 *productus*, Cress., var. *subruber*, n. var. ♀.

Subfamily. MELECTINÆ.

EPEOLUS.

- Abdominal bands all interrupted in the middle, the ends on each side of the interruption swollen. (Deming, Mesilla Valley.) . *verbesina*, Ckll.
 Abdominal bands entire, or some slightly divided, but then the adjacent ends are not swollen, I
1. Small compact species, less than 9 mm. long, tibial spurs ferruginous. (Mesilla Valley.) *compactus*, Cress.
 Larger, 10 mm. or over. 2
2. Legs red, 3
 Legs black; tegulæ piceous, 6
3. Tegulæ black or fuscous; spurs of four hind tibiæ black, 4
 Tegulæ apricot-color or rufotestaceous, 5
4. Length 12 mm. (Mesilla, June.) *texanus*, Cress., ♂.
 Length 14 mm., differs from *remigatus* by the red legs; black patch on middle of first abdominal segment nearly an equilateral triangle, but the corners rounded; apex of abdomen not truncate. (Mesilla, June.)
 *texanus*, Cress., ♀.

5. Black space in middle of first abdominal segment semilunar or broadly triangular. (Mesilla Valley.) . . . *lunatus*, Say.
Black space in middle of first abdominal segment a transverse band, not triangular. (Santa Fé, Albuquerque, Mesilla Valley.) . . . *occidentalis*, Cress.
6. Clypeus with numerous minute punctures, and sparse large ones, 7
Clypeus strongly, very densely, uniformly punctured, . . . 8
7. Apex of ♀ abdomen subtruncate, last ventral segment produced and curved downwards, fifth abdominal segment without lateral patches of light pubescence, . . . *concaus*, Cress.
Apex of ♀ abdomen not at all truncate; last ventral segment broad, not produced beyond last dorsal; fifth abdominal segment with a patch of light pubescence on each side. (Albuquerque.) . . . *robustus*, Cress.
8. Antennæ wholly dark. (Mesilla, Aug. 14, at fls. of *Heli-anthus ciliaris*.) . . . *texanus* var. *nigripes*, n. var. ♂.

Note.—What has been regarded as *E. remigatus*, Fabr., in New Mexico seems to be *robustus*. It is possible that the species recorded by Cresson as taken by Lewis many years ago, was true *remigatus*.

ERICROCIS.

Appearance and ornaments much like *Epeolus*; the yellowish-white hair-bands of abdomen, felted as in *Epeolus*, all broadly interrupted; third submarginal cell in ♂ about twice as broad as second, in ♀ hardly broader than second. (Mesilla Park, April 29, 1898, the sexes together on flowers of *Cædalpinia falcaria* var. *stricta*, C. M. Barber.) *lata*, Cress.

Note.—Although there is a striking difference in the venation of the two sexes, they certainly belong together. A single ♂ of *E. lata* was taken by Mr. A. P. Morse near Little Mountain, Mesilla Valley, July 1, 1897.

MELECTA.

Abdomen with brown spots and a brown patch on a white ground, the white due to pubescence; size small; flagellum very stout. (Mesilla Valley.) *maculata*, Cress.
Abdomen black, with clean-cut light bands, interrupted medially, I
1. Larger, the bands fulvous. (Vega San José, Continental Divide.) *interrupta*, Cress.
Smaller, the bands white. (Santa Fé, Mesilla Valley.) . . . *miranda*, Fox.

BOMBOMELECTA.

Larger, pubescence of thorax and first abdominal segment bright orange-fulvous. (Mesilla Valley, at fls. of *Lycium*.) . . . *thoracica*, Cress., var. *fulvida*, Cress.
Smaller, pubescence of thorax and first abdominal segment greyish-white. (Mesilla Valley, at fls. of plum.) . . . *alfredi*, Ckll.

Subfamily. CÆLIOXYNÆ.

CÆLIOXYS.

Legs and first abdominal segment red; middle of second to fifth segments smooth and impunctate, or with a few scattered punctures.

(Deming.) *mentha*, Ckll.

Legs red; first abdominal segment black like the rest; middle of segments punctured. (Mesilla Valley.) *octodentata*, Say.

Legs black; tarsi rufous. (Gila R.) *gilensis*, n. sp. ♂.

Note.—*C. gilensis* was found in numbers by Prof. Townsend on the West Fork of the Gila R., July 16. Mr. Fox compared it with Cresson's types, and returned it marked, "near *mæsta*." I have a Colorado *mæsta*, identified by Mr. Fox, and *gilensis* differs in the longer lateral teeth of the scutellum; the abdomen with strong, close punctures, as large on the second segment as on the first; and the rufous tarsi. The last segment of the abdomen is considerably more produced than in ♂ *octodentata*.

Subfamily. MEGACHILINÆ.

STELIS.

7 mm. long, or less; black with bright yellow markings; abdomen banded with yellow and black; marginal cell and adjacent parts of wing fuliginous. (Santa Fé, Gila R.) *costalis*, Cress.

ANTHIDIUM.

Head entirely black, except a white spot at the summit of each eye.

(Northern N. M.) *emarginatum*, Say, var. *atrifrons*, Cress., ♀.

Face with at least some light markings, 1

1. Clypeus all light, or with only the edge dark, 2

Clypeus partly dark, 5

2. Markings largely ferruginous, legs ferruginous. (Mesilla Valley, Chaves, Albuquerque.)

curvatum, Smith, (*interruptum*, Say.)

Colors black and yellow or white, 3

3. Abdomen with the yellow bands notched behind. (Santa Fé.) *pudicum*, Cress., ♂.

Abdomen with the yellow bands notched in front, or divided into spots, 4

Abdominal bands entire, not conspicuously notched; legs yellow, tinged with ferruginous. (Mesilla Valley.)

larrea, Ckll.

4. Large, yellow marks rather pale, femora and most of tibiae black. (Mesilla Valley.) *maculifrons*, Smith, ♂.

Smaller, about 10 mm. long, yellow very bright, legs yellow and ferruginous. Flagellum, except first joint, ferruginous beneath. Yellow markings of head and thorax as in *maculifrons*. (Mesilla, June 17, at fls. of *Parosela scoparia*) *parosela*, Ckll., n. sp. ♀.

Length about 10 mm., face-markings white; legs black, tibiae marked with white and with a ferruginous spot at apex, tarsi white, dusky at tips. (Northern N. M.)

occidentale, Cress., ♂.

5. Abdominal bands not notched or divided sublaterally, but more or less divided in the middle line. (Ruidoso Creek, Aug. 20, 1897; E. O. Wooton.) *perpictum*, Ckll., n. sp. ♀
Abdominal bands divided in the middle, and notched sublaterally behind. (Santa Fé.) *pudicum*, Cress., ♀.
Abdomen with a yellow spot on each side of first segment, a yellow band divided only in the middle on second, yellow bands broadly divided medially and sublaterally on third to fifth, no yellow at all on sixth segment. Size small; legs ferruginous, yellow and black. (Gila R.)

gilense, Ckll., ♀.

Larger, abdominal bands entirely divided into distant spots; no yellow on face except two large blotches on clypeus. (Tuerto Mtn., 8025 ft.) *maculosum*, Cress.

Abdominal bands notched sublaterally in front, or even there divided but then the spots much larger than the intervals between them, 6

6. Ventral scopa fulvous; scutellum with two light spots. (Northern N. M.) *occidentale*, Cress., ♀.
Ventral scopa white; scutellum with four spots. (Mesilla Valley, Organ Mts.) *maculifrons*, Smith, ♀.

Note.—*A. perpictum* is about 9 mm. long, and agrees in most respects with the Mexican *A. flavolineatum*, Smith. The femora are black; all the knees ferruginous; tibiae ferruginous suffused with black behind; tarsi ferruginous, hind tarsi strongly stained with black. Sides of clypeus occupied by large triangular patches, of which the upper half is yellow and the lower orange; sides of face yellow up to summit of eyes. Wings quite dark. Ventral scopa white. Tegulae ferruginous. Scutellum with an interrupted yellow band, but lateral angles spotless.

OSMIA.

Females.

- Ventral scopa black, 1
Ventral scopa pale fulvo-ochraceous; head and thorax olive green, with white pubescence; tegulae shining rufotestaceous. (Mesilla Valley.) *phenax*, Ckll.
Ventral scopa black in middle and yellowish-white at sides; tegulae black. (Mesilla Valley.) *prunorum*, Ckll.
1. Length $9\frac{1}{2}$ mm., pubescence of thorax above bright rust-red. (Mesilla Valley.) *cerasi*, Ckll.
Larger, dark blue, pubescence of thorax dull white and black mixed; clypeus broadly and deeply notched. (Organ Mts., Paraje.) *lignaria*, Say.

MONUMETHA.

About 14 mm. long, black; occiput and pleura with sooty hair; thorax above with dull white hair; lateral margins of first two abdominal segments with white hair-patches. (Gila R.) *borealis*, Cress.

ALCIDAMEA.

About 13 mm. long, black, with white and mouse-grey pubescence. In general appearance like *Andrena electrica*. (Mesilla Valley.) *biscutellæ*, Ckll., ♂.

ASHMEADIELLA.

Abdomen red. (Mesilla Valley.) *holtii*, Ckll.

Abdomen black, 1

1. Legs partly red; length about 5½ mm. (Mesilla Valley.) *bigeloviae*, Ckll.

Legs entirely black, 2

2. Large species, over 8 mm. long, 3

Smaller, under 7 mm.; tegulæ black or piceous, 4

3. Tegulæ dark ferruginous. (Organ Mts., May, at fls. of *Opuntia*.) *opuntiae*, Ckll.

Tegulæ black. (Albuquerque, Sept., at fls. of *Grindelia*) *bucconis*, Say.

4. Length 5 mm. (Mesilla Valley, at fls. of mesquite.) *prosopidis*, Ckll., ♀.

Length about 7 mm. (Santa Fé, at fls. of *Cactus*.) *cactorum*, Ckll., ♀.

Length about 6½ mm., head large. (Mesilla Valley.) *meliloti*, Ckll., ♂.

HERIADES.

Front legs partly red; length about 5 mm. (Mesilla Valley.) *asteris*, Ckll.

Legs entirely black, 1

1. First recurrent nervure uniting with first transverso-cubital. (Santa Fé.) *crucifera*, Ckll.

First recurrent nervure not so uniting, 2

2. Length 8 mm. or over. (Organ Mts., at fls. of *Opuntia*.) *gracilior*, Ckll.

Length less than 8 mm., punctures on third abdominal segment much larger than those on second. (Santa Fé, Mesilla Valley, etc.) *carinata*, Cress

LITHURGUS.

About 16 mm. long; resembles a *Megachile*. Abdomen with narrow white hair-bands, apex with fusco-fulvous hair. (Santa Fé, Mesilla Valley.) *apicalis*, Cress.

MEGACHILE.

Males.

Front tarsi ordinary, 1

Front tarsi peculiar, 2

1. Shape narrow; apex of abdomen notched but not produced. (Gila R.) . . . *exilis*, Cress.
 Broader; apex of abdomen produced, deeply notched, and bent downwards. (Mesilla Valley.) *townsendiana*, Ckll.
 Broad, 13 mm. long; abdomen subquadrate, apex coarsely serrate and deeply notched, . . . *texana*, Cress.
2. Abdomen without hair-bands; last joint of antennæ dilated and flattened. (Ruidoso Creek.) . . . *wooltoni*, Ckll.
 Abdomen with hair-bands, . . . 3
3. First joint of anterior tarsi produced to a free apex, 4
 First joint of anterior tarsi not produced to a free apex, 5
4. The free apex like the end of a finger; hair-bands of abdomen fulvous. (Gila R.) . . . *fidelis*, Cress.
 The free apex not like the end of a finger; hair-bands white. (Santa Fé.) . . . *pugnata*, Say.
5. Thorax very pubescent, the pubescence more or less ochreous or fulvous, . . . 6
 Thorax not very pubescent, the pubescence pale greyish to white, . . . 8
6. Flagellum slender, not crenulated beneath. (Santa Fé.)
 . . . *latimanus*, Say.
 Flagellum stout, crenulated beneath, . . . 7
7. Pubescence of thorax yellowish-grey. (Tuerto Mtn., near Santa Fé) . . . *comata*, Cress.
 Pubescence of thorax fulvous. (Gila R.) . . . *fortis*, Cress.
8. Anterior legs slender; anterior tarsi with basal joint merely expanded into a flat lamina at the side. (Mesilla Valley.) . . . *occidentalis*, Fox.
 Larger; anterior femora stout, subtriangular in section, 9
9. Anterior femur yellow where it touches tibia; pubescence of face yellowish. (Deming, Lone Mtn., Mesilla Valley.) . . . *sidalcea*, Ckll.
 Anterior femur rufous where it touches tibia; pubescence of face white. (Mesilla Valley.) . . . *casada*, Ckll.

Females.

- Large and robust, length 14 mm. or over, . . . 1
 Smaller, length under 13 mm., . . . 2
1. Ventral scopa pale fulvous, . . . *latimanus*, Say.
 Ventral scopa white; black on the last two segments. (Ruidoso Creek.) . . . *texana*, Cress.
 2. Abdomen short and broad; ventral scopa white, black on last segment. (Mesilla Valley.) . . . *brevis*, Say.
 Abdomen long and narrow, . . . 3
 3. Ventral scopa white, black on last segment; tegulæ orange brown, . . . *occidentalis*, Fox.
 Ventral scopa entirely dull white; tegulæ piceous, strongly punctured, . . . *exilis*, Cress.

Note.—Several other species of *Megachile* have been collected, but not yet studied. It is not certain that what is called *brevis* here is in reality Say's species. A specimen of *M. brevis* from Mr. Robertson has the ventral scopa all white. Say's description does not indicate whether it should be black at the tip or not.

Subfamily. PODALIRIINÆ.

MELISSODES.

Males.

- | | | | | | | | | |
|-----------------|---|---|---|---|---|---|---|---|
| Clypeus black, | . | . | . | . | . | . | . | 1 |
| Clypeus yellow, | . | . | . | . | . | . | . | 2 |
1. Larger, antennæ longer than head and thorax; mandibles with no yellow spot. (Mesilla Valley, San Marcial.) *tristis*, Ckll.
Smaller, antennæ reaching only to metathorax; mandibles with a yellow spot. (Santa Fé.) *sphæralcea*, Ckll.
 2. Antennæ yellow; thorax with bright fulvous pubescence. (Rincon, Mesilla Valley.) *luteicornis*, Ckll.
Antennæ not yellow, 3
 3. Flagellum entirely black. (Ruidoso Creek.) *ruidosensis*, Ckll.
Flagellum more or less ferruginous beneath, 4
 4. Pubescence of middle of thoracic dorsum black. General size and form of *aurigena*. Pubescence, where not black, dull white to pale ochraceous. Mandibles with no yellow spot. Nervures piceous. (Santa Fé, July and Aug., at fls. of *Grindelia*, *Lepachys* and *Rudbeckia*; also Tuerto Mtn., 8875 ft.) *grindeliæ*, Ckll., n. sp.
Pubescence of thoracic dorsum ochraceous or greyish, (some little black in *montana*.) 5
 5. Very large and robust, antennæ only moderately long; mandibles partly yellow, 6
Smaller, with long antennæ, 7
 6. Abdomen dark, with hair-bands. (Santa Fé.) *obliqua*, Say.
Abdomen entirely covered with fulvous hair. (Mesilla Valley.) *townsendi*, Ckll.
 7. Last dorsal segment of abdomen with fuscous hair; mandibles with a yellow patch, 8
Last dorsal segment of abdomen with light hair, 9
 8. Scutellum with black hair; base of fourth abdominal segment without black hair. (Gila R.) *montana*, Cress.
Scutellum without black hair; base of fourth abdominal segment with much black hair. (Mesilla Valley.) *communis*, Cress.
 9. Larger; about 12 mm. long, 10
Smaller; about 10 mm. long, 11
 10. Mandibles with a yellow spot. (Santa Fé.) *menuacha*, Cress.
Mandibles without a yellow spot. (Albuquerque, Mesilla Valley.) *menuacha* var. *submenuacha*, Ckll.

11. Pubescence pale grey, with a faint ochreous tinge. (Mesilla Valley, Socorro, Albuquerque.) . . . *agilis*, Cress.
 Pubescence more or less strongly ochraceous. (Santa Fé.)
 . . . *agilis* var. *aurigenia*, Cress.

Note.—The male of *grindeliæ* is readily separated from that of *montana* as follows :

- Third and fourth abdominal segments covered, even at base, with very pale ochraceous hair ; last segment with fuscous or black hair; mandibles with a yellow spot, *montana*, Cr.
 Third and fourth segments with the black surface exposed except on apical margins; last segment with ochraceous hair; mandibles with no yellow spot, . . . *grindeliæ*, Ckll.

Females.

- Hair on inner side of basal joint of hind tarsus black or fuscous, . . . 1
 Hair on inner side of basal joint of hind tarsus ferruginous, . . . 4
 1. Pubescence of thorax above bright fulvous, . . . *luteicornis*, Ckll.
 Pubescence of thorax above pale, with some black, . . . 2
 2. Some black hair behind ocelli. Head not so broad as in *pallidicincta*, much like *confusa*, for which it has been taken, but hair of legs, except on inner side of tarsi, and somewhat on apices of tibiae, entirely dull white. (Santa Fé, with the ♂.) . . . *grindeliæ*, Ckll., n. sp.
 Hair behind ocelli all pale, . . . 3
 3. Larger, head extremely broad, abdomen with conspicuous white hair-bands. (Gila R., Santa Fé, etc.) *pallidicincta*, Ckll.
 Smaller, head not so broad. (Mesilla Valley.) *intermedia*, Cress.
 4. Very large and robust, about 16 mm. long; pubescence of pleura black, . . . *obliqua*, Say.
 Smaller, pubescence of pleura ochraceous or grey, . . . 5
 5. Scutellum and middle of mesothorax with conspicuous black hair. (Gila R., etc.) . . . *gilensis*, Ckll.
 Dorsum of thorax without black hair, or with only a few inconspicuous black hairs, . . . 6
 6. Larger, pubescence of thorax pale ochraceous, *menuacha*, Cress.
 Smaller, pubescence of thorax bright fulvous or at least strongly ochraceous, . . . *agilis* var. *aurigenia*, Cress.

Note.—Several other species of *Melissodes* have been collected in the female sex, but are not at present named, the material being rather inadequate for satisfactory study. *M. nevadensis*, Cress., has been taken in the Mesilla Valley, but I have no specimens at hand at the present time.

XENOGLLOSSA.

- Legs, except the tarsi, black ; size smaller. (Mesilla Valley.) *pruinosa*, Say.
 Legs wholly rufous or fulvous ; size larger, . . . 1
 1. Abdomen red, very large and stout species. (Mesilla Valley, Gila R.) . . . *patricia*, Ckll.
 Abdomen black. (Mesilla Valley.) . . . *strenua*, Cress.

Note.—All these species may be found in the flowers of *Cucurbita*.

DIADASIA.

- Abdomen with clean-cut hair-bands; bases of second to fourth segments free from pale hairs. (Rincon.) *rinconis*, Ckll.
- Abdomen hairy all over, 1
1. Rather large; hind tarsi with a large finger-like process.
(Santa Fé, June, at fls. of *Opuntia*.) *australis*, Cress.
Hind tarsi without such a process, 2
 2. Very large; ♂ very robust, with more or less distinct abdominal hair-bands. (Mesilla Valley, and by the White Sands.) *megamorpha*, Ckll.
Little over 10 mm. long; covered all over with yellowish pubescence, very dense and uniform on abdomen.
(Rincon, Organ Mts., Santa Fé, Mesilla Valley, Deming, etc.) *enavata*, Cress.
Very small, about 8 mm.. with pale grey or greyish-white pubescence. (Mesilla Valley, Santa Fé.) *diminuta*, Cress.
About 8 mm. long, differs from *diminuta* by having the pubescence on the abdomen not uniformly dense, but thinner, leaving the apical hair-bands distinct, *apacha*, Cress. ♀.

SYNHALONIA.

- About 15 mm. long, with dull white pubescence, tinged with yellowish on thorax; brush of hind tarsi very bright ferruginous; abdomen black, with first segment covered with greyish-white hair, and hair-bands of the same color on segments 2 and 3, the hair of these bands being appressed and very short. (Mesilla Valley.) *lycii*, Ckll.

HABROPODA.

- Rather large, robust, with a broad abdomen. Pubescence black and greyish-white mixed. Abdomen with very distinct hair-bands. Clypeus in ♂ with a reversed T in white; narrow white lateral face-marks, reduced to a line above. Face of ♀ black. (Top of Organ Mts.) *salviarum*, Ckll.

PODALIRIUS. (ANTHOPHORA.)

- Hind margins of abdominal segments with chalk-white bands, not due to hair, 1
- Hind margins of segments without such bands, 4
1. Thoracic pubescence mixed black and mouse-grey; clypeus of ♂ white, with the lateral margins broadly black.
(Santa Fé.) *cleomis*, Ckll.
Thoracic pubescence greyish or ochraceous, with no black hairs, 2
 2. Clypeus and sides of face yellow. (Deming, Mesilla Valley.) *californicus*, Cress.
Clypeus and sides of face white, 3
 3. Apical joint of middle tarsi ciliated laterally with black pubescence in ♂. (Vega S. José.) *walshii*, Cress.

- Middle tarsi without any black pubescence. (Lone Mtn. near Silver City.) *cardui*, Ckll., ♂.
4. Apical joint of middle tarsus of ♂ with a broad brush of black hair on each side, the whole shaped like the end of a peacock's feather. (Mesilla Valley.) . . . *lesquerella*, Ckll.
Not so, 5
5. Small species, length less than 10 mm., 6
Large, over 10 mm., 7
6. Eyes green; clypeus broadly magined with yellow. (Mesilla Valley, Santa Fé, Embudo.) . . . *maculifrons*, Cress.
Eyes dark purplish; clypeus white in ♂, black with a very narrow white apical stripe in ♀. (Mesilla Valley; the ♀ discovered April 29 by C. M. Barber.) . . . *phenax*, Ckll.
7. 15 to 17 mm. long; entire body covered with short, dense, mouse grey to fulvous pubescence; basal joint of hind tarsi of ♂ toothed within. (Santa Fé.) . . . *occidentalis*, Cress.
Abdomen not fasciate, the first and second segments, and sometimes more or less of the third, clothed with short ochraceous pubescence, the rest black or brownish. (Santa Fé.) *bomboides*, Kirby.
Abdomen not fasciate, the first and part of the second segments with ochraceous pubescence, the rest of the abdomen black. Large, robust species. Basal joint of hind tarsi of ♂ simple. (Organ Mts., Vega S. José.) *ursinus*, Cress.
Abdomen more or less fasciate. 8
8. Abdomen with broad, entire, dense, yellowish-white hair-bands; thorax with mouse-grey hair intermixed with black. (Albuquerque, western base of Organ Mts., Canada Alamosa.) . . . *urbanus*, Cress., var. *alamosanus*, Ckll.
Abdomen with narrow or weak hair-bands, 9
9. Large, about 17 mm. long; abdomen with very narrow hair-bands; clypeus of ♂ pale yellow; eyes green. (Mesilla Valley.) *affabilis*, Cress.
About 13 or 14 mm. long; tip of fifth abdominal segment in ♀ with dense black pubescence. (Vega S. José.) *montanus*, Cress.
12 mm. long; fifth abdominal segment in ♀ covered with black hair. Differs from Cresson's description of *montanus* ♀ in having mandibles not fulvous before apex, pubescence of thorax with black intermixed, apical margins of wings not at all dusky, outer side of tibiae clothed with silvery-white hair; ♂ with clypeus and sides of face yellow. (Mesilla Valley.) . . . *vallorum*, Ckll.

Note.—The ♀ of *lesquerella* is hard to distinguish from that of *vallorum*, but is rather larger, has rather shorter antennæ, and flies earlier in the year,—in April.

ANTHOPOHRULA.*

About $6\frac{1}{2}$ mm. long, short and compact, like a small *Diadasia* or *Podalirius*, pubescence pale mouse-color, covering most of abdomen with a dense felt, Flagellum fulvous. (Mesilla Valley.)

compactula, Ckll.

CENTRIS.

Males.

- Front broad, 1
 Front narrow, 3
 1. Length over 14 mm., scape without yellow, 2
 Length under 14 mm., scape yellow in front, . . . *rhodopus*, Ckll.
 2. Very large, 21 mm. long, pubescence of thorax mouse-color, abdomen with two more or less distinct reddish bands, *morsei*, Ckll.
 Length 16 mm., pubescence of thorax ochraceous. *caesalpiniae*, Ckll.
 3. Abdomen with narrow hair-bands; clypeus yellowish-white, *hoffmanseggiae*, Ckll.
 Abdomen without hair-bands; clypeus lemon yellow, *lanosa*, Cress.

Females.

- Clypeus crimson, 1
 Clypeus yellow or orange, the upper border more or less black, 2
 1. Length over 14 mm.; legs black, *caesalpiniae*, Ckll.
 Length under 14 mm.: femora and tibiae rufous, . . . *rhodopus*, Ckll.
 2. Second abdominal segment pubescent, *lanosa*, Cress.
 Second abdominal segment bare, *hoffmanseggiae*, Ckll.

Note.—*C. morsei* was taken at the end of June; all the others can be found at flowers of *Caesalpinia* (*Hoffmanseggia*) *falcaria* in May. All occur in the Mesilla Valley.

OXAEA.

Wings on apical half blue-black; legs reddish; abdomen black, on the sides, beneath, and sixth or seventh dorsal segments with fulvous pubescence. Length 22 mm. (Mesilla Valley.) . . . *gloriosa*, Fox.

Note.—This was described as a *Megacilissa*, but it differs in the venation from that genus. I had referred it to *Oxæa*, and Mr. Friese, to whom I sent a specimen, places it in that genus.

MEGACILISSA.

Wings not or but slightly fuscous apically; abdomen dorsally black, with the apical margins of segments 2 to 4 with white pubescence. (El Rito.) *yarrowi*, Cress.

*Since this was sent to press I have ascertained that *Anthophorula* is in reality an *Exomalopsis* with two marginal cells.

EXOMALOPSIS.

- Abdomen of ♀ red, of ♂ black. Length 7 to 8 mm. (Mesilla, at fls.
of *Sida hederacea*.) *side*, Ckll.
Rather larger, entirely black, pubescence all pale. (Mesilla Valley,
Albuquerque.) *solani*, Ckll.

Subfamily. XYLOCOPINÆ.

XYLOCOPA.

- Over 20 mm. long, very large and robust; dark blue, shining; pubes-
cence black; wings fuliginous. (Mesilla Valley, Lone Mtn. near
Silver City.) *arizonensis*, Cress.

CERATINA.

- Length 4½ mm., shining, very dark bluish-green, brassy-green on
mesothorax. A cream-colored clypeal mark. Abdomen ending
in a short point. (Mesilla Valley,) *nanula*, Ckll., ♂.

Subfamily. BOMBINÆ.

BOMBUS.

- Abdomen with an orange-red band, 1
Abdomen with a black band, black also at base; thorax with a black
band. (Santa Fé Canon) *howardi*, Cress.
Abdomen with black pubescence at base and apex, fulvous in the mid-
dle. (Mesilla Valley,) *americanorum*, Fabr., ♀.
Abdomen with fulvous pubescence, dark brown at tip; wings entirely
fuscous, *nevadensis*, Cress.
Abdomen with bright yellow pubescence, black at tip (in ♀ nearly the
the apical half black); thorax with the same bright yellow pubes-
cence, and no black band; wings fuliginous. (Mesilla Valley, Or-
gan Mts., Lamy, Watrous, Albuquerque, Santa Fé, &c) . *morrisoni*, Cress.
Abdomen with the pubescence entirely fulvous; thorax with a black
band, 2
1. Abdomen with the pubescence orange on second and third
segments, yellowish on first and fourth, black at apex,
. *ternarius*, Say.
Abdomen with the pubescence orange on third and fourth
segments, black on fifth and sixth. (Santa Fé Canon,
Ruidoso Creek) *juxtus*, Cress.
2. Pubescence of thorax, before the black band, yellowish
white. (Santa Fé Canon.) *appositus*, Cress.
Pubescence of thorax, before the black band, fulvous like
that behind it, *americanorum*, Fabr., ♂.

Subfamily. APINÆ.

APIS.

Not native in New Mexico. Includes *A. mellifera*, Linné, the honey bee.
The variety commonly kept in New Mexico is the Italian, distinguished by the
abdomen being largely light fulvous.

APPENDIX TO ARTICLE III. VOLUME XI.

NOTES ON BEES TAKEN AT ALBUQUERQUE, NEW MEXICO, IN
SEPTEMBER, 1897.

By T. D. A. COCKERELL,
Entomologist of the New Mexico Agricultural Experiment Station.

The following list is the result of some collecting done by the writer at Albuquerque during parts of three days in September. Only one of the species has been recorded before from that locality, and a few are new to New Mexico. In Bull. 24 of the N. M. Experiment Station, pp. 22-23, 13 bees are recorded from Albuquerque; the present list brings the number to 28.

- (1). *Prosopis asinina*, Ckll. and Casad, 1895, var. *bigeloviae*, n. var.—Female; differs by having the punctures of the first abdominal segment considerably smaller and weaker, hind margins of abdominal segments broadly rufescent, sides of abdomen with no noticeable white hair, scutellum with a distinct median longitudinal groove (wholly wanting in the typical form). Possibly a distinct species. One at flowers of *Bigelovia wrightii*, Sept. 16. Specimens taken at Mesilla, N. M., Sept. 4, at flowers of *Bigelovia wrightii*, are not *bigeloviae* but ordinary *asinina*.
- (2). *Colletes armata*, Patton, 1879—Sept. 15, two females at flowers of *Bigelovia wrightii*.
- (3). *Andrena helianthi*, Rob., 1891—Sept. 16, two females at flowers of *Helianthus annuus*. New to New Mexico. The legs are black, not "dull ferruginous," as Robertson describes; they are also black in a specimen received from Mr. Robertson.
- (4). *Nomia nevadensis*, Cresson, 1874—Sept. 16, one male and one female at flowers of *Bigelovia wrightii*. I have also a male which I took in Albuquerque, June 30, at flowers of *Fallugia pardaxa*.
- (5). *Nomia persimilis*, n. sp.—Female, length about 14 mm.; black with short greyish pubescence. Facial quadrangle about as broad as long; head little hairy, sides of face with sparse short hairs; no lateral facial depressions; clypeus bare, subcancellate from close punctures all over, no smooth line; rest of face sculptured like clypeus; vertex strongly and very closely punctured; antennæ short, scape strongly punctured, flagellum wholly dark; mandibles dark reddish in middle; process of labrum subtruncate, very broad and little produced; anterior edge of clypeus with a conspicuous fringe of orange hairs; thorax with very short pale greyish-ochreous pubescence; mesothorax with very large punctures, about as close as it is possible for them to be; enclosure of metathorax bow-shaped, but broader at the sides than in the middle, irregularly subreticulated by raised lines, its boundary a strong ridge; tegulæ rufous; wings yellowish-hyaline, apical margin broadly smoky, nervures dark brown; stigma ferruginous, rather small; legs black; abdomen without

hair-bands, strongly and extremely closely punctured, hind margins of segments not at all greenish. The male has the hind tibiæ broad and flattened, the inner apical corner produced into a blunt spine.

I first met with this species on the morning of Sept. 11, 1895, in a sandy place in the Mesilla Valley, near to the Agricultural College. The females were very abundant, flying over the sand like bembecides; making deep, large burrows straight down in the sand, and throwing up quite conspicuous piles of earth. Some were heavily loaded with orange pollen. All were females, and without the male I could not tell whether the species belonged to *Nomia* or *Eunomia*. Next, Prof. L. Bruner sent me a single female collected at Lincoln, Nebraska, in August. In Albuquerque I met with the species between the old and new towns, Sept. 16, and took three males and four females. The males enable me to refer the insect to *Nomia*, of which it is a very distinct new species. It is curious that all the males were on an *Aster* with purple rays, while the females were at the flowers of *Helianthus annuus*, gathering pollen. The females have the strongest possible superficial resemblance to *Andrena helianthi*, which was visiting the same flowers, so that when collecting I had no idea that there were two species before me.

- (6). *Pseudopanurgus æthiops* (Cresson, 1872)—Sept. 16, one female at flowers of *Helianthus annuus*.
- (7). *Perdita zebrata*, Cresson, 1878—Sept. 15, four at flowers of *Cleome serrulata*.
- (8). *Perdita albipennis*, Cresson, 1868, var. *hyalina* (Cresson, 1878.)—Sept. 16, one male and two females at flowers of *Helianthus annuus*. The variety is new to New Mexico.
- (9). *Anthidium curvatum*, Smith, 1854 (*interruptum*, Say, 1824, not Fabr.)—Sept. 16, one at flowers of *Helianthus annuus*.
- (10). *Epeolus occidentalis*, Cresson, 1878—Sept. 16, two worn examples, one at flowers of *Bigelovia wrightii*.
- (11). *Epiolus remigatus*, Fabricius, 1804—Sept. 15, one.
- (12). *Podalirius urbanus* (Cress., 1878), var. *alamosanus* (Ckll., 1896)—Sept. 15, four females at flowers of *Cleome serrulata*; Sept. 17, one female. This was described as a species, but it is only a feebly-distinguished race of *urbanus*.
- (13). *Melissodes agilis*, Cresson, 1878—Sept. 16, at flowers of *Helianthus annuus*.
- (14). *Melissodes menuacha*, Cress., 1868, var. *submenuacha*, Ckll., 1897—one male, Sept. 17.
- (15). *Ashmeadiella buconis* (Say, 1837, as *Osmia buconis*)—Sept. 17, one female, at flowers of *Grindelia*, new to New Mexico.
- (16). *Bombus morrisoni*, Cresson, 1878—Sept. 15, two males, one female, the latter at flowers of *Cleome serrulata*.

MESILLA PARK, N. M., Dec. 15, 1897.

