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## The Bees of Southern California.— III.

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linear, 1-1.5cm long, 6-8-flowered; fertile scales oblong, 3mm. long, obtuse, stramineous, the midvein green, folded, but at maturity only concave; achenes oblong 1-1.25mm. long, 1mm. thick, very obtusely 3-angled, the obtuse apex mucronulate.

Growing in wet sand along streams; probably common in the cismontane region, below 1,000 feet altitude, but my only specimens are of my own collecting at San Bernardino, where it is abundant, and at Elsinore Lake. Dr. Britton has obliged me with a part of Norton's type specimen, 1248 B. F. Bush, from San Antonio, Texas. The spikelets are 2.5cm. long, but otherwise the plants do not differ from my own. Immature achenes are acutely 3-angled, and acute at both ends, but when fully mature they are as described.

PLATE IV. From a plant collected at Elsinore Lake. X  $\frac{1}{2}$  - a. Achene X 15 - b. Scale X 8.

### The Bees of Southern California. III.

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BY T. D. A. COCKERELL.

The following table is intended to separate the males of the common type of *Anthidium* represented by *A. maculosum*, *monum*, *montivagum*, *cognatum*, &c., in various parts of the United States. In addition to the species of Southern California, I have included some others for comparison, two (from Pecos, New Mexico) being new. There are also included some species of a type not yet found in our region, one of them (*toltecum*) being a *Dianthidium*. I have a residue of females from Southern California which I have not cared to describe, as it seems best to describe the species, so far as possible, from the males, which possess the strongest characters. No doubt further investigation will show that some of the undescribed females belong with described males, and when this is not the case, the males may be discovered, permitting a more exact definition of the characters of the species. It is to be understood that all the new forms are black bees ornamented with yellow, the abdomen having notched or divided bands, the notches always anterior except on the first segment, where they are posterior.

#### *Anthidium*; Males.

- |  |                           |
|--|---------------------------|
| Last abdominal segment deeply notched, without a median projection .....                 | 1                         |
| Last abdominal segment, with a median projection.....                                    | 2                         |
| 1. Margin of sixth segment sinuate (Mexico)...   | <i>toltecum</i> , Cress   |
| Margin of sixth segment with a strong median tooth, and also lateral teeth (Europe)..... | <i>oblongatum</i> , Latr. |

2. Lateral lobes of last segment spine-like, pointed..... 3  
Lateral lobes of last segment broadened..... 5
3. Lateral lobes strongly curved; mesothorax with yellow  
marginal marks (Europe).....**manicatum**, L.  
Lateral lobes straight; mesothorax all black..... 4
4. Size large; clypeus with two black spots on upper part; an-  
terior tarsi largely light yellow in front (So. Calif.)  
.....**banningense**, n. sp.  
Size smaller; clypeus all yellow; anterior tarsi black in  
front. (Pecos, N. M.).....**lupinellum**, n. sp.
5. Light markings of abdomen confined to sides; size large  
(Europe) .....**laterale**, Latr.  
Light markings of abdomen not confined to sides..... 6
6. Last segment of abdomen ferruginous..... 7  
Last segment of abdomen not ferruginous..... 8
7. Yellow of abdomen very bright; the bands continuous  
in the middle on third and following segments (So.  
Calif.) .....**tricuspidum**, Prov.  
Yellow of abdomen pale; none of the bands continuous  
in the middle; venter of abdomen red (New Mex-  
ico) .....**porterae**, Ckll.
8. Lateral lobes of last segment entirely black, divergent  
and strongly curved inwards at the end; none of the  
abdominal bands united in the middle (Calif.).....  
.....**californicum**, Cress.  
Lateral lobes not so; when entirely black, insect smaller. 9
9. Tegulae yellow and black, or rarely yellow and reddish..10  
Tegulae entirely apricot-color (So. Calif.)..**palmarum**, n. sp.
10. Mesothorax entirely black; last abdominal segment en-  
tirely black, or with small yellow spots; a small yel-  
low spot above each eye.....11  
Mesothorax with some yellow on margins; last abdom-  
inal segment with conspicuous yellow markings, or  
nearly all yellow .....14
11. Lateral lobes of apical segment short and very broad,  
of the general type of **A. jocosum**; average size of  
insect smaller (So. Calif.).....**palliventre**, Cress.  
Lateral lobes of apical segment elongated, of the gen-  
eral type of **A. cognatum**; average size of insect larger.12
12. Markings of abdomen orange; abdomen shining, with  
sparse punctures (So. Calif.).....**saxorum**, n. sp.  
Markings of abdomen yellow; abdomen more closely  
punctured .....13
13. Tibiae with broad yellow stripes (So. Calif.).....  
.....**collectum**, Huard.

- Tibiae without such stripes (Fort Collins, Colo.).....  
 .....(**emarginatum**, Say, var?) **TITUSI**, nov.
14. Femora with conspicuous red patches; flagellum red beneath; hair of head and thorax all white (New Mexico)..... **paroselae**, Ckll.  
 Femora without red patches; flagellum all black.....15
15. Hair of thoracic dorsum white; size small.....16  
 Hair of thoracic dorsum fulvus or ochraceous.....17
16. Scape all black (So. Calif.)...**bernardinum** var. **fragariellum**  
 Scape yellow in front (So. Calif.)...**bernardinum** var. **aridum**
17. Markings of abdomen lemon-yellow (Pecos, N. M.)...  
 .....**pecosense**, n. sp.  
 Markings of abdomen orange.....18
18. Size small, about 11 mm. long (So. Calif.).....  
 .....**bernardinum**, var. **wilsoni**  
 Size larger, about 14 mm. long (So. Calif.).....  
 .....**bernardinum**, n. sp.

**Anthidium banningense**, n. sp.

Male: Length, 14½ mm.; black, the markings rather pale yellow, pubescence white, abundant on upper part of head and thorax. Clypeus, lateral face-marks, mandibles except apex, and oblong marks above tops of eyes, pale yellow; clypeus with two black marks near its upper margin; anterior margin of clypeus without notches or protuberances; mandibles with the apical tooth broad, pointed, falciform, but the others hardly developed, the second only a distinct nodule; antennae entirely black; thorax entirely black, only the tegulae with a pale yellow patch; wings only moderately stained with brown; first recurrent nervure joining second submarginal cell some distance from its base; basal nervure passing considerably basad of transverso-medial; legs robust, black, anterior tibiae with a small yellow spot near apex, middle tibiae with a large apical mark, basal joint of tarsi light yellow on the outer side; abdomen with the band on first segment divided into spots (the middle pair small), the others nearly (or quite) divided, the second interrupted in the middle line, the third to fifth only emarginate, sixth segment with two yellow marks, apical all black; segments much more closely and regularly punctured behind the bands than before them; sixth segment with large lateral curved black teeth; lateral processes of apical segment straight or almost so, narrow and pointed; ventral surface of abdomen dark reddish.

**Hab.**—Banning, Calif., 1892. One taken by Dr. Davidson.

**Anthidium lupinellum**, n. sp.

Male; length about 11 mm.; a rather small, compact species,

with all the abdominal bands divided into spots as in **A. maculosum**; pubescence white, some blackish on scutellum, and vertex, and especially just behind ocelli; clypeus bright lemon yellow, not spotted, not at all obscured by hair, its narrow lower edge black; lateral face-marks, mandibles except apex, and small spot above each eye, yellow; first and second mandibular teeth broad and sharply pointed; antennae entirely black; thorax all black except two small yellow marks on scutellum; tegulae with a large yellow spot in front and a small one behind; wings not very dark; legs black, with the basal joints of the middle and hind tarsi cream-color (but basal joint of anterior tarsus is black); abdominal segments with thin marginal fringes of black hair; sixth segment with four spots like the others, seventh all black; lateral apical processes long and narrow; venter of abdomen black.

**Hab.**—Pecos, New Mexico, at flowers of **Lupinus** near Harrison's store, June 30, 1903, collected by W. P. Cockerell. By the structure of the last two dorsal abdominal segments, this is closely related to **A. banningense**; but it is smaller and differs in several particulars.

**Anthidium tricuspidum**, Provancher.

Los Angeles, Calif., three collected by Dr. Davidson. Provancher's description is incomplete, but as his material was from the same locality, and the rather peculiar bright yellow pattern of the abdomen agrees, I assume that I have the insect he described. The ventral surface of the abdomen is light ferruginous.

**Anthidium californicum**, Cresson.

Los Angeles, Calif., five collected by Dr. Davidson. In these specimens the hair on vertex and thorax above is white, not dull yellow. I have not seen authentic material of **A. californicum**, but the Los Angeles insect fits the description so nearly that I assume it to be the same.

**Anthidium palmarum**, n. sp.

Male; length about 9 mm.; pubescence white, dense on face, covering clypeus; clypeus and very small lateral face-marks (separated from orbital margin), mandibles except tips, and small spots above eyes, light yellow; mandibles with first and second teeth acute; antennae entirely black; thorax all black except an interrupted yellow line on scutellum; tegulae a warm red; wings rather clear; legs black, marked with light yellow and ferruginous, the lighter colors including the knees, stripes on anterior and middle tibiae, and spots at base and apex of hind tibiae, the last also being reddish behind; basal joint of tarsi yellow, the other joint light

ferruginous; the tibial ornamentation really consists of basal and apical yellow spots jointed by a red stripe, the stripe being absent on the hind tibiae; abdominal markings shining, orange-yellow, the band on the first segment divided into four spots, on the second almost divided, on the others successively somewhat less so, but all divided in the middle; sixth segment with two very large yellow marks; lateral apical lobes marked with yellow, moderately broad; ventral surface of abdomen black, except sides of first segment, which are ferruginous.

**Hab.**—Two collected by Dr. Davidson; the type from Palm Spring; the other (reddened by cyanide), Los Angeles. Easily known by the apricot-colored tegulae, the orange-yellow markings of abdomen, &c. The end of the abdomen is constructed in the manner of *A. cognatum*, but the lateral lobes are a little broader and somewhat divergent, and the lateral spines of the sixth segment are practically straight.

***Anthidium palliventre*, Cresson.**

With some hesitation I refer here four males, one from Logan, Utah (L. Bruner, No. 17), the other three collected by Dr. Davidson in California, at Los Angeles, Tehachapi and Bear Valley. *A. palliventre* was described from a female collected in California, and females of this group have few distinctive characters. A female collected by Dr. Davidson at Los Angeles seems to be *palliventre*, but the ventral scopa is blackish in the middle and white laterally. It has the face entirely black.

**Catalogue of Indian Relics on Santa Catalina, etc. Cont.**

BY MRS. M. BURTON WILLIAMSON

- |         |                                   |
|---------|-----------------------------------|
| No.     |                                   |
| 13,126. | Bone Dagger.                      |
| 13,127. | Fragment of handle to 13,126.     |
| 13,128. | Bone implement with hole.         |
| 13,129. | Bone needles—3.                   |
| 13,130. | Bone needle, long.                |
| 13,131. | Bone Awls, small—4.               |
| 13,132. | Vertebra of fish.                 |
| 13,133. | Fragments of baskets.             |
| 13,134. | Fragments of baskets, wound.      |
| 13,135. | Strings, one wound in ball.       |
| 13,136. | Fragments of cloth.               |
| 13,137. | Red paint, powdered and in lumps. |
| 13,138. | Red paint, in worked shapes—5.    |
| 13,139. | Black paint, powdered.            |
| 13,140. | Shells with paint in them.        |