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## The Bees of Southern California.— IV.

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### Recommended Citation

Cockerell, T. D. A., "The Bees of Southern California.— IV." (1904). *Ca*. Paper 346.  
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**Chrysodomus griseus** Dall.

3385 This is another of the "Albatross Mollusca" and Dr. Dall's description can easily be followed with the shell before me.

Shell thin, rather acutely pointed when perfect; seven or eight whorled; the substratum, pillar, throat milk white and smooth; nucleus eroded, small round; suture distinct; whorls full and rounded; **transverse sculpture twenty or more arcuated wave-like ribs**, which on the earlier whorls often reach from suture to suture but are strongest on the periphery. As the shells do not hold to the same relative proportions of latitude and longitude, the more elongate the specimen the fainter is the sculpture.

Found in company with **B. aphelus** Dall in the Pliocene of Santa Monica Range, Los Angeles Co., Cal.

One specimen perfect, two nearly so and several more or less fragmental.

**The Bees of Southern California. IV.**

BY T. D. A. COCKERELL.

**Anthidium saxorum**, n. sp.

Male, length about 11 mm.; pubescence white, faintly tinged with ochreous dorsally, abundant on head and thorax, but not concealing clypeus; clypeus, lateral face-marks, mandibles except tips, stripe on scape, and small spot above each eye, pale chrome yellow; mandibles with only one large tooth; flagellum black; thorax all black except tubercles and two marks on scutellum, which are yellow; tegulae with a large yellow spot in front, and a small one behind; wings fairly clear; femora black, with a small apical yellow spot on the middle and hind ones; tibiae with a broad yellow stripe on the outer side, which sends a process to the anterior side apically; basal joint of tarsi yellow; abdomen unusually smooth and shining, the bands deep orange; band on first segment broken into four spots, those in the middle small and transversely elongated; bands on second to fifth emarginate medially and laterally, but not broken; sixth nearly all orange; seventh with only two yellow spots; lateral apical lobes broad and not much produced, very much as in **A. mormonum**, except that they are less curved inward; venter reddish-black.

**Hab.**—Rock Creek, California, one collected by Dr. Davidson. By the cariniform tubercles, white pubescence, etc., this resembles **A. mormonum**, but it differs by having no basal spots on scutellum, bands on abdomen not interrupted medially, &c.

**Anthidium collectum**, Huard:

1904e

Four males obtained by Dr. Davidson are referred here: two from Los Angeles, one from Tehachapi, one from Switzer's. According to the original description, **collectum** Huard (**compactum**, Provancher) differs from **tricuspidum** in being smaller, having no marks on thorax, and the first three segments of abdomen with the bands divided into spots. The last character is somewhat variable. This species appears to be very near to **A. emarginatum**, Say, but that has the abdominal bands yellowish-white or white. The specimen from Tehachapi represents a distinct variety, perhaps species, which may be described thus:

**A. collectum** var. **ultrapictum**, nov.

A little larger; scape with a yellow stripe; abdominal bands very bright yellow, only that on first segment divided into four spots, the others not even divided in the middle, though emarginate there and squarely notched laterally; sixth segment with two very large round yellow marks, touching in the middle line; seventh all black, with the lateral lobes not so produced as in **collectum**, and distinctly angled on the outer side; tibiae with more yellow. The dorsal pubescence has just a faint ochreous tint. There are no sub-apical ventral spines.

**Anthidium (emarginatum, Say var?) Titusi**, nov.

Easily distinguished from typical **emarginatum** (male) by the bright lemon-yellow (instead of yellowish-white or white) abdominal bands, and the tibiae all black except a minute basal spot, and an apical one on middle tibia. Clypeus with two black dots near upper border; antennae entirely black; dorsal pubescence dull white; thorax all black except two short lines on scutellum; anterior part of tegulae yellow; wings dusky; basal joint of tarsi light yellow; the other joint ferruginous; first abdominal segment with very long hair, its band divided into four spots, the middle ones transversely elongated; bands on the second and third greatly narrowed mesad of the notch, and slightly divided in the middle; on fourth and fifth widely notched, but only emarginate in the middle; sixth segment with two very large comma-shaped yellow marks; seventh all black, formed about as in **ultrapictum**, but the lateral lobes not quite so produced; venter black; apex of venter strongly tridentate, with a large median ferruginous process directed caudad, and large black lateral spines directed more downwards.

**Hab.**—Fort Collins, Colorado, June 13, 1900. (E. S. G. Titus.) The apical ventral structures recall **A. montivagum**.

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*Hymeriptera Apocrita - Megachilidae - Anthidiini - Anthidium*

Property of

**Anthidium pecosense**, n. sp.

Male: length about 11 mm., stout and compact; pubescence white on pleura, cheeks and face below antennae, but fulvous on upper part of head and thorax; hair quite dense over clypeus; clypeus, lateral face-marks, mandibles except tips, and small spots above eyes, lemon yellow; clypeus with two dusky dots near its upper margin; mandibles comparatively narrow, second tooth small but pointed; antennae entirely black; thorax black with the tubercles, a bent stripe on antero-lateral corner of mesothorax, and two lines on scutellum, yellow; tegulae black with a large pale yellow mark; wings dusky; femora black, with more or less of a yellow stripe beneath (best developed on the anterior ones, but obscured by hair), and the middle and posterior ones with very small apical (knee) spots; tibiae broadly yellow on the outer side; basal joint of tarsi yellow, the other joints ferruginous; abdomen with the bands bright lemon-yellow, that on the first divided into four spots, the median spots subquadrate; band on second divided in the middle and squarely notched laterally, on third divided in middle and with small lateral notches, on fourth and fifth emarginate only in the middle, and not notched laterally; sixth almost all yellow, but emarginate with black in middle; apical segment with two yellow spots; lateral apical lobes broad, median process long, lateral teeth on sixth segment rather short; venter black.

**Hab.**—Pecos, New Mexico, one at flowers of **Heracleum lanatum**, June 21, 1903. (Cockerell). The apex of the abdomen is of the same type as **A. mormonum**, from which it is easily distinguished by the fulvous hair of head and thorax. From **A. poudreum**, Titus (misprinted **pondreum** in original description). **A. pecosense** differs by having the ventral segments of abdomen thickly pubescent right across, femora and tibiae with white hair, dorsum of thorax with abundant fulvous hair, no dots before the lines on scutellum, all the femora with yellow stripes, band on first abdominal segment broken into spots.

**Anthidium bernardinum**, n. sp.

Male: length about 13 mm., general appearance of **A. tricuspidum**, but differing in many details, and especially in the apex of the abdomen, the lobes of which are much shorter, broader and more rounded, and yellow with dark brown margins, the median spine also being dark brown. The real affinity of the insect is with **A. pecosense**, but it is larger, and very different in its deep orange markings;

the dorsal pubescence of the head and thorax, as in **pecosense**, is fulvous. Head marked as in **pecosense**, except that the scape has a yellow stripe (sometimes wanting) and the spots above the eyes are produced and pointed mesad; thorax with the yellow markings of **pecosense** replaced by orange and more developed, forming a broad band surrounding the mesothorax and scutellum, except for a space in front; band on first abdominal segment notched behind, or sometimes divided into four spots, in which case the median spots are quadrate and quite large; remaining bands laterally notched (not very broadly) in front, and emarginate in the middle, those on the second, third and sixth frequently divided; lateral spines of sixth segment partly yellow; venter of abdomen ferruginous, with yellow spots at extreme sides; apical ventral segment tridentate, the middle tooth broad, ferruginous, and emarginate, the lateral ones rather broad and not very long, ferruginous edged with black. The femora have broad orange stripes, the tibiae are entirely orange on the outer side; basal joint of tarsi orange, the others ferruginous.

**Hab.**—Five males collected by Dr. Davidson: type from Strawberry Valley, others from Mt. Wilson. With these I associate some females from Bear Valley, Wilson's Peak and Los Angeles. They are similar to the male, but smaller ( $10\frac{1}{2}$  mm. long), the clypeus has a blackish median shade, the spots above the eyes are produced into bands which nearly meet in the middle line, and the ventral scopa is white. The female suggests **A. placitum**, but the abdomen is strongly punctured, and not transversely impressed at base. The following three forms are referred as varieties to **A. bernardinum**, but they certainly look very different, though similar in the details of the markings, &c.

**A. bernardinum v. wilsoni**, n. v.

Male: length about  $10\frac{1}{2}$  mm.; dorsal pubescence pale fulvous; antennae entirely black; band on fourth abdominal segment divided in middle, as well as those on second and third; apical lobes with the inner angle more prominent; yellow on thorax reduced to two lines on mesothorax in front, line on tubercles, and two lines and two dots on scutellum; venter of abdomen very dark brown; apical ventral segment with the median process large, broadly rounded, dark brown, not emarginate, the lateral ones pointed black teeth; femora brown-black, the middle ones with a yellow apical spot, the hind ones with an apical stripe.

**Hab.**—Mt. Wilson, California, one collected by Dr. Davidson.

***Anthidium bernardinum* v. *fragariellum*, n. v.**

Male: length 9½ mm.; dorsal pubescence white; antennae entirely black; spots above eyes oval, not pointed mesad; marginal yellow of mesothorax and scutellum rather well developed; wings decidedly reddish; middle and anterior femora with broad yellow stripes beneath, hind femora with the apical half striped above and beneath, middle femora with a yellow apical patch above, but anterior femora all black above; apical lobes of abdomen more curved inwards than in *bernardinum*; venter of abdomen brown black; last ventral segment with median process ferruginous, broad and subtruncate, not emarginate, the lateral processes pointed black spines.

**Hab.**—Strawberry Valley, California, collected by Dr. Davidson. A female from the same place appears to belong here; it has two cuneiform black marks on the clypeus; femora black, the anterior and middle ones with a yellow apical mark behind; scopa white. It is of the same size as the male.

***Anthidium bernardinum* v. *aridum*, n. v.**

Male: like v. *fragariellum*, but a little larger; scape yellow in front; face less hairy; axillar spots absent; only the first abdominal band interrupted in the middle (the second and third are interrupted in *fragariellum*); yellow stripe on middle femora not extending beyond apical half; lateral apical lobes of abdomen more triangular, less rounded; venter black.

**Hab.**—Rock Creek, California, collected by Dr. Davidson. I rather expect that when more is known about these insects *wilsoni* and *fragariellum* will stand as valid species, and *aridum* as a variation of the latter.

## Flora of San Clemente Island.

BY BLANCHE TRASK.

### I.

For many years San Clemente has lifted its amethystine heights, as I have followed the trails of Santa Catalina Island; a day's trip to the "West End" and a week's camping at the "East End," with a long tramp over the crest-line, made me doubt the common assertion that "San Clemente is only a treeless waste of sand."

Visits to the more northern of the Channel Islands—Santa Cruz, Santa Rosa, San Miguel and the little Anacapas—claimed my attention; and a three months' sojourn at San Nicolas

Island, at three different seasons with a tarrying at tiny Santa Barbara Island and one special trip there, absorbed all my leisure; while the heights of San Clemente ever upheld their deeps, unknown to me! So near—and yet I knew them not!

However, last year, after living there three months, I have a real satisfaction in thinking I know something of that Island. When I left I felt I would never again care to see places so terrible; but I find my heart following my eyes from the dear old Catalina trails as I see San Clemente this winter lying in all its amethystine beauty, like an Indian arrow-head, tipped with shining stretches of sand, enshrined by the white arms of the sea.

Eighteen miles long and nearly 2000 feet elevation upon its greatest height, it is by far the most inaccessible of all the Channel Islands.

A rolling upland strewn with jagged volcanic rocks, which cut the boots at every step, reaches its greatest altitude on the north coast—a coast gashed by precipitous and bold gorges, not one of which could properly be called a canyon.

The south coast rises from the sea with perpendicular walls fifty to three hundred feet high, where it surprises you by a flat which may be followed the entire length of the south coast, over a trail the worst of all the trails which I have followed in many thousand miles' tramping on these Channel Islands in the last ten years. It winds and turns and breaks into "cuts" and never a moment is the foot on level ground, but constantly caught in the crevices of the gnawing lava rocks, while a glimmering heat waves under the eaves of the heights, from whence great arroyos leap to the river flat below, casting rivers of fresh rock upon the already over-burdened rim; between these arroyos terraces rise in endless succession.

You walk there in October and November and the aridity is oppressive; but in May the same trail is a miracle of color. *Eschscholtzia ramosa* starring the way, while *Gilia Nevinii*, whose heart is the true turquoise, so that I called it "The Turquoise Daisy," is so plentiful that the arms could be filled with it. *Senecio Lyoni* is nearly as common as everywhere, one to three feet tall.

The sweet "Lava Daisy"—*Malcothrix foliosa* Greene—is here in its own home and special joy of existence. You marvel that it can draw its life from rocks which are hot to the hand and which even burn the feet in walking.

On the north coast from the highest line the gorges leap into the sea below, five hundred to two thousand feet, so suddenly, and often so unexpectedly, that no man can follow such ways in safety; there are rims of beaches below which can be