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Descriptions and Records of Bees - XLIX

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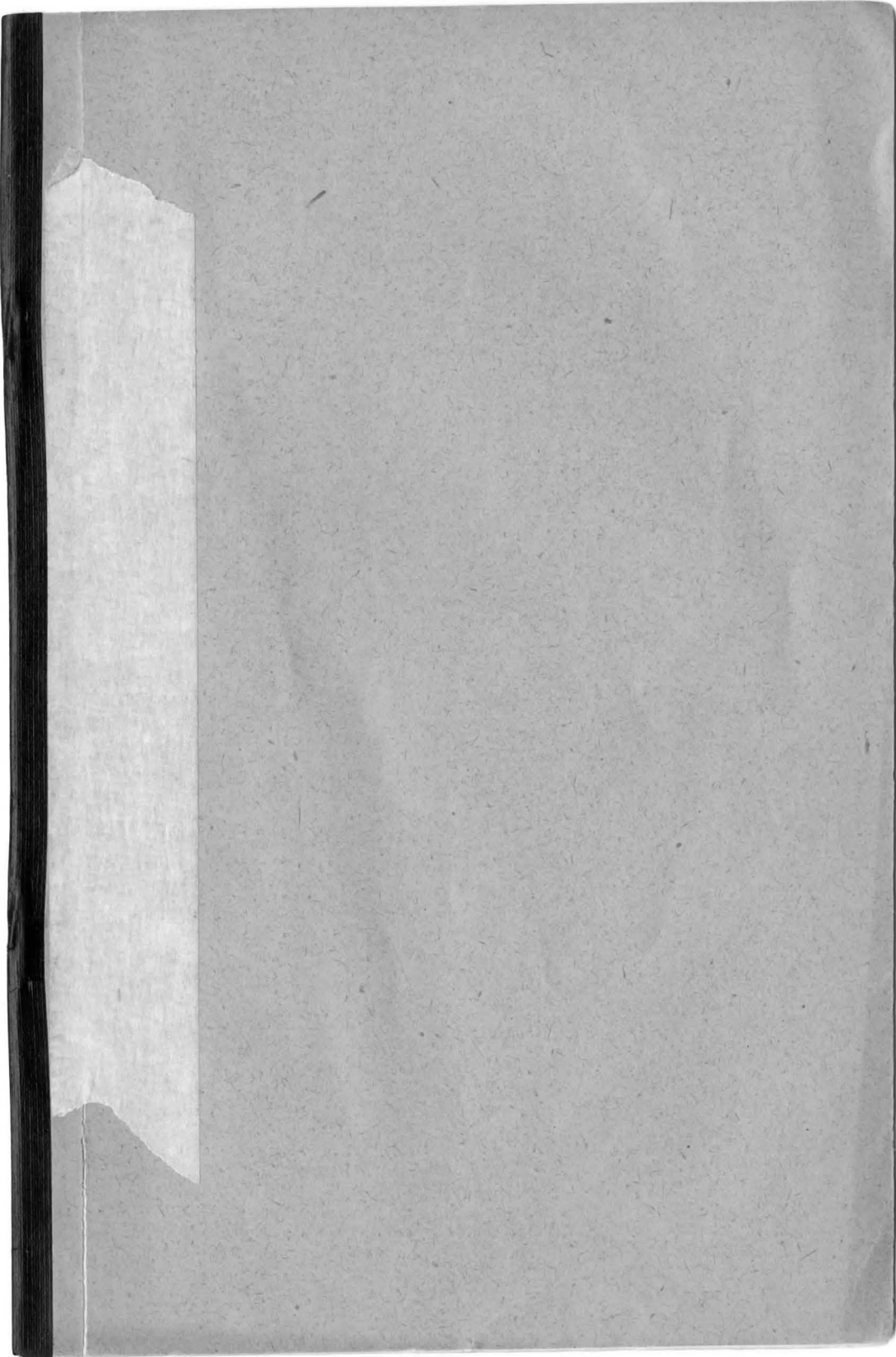
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Descriptions and Records of Bees.—XLIX.

By T. D. A. COCKERELL, University of Colorado.

Colletes (lycii subsp.?) *peruvicus*, sp. n.

♀.—Length about 8 mm., anterior wing 6.

Black; hair of head and thorax rather long and abundant, below white, above faintly tinged with yellowish, the vertex, disc of mesothorax, and scutellum with an admixture, not very conspicuous, of fuscous hairs; mandibles rather dark chestnut-red; malar space long, not quite $1\frac{1}{2}$ times breadth of base of mandibles; labrum with a strong median groove, and faint ones on each side; clypeus shining, impunctate laterally, in the middle with a very broad median depression which is sparsely punctured, its sides above forming a pair of blunt shining ridges; supraclypeal area smooth and shining; eyes very prominent; no distinct prothoracic spines; mesothorax brilliantly shining, with minute very sparse punctures; scutellum shining, the posterior half well punctured; area of metathorax a transverse band, with many closely set ridges; posterior face of metathorax with a large, shining, smooth, triangular area, but the other parts roughened; pleura shining, with sparse small punctures; tegulae reddish testaceous. Wings hyaline, very faintly brownish, the rather small stigma rufo-fuscous; nervures fuscous; second s.m. very broad, receiving first r.n. in middle. Legs black, with dark rufous tarsi, their hair pale, a little fuscous on outer side of hind tibiae. Abdomen rather narrow, brilliantly shining, with only the most minute, hardly visible, punctures, these scattered; hind margins of segments broadly pale rufous; basal half of first segment with long greyish-white hair; second (most clearly toward base) and the remaining segments with short greyish tomentum, more or less covering the surface; no hair-hands; apex with fuscous hair.

Hab. Piura, Peru (*C. H. T. Townsend*).

This is smaller than *C. lycii*, Jörgensen, from Mendoza, but evidently closely allied. The localities are, however, over 2000 miles apart, and the partly fuscous hair of the head and thorax above, the entirely red mandibles, &c. are distinctive of the Peruvian insect. In the clypeal structure there is a resemblance to *C. sulcatus*, Vachal, from Chili. The known Peruvian *Colletes* may be separated thus:—

Legs with hair mostly black	<i>striginasis</i> , Vachal.
Legs with pale hair	1.
1. Malar space very short	<i>inflatus</i> , Vachal.
Malar space long	<i>peruvicus</i> Ckll.

Andrena mitsukurii, sp. n.

♂.—Length about 11 mm., expanse about $17\frac{1}{2}$.

Black, with rather abundant dull white hair, faintly creamy-tinted on head and thorax, dark fuscous on face below antennæ (but pale about mouth), rather narrowly fuscous also at sides of front, and some fuscous hair on thoracic dorsum; fifth abdominal segment at apex, and sixth segment also, with dark fuscous hair, some black hair on middle of fourth segment, but the abdomen otherwise thinly covered with greyish-white erect hair, forming rather obscure fringes or bands at bases of second and third segments, but no apical hair-bands, the general appearance of the abdomen greyish hairy and unbanded. Legs with pale hair, light fawn on inner side of tarsi. Head not massive, but broad, the facial quadrangle much broader than long; mandibles and cheeks ordinary; process of labrum broadly truncate; antennæ long, ordinary, black, third joint a little longer than fourth; clypeus irregularly rugosely punctured, shining between the punctures; malar space about twice as broad as long; front and vertex coarsely rugoso-punctate, a small triangular depression in front of middle ocellus; mesothorax brilliantly shining, with strong and large but well separated punctures; scutellum more densely and very irregularly punctured; metathorax very coarsely sculptured, the poorly defined area very irregularly and coarsely reticulate; tegulæ piceous. Wings fuscous; stigma dark reddish, with fuscous margin, nervures dark fuscous; second s.m. rather small, higher than broad, receiving first r.n. a little beyond middle. Legs slender, normal, the small joints of tarsi dark reddish. Abdomen very coarsely and strongly punctured, but shining between the dense punctures, punctures on first segment larger than those on the others; apical margins of first four segments raised, shining, and each of these segments with a quite deep, finely rugulose (not distinctly punctured), transverse submarginal sulcus, the sulcus and raised margin occupying about one-third of the second segment. The b. n. falls some distance short of t.-m.

Hab. Japan (U.S. National Museum, 168).

This and the following species are dedicated to Japanese naturalists. In Schmiedeknecht's table of European species this runs to 98, and runs out because of the dark wings and prevailing light hair of body. It is not like any species described from Japan or China. It resembles the subgenus *Trachandrena*, Rob., but the third antennal joint is not

shorter than the fifth. The strongly raised hind margins of the abdominal segments give it a very peculiar aspect. The type of *A. mitsukurii* also bears the numbers 35, 6, 22, and something in Japanese.

Andrena watasei, sp. n.

♂.—Length about $10\frac{1}{2}$ mm., expanse about 18.

Black, with a broad head and unusually small thorax; hair of head and thorax rather long and abundant, greyish white, dorsally with only the faintest creamy tint, but some dark grey or blackish hair on scape, sides of front, and middle of thoracic dorsum; discs of abdominal segments beyond the second with more or less sooty hair, and that of apex pale sooty; the abdomen in general, especially the second and third segments, is thinly clothed with pale hair, which forms thin inconspicuous bands on the hind margins of the segments, but only at sides on first, broadly interrupted on second, and very weak in middle of third. Legs with white hair, pale purplish brown on inner side of tarsi. Head much broader than thorax; face covered with long light hair; facial quadrangle broader than long; mandibles rather robust, ordinary; face and front dull and granular; cheeks not enlarged; antennæ long, black, ordinary, third joint rather short, but longer than fourth; mesothorax and scutellum very shiny, with rather small but distinct and well separated punctures; mesothorax dull in front; metathorax with very long hair, the area finely rugulose, not defined; tegulæ piceous. Wings strongly reddish, paler basally, stigma and nervures ferruginous; b.n. meeting t.-c.; second s.m. a little broader below than high, receiving r.n. a little beyond middle. Legs black, slender, ordinary. Abdomen shining, with extremely minute punctures, best seen on first segment; hind margins of segments not peculiar, second segment depressed about one-fourth. Malar space very short.

Hab. Japan (U.S. National Museum, 132). Also labelled 35. 9.

In Schmiedeknecht's table runs to 154, and runs out because wings are dusky and area of metathorax is only rugulose. It can be run on with some difficulty to *A. propinqua*, from which it differs by the larger size, dark apical margins of abdominal segments, and generally pale hair of head and thorax. The general build and appearance of the insect is very like that of the American *A. sayi*, Rob., but the mesothorax is quite different. No closely similar Japanese species has been described.

Andrena nawai, sp. n.

♀.—Length about 13 mm.

Black, including the antennæ and legs, except the hind knees, tibiæ, and tarsi, which are ferruginous; head broad, facial quadrangle considerably broader than long; hair of front (especially at sides) and vertex black, but occiput and cheeks and middle and sides of face with abundant long fulvous hair; clypeus flat, its disc bare, with a broad impunctate band (not at all raised), but otherwise distinctly and rather closely punctured; malar space rather large, but broader than long; facial foveæ very broad, dark seal-brown, not separated from eye, going little below level of antennæ; third antennal joint a little longer than fourth and fifth combined; thorax densely clothed with long fulvous hair; mesothorax dull and granular, scutellum faintly shining; area of metathorax triangular, poorly defined, its sides smoother than the densely granular adjacent parts, and feebly shining, its middle with a delicate raised line and its base obscurely rugulose; tegulæ dark brown, small and covered with hair. Wings brownish-hyaline, stigma and nervures dull ferruginous; b.n. almost reaching t.-m.; second s.m. would be square were not the first t.-c. bent above; first r.n. joining second s.m. near end; third s.m. extremely long. Femora with long pale fulvous hair; anterior and middle tibiæ and tarsi with short fuscous hair; hind tibiæ and tarsi with clear red hair; curled floccus at base of hind legs large. Abdomen with the surface finely granular, sericeous, shining, without distinct punctures, hind margins of segments very narrowly reddish brown; second segment depressed at least two-fifths, but the depression feeble; abdomen with abundant long fulvous hair, which forms continuous bands on hind margins of segments, but the bands are only defined by the greater density of the hair; apex with rufo-fulvous hair.

Hab. Japan (U.S. National Museum, 126).

A well-marked species, running in Schmiedeknecht's table nearest to *A. opaca*, Morawitz, but differing greatly in the colour of the pubescence. It is very much like *A. trimmerana* (Kirby) from France, and must be considered a member of the same group. In addition to the colour-differences, however, the sides of the upper part of the metathorax in *trimmerana* are rather shining, with a distinct punctiform sculpture, not entirely opaque and evenly granular as in *nawai*.

Andrena sasakii, sp. n.

♂.—Length about 12 mm.

Black, including antennæ and legs, except that the small joints of tarsi are ferruginous; hind margins of abdominal segments broadly rufo-testaceous; hair of head and thorax long and abundant, light fulvous, nowhere mixed with black or fuscous; head broader than thorax, facial quadrangle much broader than long, cheeks broad but not peculiar, malar space very short, mandibles normal; clypeus and face rugulose, feebly shining, almost hidden by hair; third antennal joint equal to fourth, fifth shorter; vertex and front dull and granular; mesothorax and scutellum dull and finely granular; area of metathorax granular, hardly defined, rugulose at base; tegulæ dark rufous. Wings brownish hyaline, stigma and nervures ferruginous; b. n. meeting t.-m.; second s.m. broad, receiving first r. n. at middle; third s.m. not nearly so long as in *A. nawai*. Legs ordinary, with pale hair. Abdomen shining, without distinct punctures, thinly covered with pale ochraceous hair, not forming distinct bands; apical plate broadly truncate, shallowly subemarginate, with a thick brush of hair beneath; venter normal. Process of labrum very broad and low, truncate, not notched.

Hab. Japan (U.S. National Museum, 133).

Runs in Schmiedeknecht's table to *A. fulvida*, Schenck, but is a considerably larger species, with paler nervures. It must be allied to the Japanese *A. hebes*, Pérez, but is larger and differently sculptured.

I give a key to the known *Andrenæ* of Japan:—

- | | |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|
| Tegument of clypeus variably pale, clypeus sometimes practically all pale; abdomen shining, with hind margins of segments testaceous. (Tokio and Wasaka.) | <i>knuthi</i> , Alf. ♂ |
| Tegument of face wholly black | 1. |
| 1. Clypeus prominent, very convex transversely, straight in profile; scutellum strongly bigibbous: length 13 mm. (Yokohama.) | <i>prostomias</i> , Pérez. ♀. |
| Clypeus normal. | 2. |
| 2. A long spine or tooth near the base of each mandible | 3. |
| Without such a spine or tooth | 4. |
| 3. Third antennal joint much shorter than fourth; cheeks broad, angled behind above middle. (Yokohama.) | <i>dentata</i> , Smith. ♂. |
| Third antennal joint longer than fourth; species near to <i>A. ferox</i> , Kirb. (Yokohama.) | <i>simulans</i> , Pérez. ♂. |

4. Abdomen with a delicate bluish tint; allied to *A. apicata*, Sm.: length 13 mm. At flowers of *Acer* in April. (Tokio.) *consimilis*, Alf. ♀.
- Abdomen not at all metallic 5.
5. Hair of head and thorax above a lively red; malar space long; abdomen very shiny, hairy. (Yokohama.) *biscutata*, Pérez. ♂.
- Hair of head and thorax fulvous or whitish, not brightly coloured. 6.
6. Hind margins of abdominal segments elevated; thorax and abdomen with large strong punctures *mitsukurii*, Ckll. ♂.
- Hind margins of abdominal segments normal 7.
7. Species of Sachalin: 11 mm. long; hair whitish; abdomen with hind margins of segments narrowly yellowish brown; tarsi yellowish brown. (Mauka.) *maukensis*, Mats. ♀.
- Species of Japan 8.
8. Mesothorax shining and punctured on disc. Mesothorax dull and roughened or granular. 9.
9. Smaller, 8.5–9 mm. long; punctures of thorax very sparse; malar space linear. At flowers of *Taraxacum* in April. (Tokio.) *knuthi*, Alf. ♀.
- Larger, 10.5 mm. long; punctures of mesothorax very distinct. *watasei*, Ckll. ♂.
10. Males 11.
- Females 12.
11. Smaller, length 8–9 mm.; hair mostly white, black at sides of face *præcociformis*, Ckll.
- Larger, length 12 mm.; hair of head and thorax light fulvous, with no black. *sasakii*, Ckll.
12. Hair of face partly black or fuscous 13.
- Hair of face without black or fuscous 14.
13. Thorax above with fuscous hair; scopa of hind tibiæ fuscous above and silvery white beneath. *halictoides*, Smith
- Thorax with long fulvous hair *nawai*, Ckll.
14. Smaller, length 9–10 mm.; species allied to *A. angustior*, punctures of clypeus much stronger and sparser, the intervals brilliantly shining, and a broad impunctate median line. (Tokio.) *hebes* Pérez.
- Larger, length 12–13 mm. 15
15. Hair uniform dull yellowish grey, the insect looking like *A. præcox*, but larger. At flowers of *Acer* and *Lactuca* in April. (Tokio.) *japonica*, Alfken.
- Hair pale reddish above, dull white below; tibial scopa silvery white: species of the *trimmerana* group, with something of the aspect of *A. ferox*. *biscutata*, Pérez.

Heteranthidium occidentale (Cresson).

Rito de los Frijoles, New Mexico, Aug. 1912 (*Cockerell*).
At the same locality I took *Anthidium maculosum*, Cresson.

Anthidium porterae, Cockerell.

Santa Fé, New Mexico, Aug. 1912 (*Cockerell*); also at the Rito de los Frijoles.

Melitoma euglossoides, Lep. & Serv. (*fulvifrons*, Smith).

Guatemala City, Guatemala, 1912 (*J. Rodriguez*); a small male. Quirigua, Guatemala City, nesting in a clay bank (*W. P. Cockerell*).

Dianthidium ulkei perterritum, subsp. n.

♀.—Like *D. ulkei*, but all the markings cream-coloured instead of rich yellow. The cream-coloured outer sides of the tibiae distinguish this from *D. pudens* (Cresson), which also has pale markings. There is an elongated light spot in front of the anterior ocellus, and a large light band behind the upper part of each eye.

Hab. Santa Fé, New Mexico, August 1912 (*Cockerell*).

Caëlixys otomita, Cresson.

Quirigua, Guatemala, 1 ♀, at yellow-golden rod-like flowers (*W. P. Cockerell*).

Caëlixys azteca, Cresson.

Quirigua, Guatemala, Feb. 11, 1 ♂.

Only a female of *azteca* has been described, but this is evidently its male. In my table of male *Caëlixys* in *Canad. Entom.*, June 1912, it runs to *C. sayi*, Rob., but is very different by the narrow and much produced last abdominal segment. The greater part of the thorax above is red.

Eulæma mussitans (Fabr.).

Guatemala City and Quirigua, a female at the latter place. "on a big pea" (*W. P. Cockerell*).

Eulæma fasciata, Lep.

Antigua and Quirigua, Guatemala (*W. P. Cockerell*).

Euglossa cordata (L.).

Quirigua, Guatemala, 4 ♀, one marked "flowers of smaller pea" (*W. P. Cockerell*). The variety *townsendi*, Ckll., is not separable.

Ptiloglossa mexicana (Cresson).

Quirigua, Guatemala, 1 ♀, at blue flowers of a species of Labiatae, Feb. 21 (*W. P. Cockerell*). *P. matutina* (Schrottky) is very closely allied.

Ceratina virescens, Friese.

San José, Costa Rica, Nov. 1911 (*W. M. Wheeler*).

Ceratina nautlana, Cockerell.

Amatitlan, Guatemala, Feb. 1912 (*W. P. Cockerell*).

Ceratina abdominalis, H. S. Smith.

Antigua, Guatemala, 1912 (*W. P. Cockerell*).

Ceratina amabilis, Cockerell.

Quirigua, Guatemala, Feb. 10-20, 6 ♀ (*W. P. Cockerell*). Five were from flowers of *Ipomœa sidæfolia*.

Bombus unifasciatus, Smith.

Amatitlan, Guatemala City, and Antigua, Guatemala (*W. P. Cockerell*).

Apis mellifera, L.

Guatemala City, Guatemala (*J. Rodriguez*).

Centris clypeata, Friese.

Antigua, Guatemala (*W. P. Cockerell*).

Centris tarsata, Smith.

Quirigua, Guatemala, 1 ♀, at "flowers of yellow vine" *W. P. Cockerell*).

Exomalopsis similis, Cresson.

Quirigua, Guatemala, February (*W. P. Cockerell*).

Agapostemon nasutus, Smith.

Quirigua, Guatemala, 2 ♂, one Feb. 12, at flowers of *Ipomœa sidefolia* (W. P. Cockerell).

Panurginus pectiphilus, sp. n.

♀.—Length about 5 mm., anterior wing 4.25.

Robust, black, with a broad abdomen; pubescence scanty, dull white, dense at apex of abdomen and quite thick on legs; facial quadrangle broader than long; eyes dark green; mandibles ferruginous, darkened at base and apex; process of labrum concave above, very broad, the margin gently rounded; clypeus and face shining, but strongly and closely punctured; flagellum very bright ferruginous beneath, except at base, the apical joint also clear red above; vertex brilliantly shining, but well punctured; mesothorax and scutellum shining, but distinctly and rather closely punctured; middle of metathorax shining, the apical pit deep and large, the basal enclosure represented by a very narrow rugose groove; tubercles densely covered with short greyish-white hair; tegulæ ferruginous. Wings hyaline, nervures and stigma rufo-fuscous; b. n. falling a considerable distance short of t.-m.; second s.m. long, receiving first r. n. about or a little before the end of its first fourth; tibiæ and tarsi with much white hair. Abdomen hairy at sides, apex, and on venter only; apical margins of segments broadly depressed, minutely transversely lineolate; the discs of segments minutely roughened or punctate, the second segment (except the depression) with uniform fine punctures all over, the surface shining.

Hab. Soledad Cañon, Organ Mts., New Mexico, at flowers of *Pectis papposa*; the hind legs loaded with pollen (C. H. T. Townsend).

This cannot be the female of *P. townsendi*, from the same mountains, owing to the difference in venation. It is a peculiar, compact little species, not very close to any other known to me. In the table of ♀ *Panurginus* in Entom. News, May 1907, p. 185, it runs nearest to *P. innuptus* (at least the small joints of hind tarsi being clear red), but that is a much larger insect, and has a large sculptured basal area of metathorax.

Panurginus nubis, sp. n.

♀.—Length nearly 7 mm., anterior wing 5.

Black, rather slender, but with a broad head, the facial

quadrangle broader than long; pubescence white, scanty, tinged with yellow on apex of abdomen and inner side of tarsi; head, thorax, and abdomen brilliantly shining, but the front, except at sides, dull and densely granular-punctate, the bases of the second and third abdominal segments also with broad dull microscopically sculptured bands; apical part of mandibles dark reddish; process of labrum very large, shining and concave above, broadly truncate at apex, but the truncation gently rounded; clypeus with rather sparse irregular strong punctures, and a deep median linear groove on the upper two-thirds; sides of face shining, with the punctures running more or less in lines; flagellum dark castaneous beneath except at base; sides of vertex shining, irregularly rugoso-punctate; mesothorax shining and sparsely punctured, with deep median and parapodial grooves; area of metathorax small, finely striate; tubercles shining, thickly fringed with pale greyish hair; tegulae rufo-testaceous, darker basally. Wings dilute brownish, the large stigma and nervures fusco-ferruginous; b. n. falling a trifle short of t.-m.; marginal cell broadly truncate; first r. n. joining second s.m. about one-fourth of the distance from base. Legs black, hind tarsi dark brown. Abdomen clongate, the hind margins of the segments very broadly depressed, the shining depression of second segment about as broad as the part before, the latter consisting of an opaque anterior half, and a shining posterior one, the two parts abruptly separated, but the extreme base narrowly shiny; fifth ventral segment deeply grooved in middle, the groove ending at the apex of a large triangular light ferruginous area.

Hab. Cloudcroft, New Mexico, Sept. 5 (Cockerell).

A commonplace looking species, but with good characters. Compared with *P. porterae* it is smaller but very similar, yet easily distinguished by the second abdominal segment, which has the abruptly defined opaque basal part so closely sculptured that the punctures cannot be separately made out with a lens; whereas in *porterae* the basal part has distinct punctures, is not opaque, and is not abruptly defined. Compared with *P. ornatipes*, *P. nubis* has a much narrower thorax and much broader process of labrum. It is not the female of *P. barberi*, from the same region, as the mesothorax is much more sparsely sculptured, and the paler stigma is narrower and more pointed at end. On the whole, *P. nubis* is closest to *P. didirupa*, which differs from it by the broader smooth band between the opaque band and apical depression on second abdominal segment, the lack of

a distinct linear sulcus on the clypeus, and the fifth ventral segment with only a feebly depressed median line and poorly developed apical area.

Panurginus ximenesiæ, sp. n.

♀.—Length about 6 mm.

Head and thorax shining black, with scanty white hair, metathorax dark brown, tubercles light yellow, but face wholly black; eyes blue-green; facial quadrangle broader than long; mandibles reddened apically; process of labrum rather long and narrow, abruptly truncate; clypeus sparsely but distinctly punctured, not sulcate; middle of front closely and finely punctured; flagellum rather bright ferruginous beneath except at base; mesothorax shining, with sparse feeble punctures; metathorax subopaque, shiny just above the truncation, the extreme base rough, but hardly any defined area; tegulæ pellucid testaceous. Wings hyaline, faintly dusky, stigma and nervures pale reddish brown; b. n. falling short of t.-m.; first s.m. very long; first r. n. joining second s.m. just beyond end of first fourth. Legs reddish brown, with white hair, anterior and middle knees light yellow. Abdomen rather dark red-brown, shining, the basal halves of second and following segments dullish, minutely and densely rugoso-punctate, this sculptured part not abruptly defined; fifth ventral segment depressed in middle.

Hab. Mesilla Park, New Mexico, at flowers of *Verbesina (Ximenesia) exauriculata*, close to the Agricultural College, Sept. 12 (*Cockerell*, 5057).

A very distinct little species, looking at first like a small edition of *P. perlævis*, but readily known by the light tubercles and details of sculpture, as well as the size.

Another addition to the list of New Mexico *Panurginus* as given in *Trans. Amer. Entom. Soc.* xxxii. p. 299, is *P. piercei*, *Crawf.*, which I collected at Raton.

P.S.—My friend Mr. H. Ichinose has kindly interpreted the Japanese characters on the labels of some of the species of *Andrena* described above, as follows:—

Andrena nawai. Shimura field, April 15, 1900.

Andrena watasei. Nikko.

Andrena mitsukurii. Nishigaha (a town near Tokio).

