V. New Species of Bees.

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Phileremulus, n. gen.— Resembling a very small *Phileremus*, but with only one submarginal and two discoidal cells. Marginal short. Body-covering, where present, consisting of scales. Type, *P. vigilans*, n. sp.

Phileremulus vigilans, n. sp.— ♂ 3½ mm. long, dull black but appearing griseous from the white scales. Head somewhat broader than long, covered with white scales, which give the vertex a dull grey appearance, but are so dense on all the lower part of the face as to make it beautifully snow-white. Ocelli large and distinct. Eyes nearer together below than above. Antennae further apart than the distance of either from the orbital margin; brown, the scape short, funicle large, flagellum with the second joint shorter than the third, and the third shorter than the first. Mandibles simple, their ends rufous. Thorax rather small, quite thickly covered with white scales, metathorax with a T-shaped area black because free from scales. Scutellum with a longitudinal groove.

Tegulae shining yellowish-rufous. Wings hyaline, iridescent, nervures dark brown. Stigma little-developed; marginal cell short, obliquely subtruncate at tip, which joins costal margin; submarginal large, pyriform, longer than marginal, appendiculate; first discoidal lanceolate, second discoidal wedge-shaped, appendiculate. The wing area enclosed in cells is less than that beyond.

Legs with the femora black except the pale rufous knees, tibiae and tarsi rufous, with white scales. Tibial spurs white.

Abdomen elongate, somewhat depressed, black with the distal margins of the segments pale rufous, and the whole griseous from the coating of white scales. Venter like the dorsum. The abdomen ends in a narrow subacute rufous process.

♀ 3 mm. long. Antennae rather rufous than brown. Abdomen rather broad, considerably shorter than in the ♂, clear rufous, the last two segments blackish-rufous. The scales become dense only on the distal margins of the segments, thus producing light bands.

Hab.— Las Cruces, N. M., 3800 ft., on sandy ground, visiting flowers of *Pectis pappposa* occasionally.

Phileremulus nanus, n. sp., ♀ 3½ mm. long. Differs from the ♀ of *P. vigilans* as follows: The head is a little larger, the mandibles more rufous, the face black, nearly free from scales except at sides, the clypeus not white with scales, the vertex is very broad, antennae shining rufous, basal half of scape blackish, first joint of flagellum as long as the second and third combined; last joint of antennae obliquely truncate, whereas in *P. vigilans* it is hardly noticeably so, one side being merely somewhat flattened.

Marginal cell extremely small. Abdomen rufous, not so distinctly fasciate. Apex black. Fourth segment with three suffused black spots on its distal margin, the space between them slightly golden.

Hab — Santa Fé, N. M., 7,000 ft., on sandy ground.

This remarkable genus is allied to that section of *Phileremus* represented by *P. pulchellus*, which is found in Santa Fé in August. The reduced venation is doubtless adapted to its short rapid zigzag flight, which is more like that of some of the parasitic hymenoptera than of an ordinary bee. The specimens described were only caught with the greatest difficulty, although both species (especially *vigilans*) were fairly abundant where found. The habit of both species is to fly very rapidly about half an inch above the surface of the sand, frequently settling for an instant only. To catch them with a net is almost impossible, and I was obliged to watch with my finger in my mouth, and secure them by suddenly putting the wet finger-point on them when they settled. Thus I caught the two females of *P. nanus* at Santa Fé on Aug. 10 and 14. They were on a sand bank in

Mr. Boyle's garden. *P. nanus* was never observed on any flower, but where *P. vigilans* is found, there is plenty of *Pectis papposa*, a low-growing yellow-flowered composite. The ♂ of *P. vigilans* was actually swept from the *Pectis*, early in September; and later, individuals of the same species were seen occasionally to visit the flowers for an instant only. The ♀ of *P. vigilans* was caught on Sept. 19.

It must be admitted that the two species are very closely allied, and it may be that the comparatively bare face of the *P. nanus* is due to the contact of my wet finger-tip. But the ornamentation of the end of the abdomen is different, and there is also the difference in the antennae; so that we may safely assume, I think, that we have to do with distinct species.

Phileremus verbesinae, n. sp.—♂ 6–7 mm., form elongate, head and thorax black, abdomen and legs rufous. Pubescence consisting of small white scales, which cover the head and thorax to such an extent that they appear grey. Head broad, face depressed at sides, clypeus rounded and prominent, strongly punctured; clypeus, area between antennae, and sides of face below, practically bare of scales, or the space between the antennae may be scaly. Mandibles rufous.

Antennae dark brown, 12 jointed, last joint normal, first joint of flagellum not quite as long as 2+3, but very nearly so.

Thorax bulging at sides, tubercles elevated, scutellum moderately bilobate, postscutellum distinctly bilobate. Legs rufous, coxae and femora except ends, blackish. Hind tibiae and tarsi hoary from white scales. Tibial spines pale yellowish. Claw small, cleft, the inner tooth smallest.

Tegulae rufous. Wings very short, reaching only to middle of fourth segment of abdomen, yellowish hyaline, area enclosed by the nervures smaller than that beyond them. Nervures dark brown, stigma little-developed: marginal cell extremely short, obliquely truncate; first submarginal large, subpyriform; second submarginal small, much higher than broad, narrowed above, it is much the size and shape of the marginal, placed transversely, but a little larger. Second submarginal receiving both recurrent nervures, the first at extreme base, the second a little before its apex.

Abdomen granular, rufous, the apex blackish. Segments 1–4 with conspicuous, rather broad bands of white at their distal margins. These bands are not at all constricted in the middle.

Hab.— Las Cruces, N. M., Sept. 20, 1895, four specimens on flowers of *Verbesina encelioides*. This is a most interesting species, showing the nearest approach to *Phileremulus* yet seen in *Phileremus*. With its *Phileremus*-venation, however, go *Phileremus*-habits; for the bees were visiting the flowers just as any bees might, and were caught without difficulty with the finger and thumb. None were seen flying over the sand like *Phileremulus*. On the *Verbesina*, at the same time, I got *Perdita beata*, n. sp., a beautiful yellow species just like *luteola* (which lives on *Bigelovia*) but at least 8 mm. long, with a densely pubescent mesothorax. It will be described fully elsewhere.

Phileremus mesillae, n. sp.— ♂, 6 mm. long, short, robust, the abdomen not so long as head and thorax combined; black, with appressed white pubescence. Face covered with pubescence, vertex comparatively bare, scape pubescent, flagellum bare, dark brown. First joint of flagellum not as long as 2+3, 2 longer than 3. Thorax more or less covered with pubescence, which becomes very sparse on hind part of mesothorax, scutellum except hind border, and middle of metathorax. The mesothorax and scutellum are strongly and densely punctured. Scutellum not spined, and only very obscurely bilobate. Legs black, more or less pubescent, tarsi and tips of tibiae ferruginous. Wings hyaline, nervures and stigma dark brown, marginal cell obliquely subtruncate at tip, 2d submarginal about ⅛ shorter than first, receiving both recurrent nervures, the first about

one-fifth of its length from its base, the second near its apex. 2d submarginal narrowing about or hardly one-half to marginal.

Abdomen black, with six rather broad continuous white bands, two on first segment, joined laterally, the others at distal margins of the four following segments. Apex black, broad, rounded.

Hab.— Las Cruces, N. M., April 27, 1894, taken on the occasion of a meeting of the College Field Club.

This insect has been compared by Mr. Fox with Cresson's types, and as he remarks, it resembles *P. montanus* from Nevada, but differs in the entire bands of the abdomen.

Bombomelecta alfredi, n. sp.— ♂, about 13 mm. long, black, with dirty white or pale cinereous pubescence. Head broad, clypeus greatly produced; face, cheeks, and occiput densely clothed with long white hairs, mixed with black on cheeks beneath, and on clypeus a purer white, silky and shining. Antennae reaching a little beyond tegulae, black, truncate at tips, second joint of flagellum longer than first.

Thorax with large punctures visible on dorsum, but mostly so covered with long dirty-white pubescence that the surface cannot be seen. Among the hairs, the two short but distinct scutellar spines are visible. The pubescence on the pleura is very long and dense. Legs black, with sparse black pubescence, mixed with whitish. The anterior and middle femora below are fringed with white hairs, but the posterior femora have no such fringe. The middle tibiae show short white pubescence without. The first joint of posterior tarsi bears in addition to the short pubescence, six long black hairs. The posterior tibiae are broadly dilated to their truncate ends and the innermost spine is longest and slightly curved. The first joint of posterior tarsi is distinctly shorter than the tibia. Tegulae pitch-black, shining, microscopically reticulate. Wings smoky-hyaline, the apical margin broadly smoky. Nervures dark brown. Second submarginal cell narrowing to a point at marginal. Venation otherwise as in *B. thoracica* var. *fulvida.*

Abdomen black with minute punctures, first four segments each with a transversely elongate patch of dirty-white pubescence on each side, these patches successively smaller from the first. Tip of abdomen emarginate.

Hab.— Las Cruces, N. M., on a young cottonwood tree by the Agricultural College, April 17, 1895. (Alfred Holt.) By the color and arrangement of the pubescence, this is clearly distinct. The only other *Bombomelecta* found in the Mesilla Valley is *B. thoracica* var. *fulvida*, Cr., on *Lycium* (Jessie Casad).

DORYPHORA (MYCOCORYNA) LINEOLATA STÅL.

This insect was found in great numbers on a bush with linear leaves, Aug. 29, 1894, at San Augustine, N. M. Mr. Wickham, who kindly identified it for me, found it on apparently the same plant in the Pinal Mts., Arizona.

The *eggs* are laid on the leaves, about a dozen together, in two rows, touching, obliquely extending upwards; they are cylindrical, 2 mm. long, chrome yellow. One batch of about 25 eggs found.

Larva shaped as usual in the genus, 7 mm. long in contraction, jerking from side to side when disturbed. Head pale yellow, with two elongate-pyriform, upwardly-converging, black marks on upper part of face. Body yellowish-white with a lateral series of squarish black marks, nearly forming a band; a narrow dorsal black stripe, wanting on first segment, and also wanting on second (concealed) segment. The junction of the segments marked by black lines. Last two segments mostly black above. Legs mostly black.

The *imago* has the thorax green, and the elytra ochreous marked with black.

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