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A New Bee in the Genus Diphaglossa

J. C. Crawford Jr.

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aspect, suffused red and black; thoracic segments normal; legs comparatively large; tarsal joints two, the distal twice as long as the basal, bearing two large claws; distal end of tibia bearing a semicircle of stout long spines beneath; femur ochreous beneath; beak long, 3-jointed, reaching to 4th abdominal segment, black marked with ochreous; abdomen longer than head and thorax combined, broad at base, tapering, 9-jointed, the tergites extending well beneath to the ventrum, and each ending in a leaf-like plate, coloured black and ochreous (two terminal ones black), forming a broad channel along the median line, the bed of which is formed by the sternites; 3rd sternite bearing a peculiar nipple-like red fleshy process, hidden by the overlapping tergites, minute, analogous to that in the locusts (*Acrididæ*) between the bases of the cephalic coxæ. Length, full-grown, 6.25 mm.

After a moult the nymphs are softer and pale, the thorax and head lemon-yellow, the abdomen dark along the mesero-, yellow at the latero-cephalic angles and at tip; reddish beneath and along the sides. Eyes black, annulate. Legs and beak pale yellow, the latter with a median line of red. The normal colours are acquired in about an hour and a half.

Pupa (5th stage).—General shape and colour of the preceding stages. Body pale ochreous yellow, mottled on head, thorax and wing-pads with more or less diffuse brown; tip of abdomen verging to black; eyes red, with some black; antennæ black, glabrous; legs concolorous with head and thorax. General colour varies from pale ochreous brown to brownish-black with pale mottled streaks. Underneath ochreous, with red on sides of abdominal segments and black down the median line. Head distinctly striate on ventral and lateral aspect. Wing-pads not large, but easily noticeable; process between abdominal tergites on ventrum absent. Length 6.25–8 mm.

Adult.—June 11th to 21st, adults found and watched continuously, June 22nd, found adults crawling slowly about on the branches, with a movement similar to that of the nymphs; found at rest generally where the young nymphs locate; not easily disturbed, and rather sluggish, but when touched they jump awkwardly to some distance, making a sound similar to that of a steel spring when suddenly loosened; the jump is made with much force. They are easily observed and seem to spend their whole time in feeding, remaining quietly in a position similar to that of the young nymphs. When once settled they very seldom move, but remain quiet like a piece of the tree itself; the only evidence of life is given by the forcible ejection of small, colourless, tasteless drops of a

Cwfd 1904

watery secretion at regular intervals, three or four drops are emitted every two or three seconds; three drops every two seconds is a usual amount. On June 23rd, after watching for two days at a time, during all hours of day and night, two were at last found *in coitu*. They were end to end, and remained united for twenty hours. Although during several days following, pairs were found connected and were watched constantly, and after separation the female was in some few cases isolated, and in others left free and undisturbed, no signs of oviposition were ever indicated. They were always quietly feeding or wandering from place to place, with, apparently, no care but that of feeding, no aim but to rest. Gradually they disappeared; there is probably but a single brood in this locality.

A NEW BEE IN THE GENUS *DIPHAGLOSSA*.

BY J. C. CRAWFORD, JR., WEST POINT, NEBR., AND E. S. G. TITUS,
WASHINGTON, D. C.

Spinola in 1851 described and figured *Diphaglossa Gayi* as a new species and new genus closely related to *Anthophora*. It was founded on males and females collected in northern Chili, "Santa Rosa, Coquimbo, etc." He figures the insect (natural size), face view of head and mouth-parts, wing, antennæ and leg.

F. Smith in 1854 gave a partial description of the genus, probably not from specimens, reporting the male only as known. He placed the genus immediately after *Anthophora* in his catalogue, and Dalle Torre in his catalogue in 1896 has followed Spinola and Smith in placing the genus in the *Anthophoridae*.

In 1898, in a monograph of several closely related genera of bees (*Megacilissa*, *Caupolicana*, *Diphaglossa* and *Oxaea*), Dr. H. Friese regarded *Diphaglossa* as an offshoot of *Megacilissa*, which, according to his view, had been derived from *Colletes* through *Caupolicana*. He had examined males and females from "Santiago and Valdivia (Lossberg)," and 6 females and 1 male from "Chili (Phillippi)," in the Vienna Museum.

In his "Classification of the Bees," in 1899, Dr. Wm H. Ashmead placed the genus in the family *Colletidae*, citing most of its principal characters in the generic table for the family.

February, 1904.

Diphaglossa, Spinola, 1851, and *Diphaglossa Gayi*, Spinola, 1851.

Spinola, 1851, Gay : Hist. Fisc. de Chili, Zoology, VI., pp. 168-170, plate 1, fig. 1, ♀ ♂.

F. Smith, 1854, Catalogue Hymen. Brit. Mus., II., p. 343-344, ♂.

Dalle Torre, 1896, Catalogue of the Hymenoptera, X., p. 297, ♂.

Friese, 1898, Ann. Naturhist. Hofm. Wien., XIII., p. 61, 72, 76, 77, ♂ ♀.

Ashmead, 1899, Trans. Amer. Entom. Soc., XXVI., p. 94.

Diphaglossa is characterized by the peculiarly elongate, triangular head, the face being three times as wide at the vertex, from eye to eye, as at the base of the mandibles along the clypeal margin; clypeus elongated, twice as long as broad, longitudinally striate; mandibular space much elongated, punctured, longitudinally striate; antennæ reaching beyond tegulæ; mandibles bifid at tip; labial palpi 4-jointed, three basal joints subclavate, fourth joint longest, more slender and slightly tapering; maxillary palpi 6-jointed, joints subclavate, except the last, which is slender, slightly tapering, fourth and sixth joints almost equal, second shortest, first longest; wings with marginal cell slightly appendiculate, first cubital cell longest, but not as long as second and third united, third smallest, narrowed above, first recurrent nervure entering second cubital cell at the middle, second recurrent nervure more or less curved, entering the third cubital beyond the middle; transverse median nervure entering before radial nervure and weakly angulated; first joint of tarsi flattened, elongate, claws bifid and with a pulvillus; metathoracic truncation narrow, almost perpendicular, no row of pits present; abdomen with distinct dorsal and ventral hair bands.

Spinola has figured the tongue as emarginate and with two pairs of slender "filaments," the apical pair very long. While the tongue is undoubtedly emarginate, the "filaments" are missing in all of the specimens we have examined. However, Dr. Friese states that the paraglossæ are slender and threadlike, extending beyond the tip of the tongue. Spinola states that the mandibles have three teeth, but his figure shows but two, and he also gives the hind tibiæ as unispinose. Dr. Friese has corrected this, stating that they are spined as usual, and in all the specimens we have examined they have two spines.

Diphaglossa Gayi, Spinola, the type of the genus, is described as black, with a long-haired red abdomen, and Dr. Friese notes that it resembles in habitus the red-haired *Bombus pascuorum*. The wings are thickly set with fine short hairs.

FIG. 2.

Diphaglossa Spinolæ: a, wing; b, maxilla and maxillary palpus; c, labial palpus.
Diphaglossa Gayi, Spin.: d, face and mouth-parts. (Copied from Spinola's Fig. 1a.)

Diphaglossa Spinolæ, n. sp. (Figure 2.)

♂.—Length 10 mm. Black, head, thorax and first two dorsal and ventral abdominal segments clothed with golden-yellow pubescence, very dense on face, cheeks and thorax; clypeus remarkably long, obsoletely crenulate at apical margin, mandibular space with large sparse setigerous punctures, often so large as to cross several of the longitudinal striæ; labrum black, polished, with several minute tubercles, the central one the

largest ; mandibles black at base, red at tips, the outer tooth longest and pointed ; there are two grooves running from the tips to the base of the mandibles ; antennæ brownish-black, second joint small, globular, third joint very slender at base ; tegulæ shining, reddish, wings with dark veins, second recurrent nervure weakly curved, entering third submarginal cell about two-fifths of its length from its apex ; wings set with fine short hairs ; legs black, with long, thick, gray hair, tarsi reddish, pubescence inclining to fuscous, tips of claws very dark ; punctures of head and abdomen medium and quite close, of the mesothorax sparse, the metathorax smooth ; abdomen with dorsal and ventral segments 1-6 having apical appressed hair bands, varying from gray to yellow ; some short yellowish pubescence on dorsal segments 3-7, and still more short pubescence on ventral segments.

Habitat : La Paz, Bolivia, 14th November, 1898. 7 ♂ specimens.

One ♂ placed in U. S. Nat. Mus., type No. 6854.

In one specimen the pubescence is quite gray, perhaps only faded.

The drawings for the figures, excepting the copy of Spinola's figure, were made by Mr. Otto Heidemann, of the Division of Entom., U. S. Dept. of Agriculture.

The authors desire to express their thanks to Prof. Lawrence Bruner for his kindness in loaning three specimens of this species from the collection of the University of Nebraska.

THYREOPUS LATIPES, SM.

♀ and ♂ new to Vancouver. Hitherto only the male of this fossorial wasp had been known. The males recorded in the literature came from Nova Scotia, Canada ; Montana, Colorado, Arizona, Oregon and Washington. The female is related to *T. medius*, Fox, but differs in size, sculpture and ornamentation, particularly in the contrast between the deep median sulcus on the metanotum and the regular subdued sculpture adjoining. In *medius* the sulcus is not sharply outlined, nor is there a strong contrast between it and the sculpture of the adjoining area which is rough. The female of *T. latipes* is much like the male, and is readily referred to its fully described sex. Prof. Harvey sent one female taken 21st June, 1903, and one male 19th June, 1903, to Dr. Henry Skinner, who referred them to me for identification.

HENRY L. VIERECK, New Haven, Conn.

MISCELLANEOUS NOTES.

As the Editor expresses willingness to receive notes on any entomological subject, I give my experience with "vertical" inflation of caterpillars. I have done a great deal of inflating, and find three bad faults with the common horizontal ovens.

1st. The air pressure necessary to extend the caterpillar often is enough to force the skin out of shape.

2nd. By beginning the drying at the tail-end one sometimes discolours the rear segments when it comes to using heat sufficient for stewing the juices out of the head.

3rd. The caterpillar has to be twirled around, and as the hand becomes tired pencils and hairs are likely to be rubbed off.

At the end of 1902 I took my lamp-chimney oven, cut a few notches at the bottom for ventilation and turned it upright on a sand bath heated from below. In this my specimens dried like a charm. Gravity helping, almost no air was needed, there was no twirling, and the heads received the first and greatest heat. I got good results with such caterpillars as full-grown *Acronycta Americana*, almost impossible to inflate by the usual method. Being hurried, I, in one or two instances, finished up the tail ends of the fleshy specimens in the ordinary oven, and I hardly did work enough to conclusively prove the experiment. Still, it is full of possibilities, and it is perfectly obvious that with twirling given up one can use a water column for air pressure and attend to several ovens at the same time.

With the exception of Mr. Merrick's "Haploas," photographed in the January number of the Entomological News, the writer never saw a drawer of specimens that were even approximately in line. I know my own all veer to the right. This winter I sawed off a wooden T-square, and now by running it along the front edge every pin goes in mathematically correct.

Mr. Lyman's statement about the ease of raising *Papilio brevicauda* is fully endorsed. I once had a dozen or thirteen of these caterpillars; fed them first on parsley, then on parsnip tops, and finally on their native food-plants, obtained from the Lower Provinces by the kindness of Mr. Winn. They all went into pupa, were brought into the kitchen about Christmas time, and all but one hatched.

DWIGHT BRAINERD.