

*unicolor*, Fh. (=galbanata, Van D.), but is slightly larger and differs widely in the form of the genitalia, both male and female.

*Chlorotettix breviceps*, n. sp.

Length, 6.25 mm. Vertex not longer at middle than at eyes. Ocelli black, scarcely further than their width from the eyes. Colour throughout pale brownish; two longitudinal whitish lines on scutel. Last ventral segment twice the length of preceding, hind margin very broadly, slightly notched. Ovipositor about equalling pygofers.

Described from two females in the Herbert H. Smith collection, taken at Chapada, Brazil, in May. Nearest *viridia*, but the vertex shorter, the ocelli smaller and further from the eyes, and the colour different. This insect has somewhat the aspect of an *Idiocerus*.

*Chlorotettix minima*, n. sp.

Length, 5 mm. or slightly more or less. Ocelli large and very close to the eyes. Vertex distinctly, though but little, longer at middle than at eyes. Colour pale yellowish. Last ventral segment of female twice the length of preceding, lateral angles broadly rounded; medially with a deep narrow notch, extending more than half the length; the angles on either side of the summit of the notch projecting obliquely towards each other and sometimes nearly touching; in one specimen these projecting angles are nearly obsolete. Valve of male shorter than preceding segment and scarcely angled at middle. Plates rounded basally at sides, beyond middle becoming suddenly narrow and parallel-sided for rest of length.

Described from one male and several females in the Herbert H. Smith collection, taken at Chapada, Brazil, in April and May. The smallest species of the genus yet described. The form of the ventral notch varies, as it does in most species of the genus. In general form the species recalls *unicolor*, Fitch.

SOME NEW SPECIES OF COCCIDÆ.

BY J. D. TINSLEY, MESILLA PARK, N. MEX.

*DACTYLOPIUS QUAINANCII*, n. sp.

Adult ♀. Length, 2 mm. Width, 1.5 mm. Shape, ellipsoidal, much flattened. Colour, dark grayish-brown, the body is so covered with white secretion that its true colour only shows on the ventral surface, the colour of the dorsum appearing quite white. The white secretion mealy, projecting slightly on the lateral margins, but not forming well-marked filaments; posteriorly it is produced into two very short, but well-defined, caudal filaments; on the dorsum it is slightly raised into a longitudinal ridge.

In addition to the mealy secretion, there is some fine, waxy, thread-like secretion as in *D. virgatus*, Ckll. They produce no well-defined ovisac, only a fluffy mass of secretion.

Boiled in caustic potash they become, at first, almost black, and on further boiling they become purplish. Legs and antennæ brownish, but very much lighter than the body.

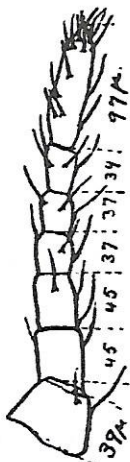


FIG. 17.

Antennæ 7-jointed: 7 longest, slightly longer than 2 + 3 (90-100  $\mu$ ); 2 and 3 next longest, usually subequal, about twice as long as broad; 1 and 6 next longest, often subequal, 1 sometimes the longer; 4 and 5 shortest and usually subequal. The antennæ are fairly stout, especially joints 1, 2 and 3; all joints are hairy, the hairs being long and slender. Antennal formula 7(23)(16)(45). (See Fig. 17.)

Legs.—Femur very stout, being only about twice as long as broad, with scattered, long, slender hairs; tibia stout, its width about half that of the femur, with a few long, slender hairs; tarsus stout, quite hairy, bearing a pair of long, slender digitules; claw stout, bearing a pair of knobbed digitules. Leg resembles that of a *Ripersia*. (See Fig. 18.) Male unknown.

Habitat.—Lake City, Florida, Feb. 9, 1898. On *Rhus copallina*, L.; collected by Mr. A. L. Quaintance.

Remarks.—The most prominent characteristics of this species are: Its small size, stoutness of legs and antennæ, and the comparatively great length of the terminal joint of the antenna.

#### DACTYLOPIUS VIRGATUS, Ckll.

Some time since I received from Mr. E. E. Green, of Ceylon, specimens of *Dactylopius ceriferus*, Newst., and, having at hand the type material of *virgatus*, I carefully compared them, both as to their external features and their antennæ and legs.

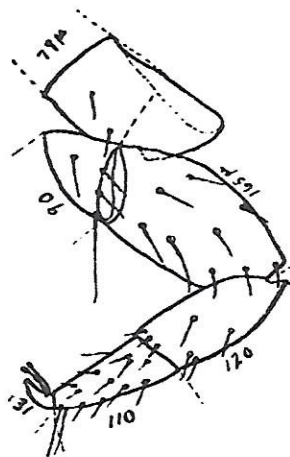


FIG. 18.

The specimens from either Jamaica or Ceylon differ as much in size and colour among themselves as they differ from those of the other locality.

The Jamaica specimens agree quite closely with Mr. Newstead's description, and *vice versa*.

To form an idea of the variability of this species one has only to note the fact that Mr. Cockerell distinguished four varieties in addition to the typical species growing on various plants in Jamaica.

The most prominent characters, which are constant, are, first, the elongated shape, tapering posteriorly, and second, the presence of the peculiar waxy filaments which are quite distinct from the ordinary white filamentous secretion of the genus.

The antennæ are quite variable, as may be seen from the following measurements of the type material from Jamaica: First joint, 45-60  $\mu$ ; second, 55-80  $\mu$ ; third, 85-95  $\mu$ ; fourth, 45-55  $\mu$ ; fifth, 50-65  $\mu$ ; sixth, 55-60  $\mu$ ; seventh, 53  $\mu$ ; eighth, 115-120  $\mu$ .

Measurements of the Ceylon material vary as follows: First joint, 59-65  $\mu$ ; second, 67-76  $\mu$ ; third, 90-104  $\mu$ ; fourth, 53-57  $\mu$ ; fifth, 53-65  $\mu$ ; sixth, 51-62  $\mu$ ; seventh, 56-62  $\mu$ ; eighth, 120-127  $\mu$ . I have also recently examined specimens from Mexico, and find them to fall between the Jamaica and Ceylon specimens in size. It will be noticed that the Ceylon specimens are longer than those from Jamaica.

The variations in relative length are well shown in the following antennal formulæ:

<i>Jamaica specimens.</i>	<i>Ceylon specimens.</i>	<i>Mexico specimens.</i>
(83)(24)(567)	382(4567)	832(45)(16)7
83267(45)	83216745	8324(16)57
83(26)(57)14	8321(67)54	
832(156)47	83245716	
832(4567)		

Joint 3 of the antenna is, however, always quite long, always appreciably longer than 2.

Legs agree perfectly with the published descriptions.

After this careful examination, I am convinced that these are all one species, and since Mr. Cockerell published his *virgatus*, about a year previous to Mr. Newstead's publication of *ceriferus*, *D. ceriferus*, Newst., will stand as a synonym for *D. virgatus*, Ckll.

The Mexican specimens were collected on coffee at Cuantia, Morelos,



Mexico, July, 1897, by Mr. A. Koebele, and sent to the New Mexico Expt. Station by Mr. L. O. Howard. This is the first time that *D. virgatus*, Ckll., has been found in Mexico.

*PHENACOCCLUS MINIMUS*, n. sp.—Adult ♀. Length about 1 mm. Shape, somewhat globular. Colour, reddish-pink.

Body nearly naked, and shining. No lateral filaments; a pair of short, stout, flattened, caudal filaments.

Antennæ (see Fig. 19) of 9 segments: segment 9 longest: segments 2 and 3 next longest, these may be subequal, or three may be the shorter; segment 1 next, and fairly stout; segment 6 about same length as 1, although it may be a little shorter; segment 7 next; segments 4, 5 and 8 subequal, and shortest.

Formula 9(23)167(458). Segments of antennæ with very long, fine hairs. While the fully-developed antennæ have 9 segments, and are well represented in the figure, yet a large proportion of the individuals examined have 7 and 8 segments. Those with 8 segments are due to the failure of segment 8 to divide. Those with 7 are due to lack of division in 3 and 8. The division in the 8th segment (terminal segment) is never so distinct as that between the other segments.

Legs.—Femur, length 185  $\mu$ , width 50  $\mu$ ; with some long, slender hairs. Tibia, length 185  $\mu$ , width 30  $\mu$ , with rather slender hairs. Tarsus, length 85  $\mu$ , proximal end nearly as wide as tibia, tapering toward the distal end to join the slender claw; hairs similar to those on tibia; a pair of slender hair-like digitules, not knobbed. Claw, length 25  $\mu$ , slender, with a small denticle on its inner face. A pair of slender, knobbed digitules longer than the claw.

Anal ring normal. Anal lobes well developed.

Ovisac.—Apparently without definite shape, just a fluffy mass of fairly coarse filaments, enclosing the pale yellow, almost white, eggs, and partially enclosing the female.

Male unknown.

Habitat.—On silver spruce, *Picea pungens*, Engelm. The specimens were near the end of the twig on one side, at the base of the needles, and had apparently caused the death of the needles.

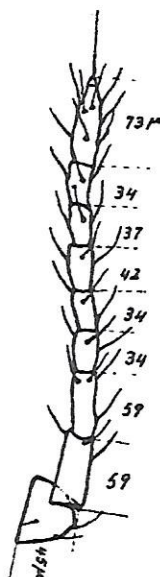


FIG. 19.

Collected by Prof. C. P. Gillette, at Fort Collins, Colo., May 20, 1898.

The minute size of this species easily distinguishes it from any species known at present. Unless considerable care is exercised only the 7- and 8-segmented antennæ will be found, and one would, from this, be inclined to call it a *Dactylopius*.

NOTE ON A CHALCIDID OF THE SUBFAM. ENCYRTINÆ, PARASITIC  
ON PHENACOCOCCUS MINIMUS.

BY T. D. A. COCKERELL, N. M. AGR. EXP. STA.

*Tetracnemus Westwoodi*, n. sp.—♂. Length 1 $\frac{1}{5}$  mm.; dark brown; head and thorax minutely reticulated; ocelli large and prominent, lateral ocelli nearer to the eyes than to the middle ocellus; scutellum prominent; scapulæ triangular, produced to a point mesad, failing to meet by a short interval only; coxæ large and swollen, trochanters small, legs long, tarsi five-jointed. Antennæ 8-jointed, or 10 jointed if the two ring-joints are counted; first joint of flagellum subglobose, short; second about as long, but cylindrical; third about twice as long as second; fourth about one-third longer than third; fifth about as long as fourth; sixth (club) a little longer. First four joints of flagellum emitting long branches as in Westwood's figure of *T. diversicornis*. Club slender, considerably less swollen than in *diversicornis*. Wings strongly pubescent.

*Hab.*—Fort Collins, Colo.; parasitic in *Phenacoccus minimus*, Tinsley; collected by Prof. Gillette. Prof. Tinsley directed my attention to this interesting parasite, which he found when describing the *P. minimus*. The parasite is almost as large as the host, and always occurs singly. Prof. Tinsley observes that the head of the parasite is invariably turned to the tail of the *Phenacoccus*. The only specimens yet available for study are those mounted (after boiling) with the coccids, still enclosed in the skin of the host, though fully formed in every respect. It may be that specimens preserved in the usual way will show a somewhat different coloration, but the structural details will not be altered. The species is dedicated to the founder of the genus, who was the greatest of English entomologists. It differs in the scapulæ, the antennal club, and some other particulars, from *T. diversicornis*. The genus is new to America. (See L. O. Howard, Proc. U. S. Natl. Museum, XV., p. 362.)

Since the description of *Tetracnemus Westwoodi* was written, we have received many living specimens, of both sexes, from Prof. Gillette. The living insect is black, with a slight metallic tinge, the mesothorax a bluish-black, the scutellum purple-black, rather sharply contrasting. Antennæ of ♂ dark brown; of ♀, with scape and club, brown-black, the intermediate portion white. Legs yellowish-white, tarsi more or less infuscated, hind femora black.—T. D. A. C.

Mailed August 9th, 1898.