

certain, and to add that I dare not as yet put any reliance on first-hand investigations in a matter in which my experience is still so slight; and, indeed, it is mostly for the sake of *obiter dicta*, and with the hope of throwing out suggestions on which more competent seekers may work, that I have thought it worth while to enter on this part of the subject at all.

(To be continued.)

SOME VERY SMALL AUSTRALIAN BEES.

BY T. D. A. COCKERELL.

IN the vicinity of Mackay, Queensland, in March, 1900, Messrs. Gilbert and Rowland Turner obtained three species of very small bees at the flowers of *Eucalyptus*. They are all of the *Euryglossa* type, but two of them are so peculiar in their venation that they must be assigned to new genera. The smallest of the three is only a little over $2\frac{1}{2}$ mm. long, and is smaller than any bee previously made known.*

TURNERELLA, n. gen.

Minute bees allied to *Euryglossa*, but with only one submarginal cell and two discoidals; marginal cell sharply pointed on costa; stigma large; section of basal nervure bounding first discoidal cell strongly arched; claws bidentate; base of mandible making an angle of about 45° with base of eye, so that the malar space cannot be defined as in most bees.

Turnerella gilberti, n. sp.

♂. Length about $2550\ \mu$; head and thorax shining dark sepia brown; clypeus and mandibles (except apex) dull yellow; legs pale brownish yellow, anterior pair orange; abdomen shining, the basal half pale reddish brown, the apical much darker; mesothorax minutely tessellate, with scattered very feeble hair-punctures; front and vertex sculptured like mesothorax; abdomen microscopically transversely lineolate; eyes coarsely faceted; ocelli large; facial foveæ represented by very short grooves, about $35\ \mu$ long; antennæ placed close together; scape very short; flagellum thick, long-claviform, minutely hairy; second antennal joint very large, oval, third very minute; mandibles bidentate; scanty plumose hairs on face; hairs at end of abdomen with about three short branches, all on one side. Wings clear hyaline, minutely hairy, stigma large, dilute brownish; marginal cell sharply pointed on costa, about 510 long (all the wing measurements of this and the other species are in microns); depth of stigma about 100; submarginal cell about 290 long, more than twice as long

* *Turnerella gilberti* is not the smallest bee. Since writing the above I have noted that *Trigona duckei*, Friese, from Brazil, is only 2 mm. long. It may perhaps exceed *T. gilberti* in bulk, however.

as high; basal nervure falling about 50 short of transversomedial, which is vertical; recurrent nervure to transversocubital about 35.

Named after Gilbert Turner, who collected so many new insects in Queensland.*

Type in British Museum.

Euryglossella, n. gen.

Small bees allied to *Euryglossa*, but with only one submarginal cell and one (the first) discoidal; the basal nervure ends a long way from the transversomedial, and its lower section is hardly arched; claws bidentate, pulvillus very large.

Euryglossella minima, n. sp.

♀. Length about $3\frac{1}{2}$ mm.; head and thorax black or brown-black, shining; clypeus and mandibles (except apex) dull rufofulvous; antennæ dark above, pale fulvous beneath; face broad, eyes slightly converging below; foveæ linear, short, close to eye; base of mandible makes an angle of about 50° with base of eye; clypeus very broad and low, its straight upper margin about $290\ \mu$ long, the lower about 620 ; labrum with a pair of nodules; scape rather long (about $255\ \mu$); second antennal joint large, pyriform, third minute; flagellum short and thick, minutely hairy; femora, except knees, very dark brown; middle and hind tibiæ dark brown, pale reddish at base and apex, anterior tibiæ fulvous; tarsi pallid, slightly yellowish; small joints of anterior tarsi, and apices of their basitarsi, with curious hooked bristles; mesothorax, front and vertex microscopically tessellate; abdomen shining, practically hairless, dark brown with a slight purple lustre; wings clear hyaline, iridescent, the large stigma (its depth rather over 100) margined with brown; marginal cell 425 long, sharply pointed on costa, deep for its length; submarginal cell from lower basal to upper apical corner 340; discoidal measured in the same way 270; basal nervure ending 150 from transversomedial.

Euryglossa perpusilla, n. sp.

♀. Length about $3\frac{1}{2}$ mm.; head and thorax shining black, abdomen dark reddish, with a strong purple lustre, and without evident hair; antennæ fuscous above, pale below; legs clear pale yellow, middle tibiæ mainly fuscous behind; hind tibiæ fuscous behind, pale ferruginous in front, their tarsi pale ferruginous; eyes very strongly converging below; clypeus about $230\ \mu$ across at top, and 275 below (the shape thus entirely different from that of *Euryglossella*), wholly dark, with sparse punctures; supraclypeal area with a broad transverse orange band, bounding lower suture; mandibles set at an angle

* Mr. Rowland Turner kindly gives me the following information about his brother:—"He was resident at Mackay from 1883 to 1901 with me, and made a very large collection. We afterwards did a season's collecting at Cairns, after which I went to Cape York and Assam, while he went round by Cooktown and Port Darwin, but caught cold at Hongkong, and died of rapid consumption after joining me at Assam in 1903. It had been his intention to return to England and work up his collection, probably beginning with the bees."

of about 50° with base of eye; last joint of maxillary palpi 75μ , as long as the two before put together; ocelli large; facial foveæ linear grooves, about 190μ long; antennæ formed essentially as in *Euryglossella*, the flagellum very minutely bristly; second joint pyriform; joints three to eleven broader than long; sculpture of head, thorax, and abdomen as in *Euryglossella*; claws simple (bidentate in *Euryglossella*), pulvillus large; thick curved bristles on small joints of anterior tarsi; hind spurs orange, thick, spinulose, or denticulate on both margins; two submarginal and three discoidal cells; marginal cell like that of *Euryglossella*, about 510 long; first submarginal 410 long; second submarginal 120 long below and 90 above, its depth about 70; first recurrent nervure to first transversocubital 35; second recurrent reaching apical corner of second submarginal; basal nervure on first discoidal strongly arched; length of first discoidal 425; basal nervure falling about 70 short of transversomedial.

Very near to *E. semipurpurea*, Ckll., but smaller, with differently coloured legs, &c.

BRITISH ODONATA IN 1909.

By W. J. LUCAS, B.A., F.E.S.

BUT little of interest in connection with the British Odonata came to my notice in 1909. The season certainly commenced early, for specimens of *Pyrrhosoma nymphula* were secured by Mr. B. Piffard near Brockenhurst, in the New Forest, as early as April 22nd. I have no further record, however, till May 8th, when *Libellula quadrimaculata*, in teneral condition, was taken at the Black Pond on Esher Common, Surrey. At the same place on the following day it was taken again with *P. nymphula*, *Enallagma cyathigerum*, and one female *Cordulia ænea*, all being more or less teneral. Of these *P. nymphula* was commonest and most mature. On May 22nd a female *Libellula depressa* was taken at Oxshott in the same district of Surrey.

Between Byfleet and Wisley, in Surrey, on the following day, *Calopteryx splendens*, *Erythromma naidas*, *P. nymphula*, *Ischnura elegans*, *Agrion pulchellum*, *A. puella*, and *E. cyathigerum* at least were on the wing; but many were in teneral condition. On this occasion a female *C. splendens* was secured with its captured prey—a mayfly, *Ephemera vulgata*, which appeared to be in the sub-imago stage.

Two days spent in the New Forest (May 30th–31st) brought to notice *Orthetrum cærulescens* just emerging, a fair number of *Calopteryx virgo*, *P. nymphula* in plenty, and *A. puella*. On a visit to Bookham Common, in Surrey (June 9th), *I. elegans* alone was noted. On June 13th a female *Pyrrhosoma tenellum* was taken at the Black Pond, where also *L. quadrimaculata* was common, and a *C. ænea* was secured by Mr. Fenwick, junior. My first



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