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XXII.—*New or little-known Tipulidæ (Diptera).*—XX. *Australasian Species.* By CHARLES P. ALEXANDER, Ph.D., F.E.S., Massachusetts Agricultural College, Amherst, Massachusetts, U.S.A.

THE species discussed at this time are from Queensland, New South Wales, and Tasmania, and were included in extensive series of crane-flies sent to me for determination by my friends Messrs. Dodd, Ferguson, Illingworth, Robinson, and Séguy. Where not stated to the contrary, the types are preserved in the writer's collection.

GERANOMYIA, Haliday.

PSEUDAPOROSA, subgen. nov.

Characters as in *Geranomyia*, s. s., with the following exceptions: rostrum and paraglossæ combined about as long as the head; maxillary palpi uniaarticulate.

Type of the subgenus: *Geranomyia venustithorax*, sp. n. (Australian subregion).

Geranomyia venustithorax might be referred to either of the genera *Dicranomyia* or *Geranomyia* and appears to be an annectant form. The structure of the mouth-parts would indicate a *Geranomyia* that is on the immediate border-line between this genus and the allies of *Dicranomyia*. The

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paraglossæ (which are presumably the labial palpi) are here merely elongate fleshy lobes that are very different in structure from the paraglossæ of other known species of the genus. The subgenus *Monophana*, Edwards, which also has the maxillary palpi reduced to a single segment, has the other mouth-parts of the typical *Geranomyia* form.

Geranomyia (Pseudaporosa) venustithorax, sp. n.

Rostrum very short, paraglossæ about half the length of the head; general coloration yellow; mesonotum with a semicircle of ten black spots, of which six are on the præscutum and four on the scutum; wings yellowish subhyaline, sparsely spotted with brownish black; *Sc* long; abdominal tergites annulated brown and pale yellow.

Male.—Length 6.5 mm.; wing 6.5 mm.

Female.—Length 6.5 mm.; wing 6.3 mm.

Rostrum brownish yellow, elongate, palpi dark brown. Antennæ dark brown, the flagellum paler; flagellar segments submoniliform to rounded oval. Head yellow.

Mesonotal præscutum yellowish laterally, the disk more reddish yellow; six suboval black spots arranged in a semicircle, the two anterior being located before mid-length of the usual median præscutal stripes, the remaining four on the lateral margins; scutum whitish, each lobe with two confluent brownish-black areas, the antero-lateral ones immediately behind the suture; posterior two-thirds of postnotum brown, this including the lateral as well as the median sclerites. Pleura pale, the mesepisternum faintly darkened. Halteres pale. Legs with the coxæ and trochanters faintly darkened; femora, tibiæ, and metatarsi brownish yellow, the tips of the segments narrowly blackened; terminal tarsal segments brown. Wings yellowish subhyaline, with three brownish-black spots located at arculus, at the supernumerary cross-vein in cell *Sc*, and at the origin of *Rs*; stigma paler brown, small, subcircular; cord and outer end of cell 1st *M*₂ indistinctly seamed with darker; veins dark brown, veins *C* and *Sc* more yellowish. Venation: *Sc*₁ ending about opposite mid-length of *Rs*, *Sc*₂ some distance from the tip of *Sc*₁; a supernumerary cross-vein in cell *Sc*; *Rs* about twice the length of the basal deflection of *R*₄₊₅; 1st *M*₂ closed, elongate-rectangular; basal deflection of *Cu*₁ one-half or more of its length beyond the fork of *M*.

Abdomen pale yellowish white, the tergites irregularly annulated with dark brown, this appearing as lateral margins to the segments and a paler brown median stripe, narrowly

connected across the anterior margin of each segment by a pale brown cross-band; sternites pale with only the extreme lateral margins of the segments darkened. Male hypopygium with the basistyles relatively small; ventral dististyle sub-circular in outline, the beak-like rostrum bearing a single powerful spine with an enlarged base; dorsal dististyle short, almost straight, a little curved at tip. Gonapophyses produced apically into a slender, chitinized, slightly curved point.

Hab. North Queensland.

Holotype, ♂, Mossman, October 20, 1920 (*J. F. Illingworth*).

Allotopotype, ♀.

Paratopotypes, 40 ♂ ♀.

The types, which were all taken at light, are preserved in alcohol.

Geranomyia (Geranomyia) penthoptera, sp. n.

General coloration black, the humeral region of the præscutum reddish; wings with a strong brownish tinge; *Sc* long, cell *1st M*₂ closed.

Male.—Length (excluding rostrum) 5–6.8 mm.; wing 6–6.3 mm.; rostrum about 2.6–3 mm.

Female.—Length (excluding rostrum) 6.4 mm.; wing 6.2 mm.; rostrum 2.8 mm.

Rostrum and palpi brownish black. Antennæ brownish black throughout. Head black, the front and anterior part of the vertex silvery pollinose, this coloration continued as a narrow line on to the vertex, but becoming obsolete before the occiput.

Pronotum black, reddish posteriorly. Mesonotum black, the humeral regions of the præscutum broadly reddish. Pleura dark brown, the ventral sclerites and the sternum more reddish. Halteres brown, the base of the stem yellow. Legs with the coxæ yellow, the mid and hind coxæ more or less infuscated; remainder of the legs dark brown, the fore femora paler at bases. Wings with a strong brownish tinge; cell *Sc*₁, the wing-tip, and the stigma slightly darker brown; veins dark brown. Venation: *Sc* long, *Sc*₁ extending to just before the end of the long sector, *Sc*₂ at the tip of the long *Sc*₁; *Rs* longer than the basal section of *R*₂₊₃; *r-m* shorter than *m*; cell *1st M*₂ closed; basal deflection of *Cu*₁ at or close to the fork of *M*.

Abdomen dark brownish black, the sternites paler, more reddish brown.

In the female the mesonotum is reddish with only the median area black; femora paler than in the male.

Hab. North Queensland.

Holotype, ♂, Babinda, October 30, 1920 (*J. F. Illingworth*).

Allotopotype, ♀, October 1920.

Paratopotypes, 3 ♂♂ with type; 1 ♀, October 1920.

"Scrub stream near water."

Geranomyia (Geranomyia) manca, sp. n.

General coloration shiny black, the front and thoracic pleura silvery pruinose; wings hyaline; *Sc* long; cell 1st M_2 open by the atrophy of *m*.

Female.—Length (excluding rostrum) 5.5–6.3 mm.; wing 5.5–6.2 mm.; rostrum about 3–3.2 mm.

Rostrum, palpi, and antennæ black. Head grey-pruinose, more silvery on front and anterior part of vertex.

Mesonotum shiny black, the præscutum on sides silvery. Pleura black, heavily silvery pruinose; sternum yellowish testaceous. Halteres whitish yellow. Legs greenish testaceous basally, the remainder dark brown. Wings hyaline; stigma small, oval; veins brownish black. Venation: *Sc* long, Sc_1 ending about opposite four-fifths of the length of *Rs*; Sc_2 a short distance from the tip of Sc_1 ; a supernumerary cross-vein in cell *Sc*; *Rs* about twice the basal deflection of R_{4+5} and a little longer than the basal section of R_{2+3} ; *r-m* longer than the basal deflection of M_{1+2} ; cell 1st M_2 open by the atrophy of *m*; basal deflection of Cu_1 some distance beyond the fork of *M* and a little longer than Cu_2 alone.

Abdomen dark brown, the sternites yellowish testaceous.

Hab. North Queensland.

Holotype, ♀, Babinda, November 10, 1920 (*A. P. Dodd*).

Paratopotypes, 3 broken ♀♀, October 1920 (*J. F. Illingworth*).

"On scrub foliage."

Limonia semitristis, sp. n.

General coloration dark brown, sparsely pruinose; tips of femora dark brown; wings faintly infuscated, stigma sub-circular, dark brown; wing-tip and cord faintly darkened; *Sc* long, Sc_2 at tip of Sc_1 ; abdominal segments narrowly margined caudally with yellowish.

Male.—Length 7 mm.; wing 6.5 mm.

Female.—Length 7.5 mm.; wing 7 mm.

Rostrum, palpi, and antennæ dark brown. Head dark brown, pruinose; front and anterior part of vertex more silvery.

Mesonotum brownish grey, the præscutum without distinct stripes. Pleura dark brown, pruinose, with a brighter silvery longitudinal stripe above the bases of the coxæ. Halteres dark brown, the basal half of the stem yellow. Legs with the coxæ and trochanters brownish testaceous; femora brownish testaceous, the tips broadly dark brown; tibiæ and tarsi brown, the terminal tarsal segments darker. Wings with a slight infuscation, cell *Sc* more yellowish; stigma subcircular, dark brown; wing-tip and the veins along the cord and outer end of cell 1st M_2 slightly infuscated; veins dark brown. Venation: *Sc* long, Sc_1 ending opposite mid-length of the deflection of R_{4+5} ; Sc_2 at tip of Sc_1 ; *r* at tip of R_1 ; *Rs* arcuated, about twice the basal deflection of R_{4+5} ; basal deflection of Cu_1 at or beyond mid-length of cell 1st M_2 .

Abdomen brownish black, the caudal margin of the segments narrowly pale; anterior margins of basal sternites broadly pale, especially in the female.

Hab. North Queensland.

Holotype, ♂, Kuranda, November 30, 1920 (*A. P. Dodd*).

Allotopotype, ♀, on tree-trunk.

Paratopotypes, 2 ♀ ♀.

Limonia semitristis is closely allied to *L. bidentata* (Skuse), differing in the details of coloration and venation, especially the longer *Sc* and the different course of the veins around the stigma.

Trentepohlia (Mongoma) tarsalis, sp. n.

General coloration brown, the thoracic pleura more yellowish; legs dark brown, the tarsi snowy-white; mid-tibiæ feathered, somewhat as in *T. pennipes* (Osten-Sacken).

Female.—Length 8.4 mm.; wing 6.7 mm.

Rostrum and palpi brown. Antennal scape brownish testaceous, the flagellum dark brown. Head dark grey, the occiput ochreous.

Mesonotum shiny brown, becoming paler laterally, the scutum obscure yellow. Pleura shiny brownish yellow. Halteres pale brown, the base of the stem yellow. Legs with the coxæ and trochanters yellowish testaceous; femora and tibiæ brown, the tips of the latter rather broadly (2 mm.) snowy-white, the mid-tibiæ feathered; tarsi white. Wings pale yellowish grey, the stigma yellow, ill-defined; veins

brown. Venation: second section of R_{2+3} equal to or a little shorter than R_2 alone; fusion of Cu_2 and 1st A longer than m .

Abdomen dark brown. Ovipositor with the tergal valves slender, strongly upcurved.

Hab. North Queensland.

Holotype, ♀, Gordonvale, November 19, 1920 (*A. P. Dodd*).

Styringomyia terræ-reginæ, sp. n.

General coloration black; posterior femora with a broad china-white subterminal ring; wings strongly infumed, with a broad but incomplete hyaline band before the cord.

Male.—Length 6.3 mm.; wing 4.3 mm.

Rostrum dark brown, the palpi paler. Antennæ with the first segment black, the remainder of the organ more brownish. Head black, paler anteriorly.

Thorax black, the mesonotal præscutum indistinctly paler medially. Halteres dark brown. Legs with the coxæ black; trochanters brown; femora black, the fore femora paler at base, the posterior femora with a broad china-white ring before the equally broad black apex; tibiæ and tarsi black, the extreme bases of the segments narrowly paler. Wings with the cephalic distal portion strongly infumed, the remainder of the wing-disk less strongly infuscated; a conspicuous hyaline area across the sector, including cells R_1 , R , and M ; the bases of cells Cu and 1st A are also paler; veins brown. Venation: as in the genus, but vein and cell 2nd A longer than usual.

Abdomen black, including the hypopygium.

Hab. North Queensland.

Holotype, ♂, Gordonvale, November 1920 (*A. P. Dodd*).
"Ex scrub."

Dolichopeza longidigitalis, sp. n.

Male.—Length 8–9 mm.; wing 10.5 mm.

Female.—Length 12–13 mm.; wing 11.5–12 mm.

Generally similar to *D. planidigitalis*, Skuse, from which it differs as follows: median præscutal stripe distinctly split by a pale line except at the posterior end. Stigma less distinct. Abdominal segments not distinctly annulate. Digitiform appendage of male hypopygium longer, gently curved mesad near mid-length, the apex weakly dilated and bearing numerous long setæ, especially on the inner face.

Hab. New South Wales.

Holotype, ♂, Blue Mountains, February 26, 1922 (E. W. Ferguson).

Allotopotype, ♀, March 11, 1922 (E. W. Ferguson).

Paratopotypes, 5 ♂ ♀, with the type.

I am indebted to Dr. Ferguson for a comparison of specimens of this species with the type of *D. planidigitalis*. He writes: "Seems an undescribed species of *Dolichopeza*. I have compared it with the type of *D. planidigitalis*, but it differs in the longer, more curved forceps. The drawing by Skuse of the forceps of *D. planidigitalis* is quite accurate."

Type returned to Dr. E. W. Ferguson.

Plusiomyia nasalis, sp. n.

General coloration orange-yellow, the dorsum of the mesonotal præscutum and scutum black; flagellar segments tripectinate; frontal prolongation of the head not in alignment with the remainder of the frons; nasus distinct; legs black, the bases of the femora and tibiæ broadly orange; wings with a faint brown tinge.

Male.—Length about 20 mm.; wing 16 mm.

Frontal prolongation of the head yellow, moderately elongate, with a distinct stout nasus; the frontal prolongation is not in alignment with the frons, which it meets at an acute angle; palpi brownish yellow. Antennæ with the scape obscure brownish yellow; flagellar segments light brown with black pectinations; flagellar segment 1 has a single pectination that is about one-third longer than the segment; flagellar segments 2 to 8 are tripectinate, the basal pair of pectinations long and slender, about three times the length of the segment that bears them; the third pectination of each segment is situated immediately beyond mid-length on the basal segments, on the succeeding segments nearer the distal end of the segment, on the eighth segment being far out toward the tip; this third pectination is approximately as long as the segment that bears it, except on the elongate eighth flagellar segment; terminal segments simple. Head with the centre of the vertex dark brown, passing into fulvous on the genæ and front; vertical tubercle present.

Pronotum obscure orange. Mesonotal præscutum and scutum dull black, the small humeral angles and lateral margins of the former obscure fulvous; scutellum and pronotum reddish brown; tubercle on lateral sclerite of pronotum very conspicuous, the sides of the sclerite rugulose.

Pleura reddish brown, sparsely pruinose, the dorso-pleural membrane orange. Halteres obscure yellow, the knobs brown with obscure yellow tips. Legs with the coxæ pale brown, sparsely pruinose; trochanters obscure orange; femora obscure orange, the tips broadly and conspicuously black; tibiæ with about the basal half obscure yellow; remainder of tibiæ and tarsi black. Wings faintly tinged with brown; cells *C* and *Sc* dull yellow; stigma small, elongate-oval, dark brown; veins brownish black. Venation: *r* uniting with *R*₂ just beyond the fork, so the terminal section of *R*₂ is not in alignment with *r*; petiole of cell *M*₁ a little longer than *m*.

Abdomen with the basal tergite dull dark brown; remaining tergites and sternites orange-yellow, pubescent; second tergite glabrous except on the distal third, where it is faintly darkened medially.

Hab. New South Wales and Queensland.

Holotype, ♂, Mt. Tambourine, South Queensland, altitude 2000 feet, February 1922 (*A. P. Dodd*).

Paratype, ♂, Rous, Richmond River, New South Wales, April 1, 1923 (*V. J. Robinson*).

Ischnotoma episema, sp. n.

General coloration buffy, the præscutum with four brown stripes; pleura grey; femora and tibiæ reddish brown, the tips narrowly blackened; wings whitish subhyaline, the cells beyond the cord infuscated, the ground-colour extending to the wing-apex in cell *R*₅.

Female.—Length 17–18 mm.; wing 17·5–18 mm.

Frontal prolongation of the head relatively long and slender, light brown, greyish dorsally; nasus distinct; palpi black. Antennæ with the scapal segments buffy, the flagellum black. Head ashy grey, the anterior part of the vertex and the orbits narrowly paler.

Mesonotal præscutum buffy with four brown stripes, the long intermediate pair widely separated from one another by a line of the ground-colour; lateral stripes with an indistinct capillary vitta; pseudosutural foveæ reduced to an impressed line, its inner end expanded into a shiny pit; scutum dull grey, the lobes largely brownish black; scutellum black, more greyish behind; postnotum dark grey with a broad brown basal triangle, the point directed caudad. Pleura light grey. Halteres dark brown, the base of the knobs faintly paler. Legs with the coxæ light grey; trochanters reddish yellow; femora reddish brown, the tips

rather narrowly blackened; tibiæ light brown, the tips narrowly blackened; tarsi black. Wings whitish subhyaline, the cells beyond the cord infuscated, leaving most of the cell R_5 , all of 1st M_2 , and the broad bases of cells M_1 , 2nd M_2 , M_3 , and Cu_1 of the ground-colour; stigma brown, the proximal end darker; cell Sc dark brown; a brown seam along vein Cu and the basal deflection of Cu_1 ; anal cells faintly darkened; tip of cell 1st A at vein 1st A subhyaline; veins dark brown, pale in the oblitative areas. Venation: m a little shorter than the petiole of cell M_1 .

Abdominal tergites brown, the caudal margins of the segments narrowly pale; sternites paler brown. Ovipositor with the dorsal shield shiny chestnut-brown.

Hab. New South Wales.

Holotype, ♀, Mt. Kosciusko, December 5, 1921 (*Waterhouse*).

Paratopotypes, 1 ♀, with the type; 1 ♀, December 7, 1922 (*Goldfinch*).

Type returned to Dr. E. W. Ferguson.

Ischnotoma scutellum-nigrum, sp. n.

General coloration brown; orbits broadly light grey; mesonotal præscutum golden-yellow with three dark brown stripes; scutellum dark; legs black, the femoral bases conspicuously fulvous; wings tinged with brown, without distinct markings, the prearcular region strongly yellowish.

Male.—Length 12.5–13 mm.; wing 16–16.5 mm.

Female.—Length 15 mm.; wing 16 mm.

Frontal prolongation of the head black, sparsely pruinose, more heavily dorsally; nasus distinct; palpi black. Antennæ brownish black throughout, the scapal segments a very little paler; basal segment of scape with transverse constrictions. Head dark brown, the front and posterior orbits broadly light grey, the anterior orbits narrowly of the same colour.

Pronotum brown. Mesonotal præscutum light golden-yellow with three very distinct dark brown stripes, the median stripe narrowly and indistinctly divided by an opaque line of the same colour; pseudosutural foveæ represented by a delicate line, its inner end expanded into a small point; scutum dark brown, the median area and a narrow line near the wing-root light grey; scutellum brownish black, the lateral portions pruinose; postnotum with the mediotergite light grey, the posterior third darkened; a conspicuous dark brown median triangle, the point directed caudad; pleurotergite largely dark brown, with an oval grey area immediately cephalad of the base of the halter. Pleura light

grey, the dorso-pleural membrane weakly darkened, more buffy surrounding the spiracle; a narrow brown longitudinal stripe delimits the sternopleura from the pteropleura. Halteres brown, the knobs darker. Legs with the coxæ light grey; trochanters orange, weakly pruinose; femora black, the bases conspicuously fulvous, this a little more extensive on the posterior legs; remainder of the legs black. Wings with a strong brownish tinge, but without distinct markings; wing-base strongly flavous; stigma darker brown; weak subhyaline areas before and beyond the stigma and across the base of cell 1st M_2 ; brown seams along vein Cu and its branches, and less distinctly on the longitudinal veins beyond the cord; veins brownish black. Venation: m a little longer than the petiole of cell M_1 .

Abdomen dark brown, the caudal margins of the tergites narrowly, the lateral margins more broadly, greyish yellow; sternites similar, the posterior margins narrowly pale; hypopygium dark. Ovipositor with the dorsal shield blackened, the valves horn-coloured.

Hab. New South Wales.

Holotype, ♂, Mt. Kosciusko, December 5, 1921 (*Waterhouse*).

Allotopotype, ♀.

Paratopotype, ♂, December 7, 1922 (*Goldfinch*).

Type returned to Dr. E. W. Ferguson.

Ischnotoma immaculipennis, sp. n.

General coloration light grey; mesonotal præscutum with four relatively narrow dark brown stripes, the intermediate pair narrowly separated by a dark grey line; lateral margins of the sclerites light yellow; wings pale brownish subhyaline, the stigma a little darker; abdomen brownish ferruginous, the subterminal segments blackened.

Female.—Length about 14 mm.; wing 15 mm.

Frontal prolongation of the head relatively stout, the nasus long and slender, yellow dorsally, becoming darker on the sides; palpi black, the basal segment paler. Antennæ with the scape fulvous, the flagellum black; flagellar segments only ten in number, the basal six segments incrassated, the terminal four segments attenuate, especially the terminal two. Head brown, the orbits and genæ narrowly silvery.

Mesonotal præscutum light yellow with four relatively narrow dark brown stripes, the intermediate pair narrowly separated by a dark grey line; scutum dark grey, each lobe

with a brown centre; scutellum brown, pruinose; postnotum light grey with a basal median dark brown triangle, the point directed caudad. Pleura light grey-pruinose, including the ventral half of the mesonotal pleurotergite. Halteres dark brown, the base of the stem narrowly obscure yellow. Legs with the coxæ light grey-pruinose; trochanters yellow; femora yellow, the tips conspicuously blackened; tibiæ brownish yellow, the tips narrowly blackened; tarsi brown, passing into black. Wings pale brownish subhyaline; cell *Sc* faintly darkened; stigma pale brownish yellow; veins brown. Venation: distal section of vein R_2 in alignment with the short basal section; veins R_2 and R_3 widely divergent; veins R_3 and R_{4+5} widely divergent at outer ends, the latter ending at the wing-tip; cell 1st M_2 pentagonal, the long sides parallel; petiole of cell M_1 a little longer than m .

Abdomen with basal tergites (1 to 4) brownish ferruginous, the basal segments with a brown spot on either side; segments 5 to 8 black with the caudal margins of the segments very narrowly and indistinctly pale; genital segment ferruginous; sternites generally similar, but the caudal margins of the subterminal segments broadly yellow.

Hab. New South Wales.

Holotype, ♀, Blue Mountains, January 22, 1922 (*E. W. Ferguson*).

Type returned to Dr. E. W. Ferguson.

Macromastix macquartiana, sp. n.

Male.—Length 12–13 mm.; wing 17–19 mm.; antenna 23–24 mm.

Female.—Length 13 mm.; wing 18 mm.; antenna 2–2.3 mm.

Very similar to *M. costalis* (Swederus), differing chiefly in the shorter antennæ in the male sex. In *costalis* these measure approximately 2 inches in length, whereas in this new species they extend slightly less than 1 inch. The flagellar segments in *costalis* gradually increase in length distally, whereas in *macquartiana* they gradually shorten beyond the second; this is shown by the accompanying table:—

Species.	Flag. segs. in mm.					
	1.	2.	3.	4.	5.	6.
<i>costalis</i>	2.7	4.8	5.2	5.9	6	6.3
<i>macquartiana</i>	1.8	3.2	3	2.8	2.6	2.5

Other slighter differences between the two species are as

follows: *M. macquartiana* has the vertical tubercle a little shorter and less conspicuous; præscutal stripes less clearly delimited; stigma more yellowish, contrasting with the yellowish-brown costal margin of the wings; *Rs* a little longer.

Hab. Tasmania.

Holotype, ♂, Hobart.

Allotopotype, ♀.

Paratopotype, ♂; *paratypes*, numerous specimens from Macquart's collection (*Verreaux*), in the Paris Museum.

Additional specimens from a locality that I have not recorded in my notes are in the British Museum, and were kindly sent to me by Mr. Edwards.

Macquart's type-specimen of *Macromastix limbipennis* (Dipt. Exot. i. pt. 1, p. 60, pl. vi., as *Megistocera*, 1838) was a single male, from an unknown locality, in which only the two basal segments of the antennal flagellum remained intact. From Macquart's figures it is to be seen that the type of *limbipennis* must be referred to the synonymy of *M. costalis*, a course that has been followed by all recent workers on the group. In the First Supplement to his work (Supplement 1, p. 17, pl. ii. fig. 3, 1846), however, Macquart has added notes and figures on supplementary material taken in Tasmania by Verreaux, and all these later specimens refer to the species described herewith as *M. macquartiana*, in honour of the distinguished Dipterologist. I am indebted to Mons. E. Séguay for the privilege of examining several of these Verreaux specimens in collections of crane-flies belonging to the Paris Museum.

Macromastix albicollis, sp. n.

Mesonotum brown, the pronotum conspicuously whitish; vertex light grey; wings strongly tinged with brown; cells *C*, *Sc*, and stigma darker; conspicuous oblitative areas before and beyond the stigma; cell *M*₁ sessile or nearly so.

Female.—Length about 9 mm.; wing 13 mm.

Frontal prolongation of the head dark brown throughout, relatively short and stout, with a long powerful nasus. Antennæ with the scapal segments cream-yellow, the first a little darker dorsally at the base; flagellum dark brown, all segments beyond the basal three slender. Head dark brown, the vertex conspicuously light grey; vertical tubercle feebly notched.

Pronotum conspicuously whitish. Mesonotal præscutum uniform rather light brown, the lateral margins darker

Brown; scutum concolorous; scutellum testaceous, the median lobe sparsely pruinose; postnotum dark brown, the anterior half passing into black. Pleura yellow, the posterior pleurites passing into dark brown; dorsal pleural region slightly infuscated; sternopleura and base of fore coxa weakly infuscated, sparsely pruinose. Halteres obscure yellow, the knobs dark brown. Legs with the coxæ obscure yellow; trochanters yellow, each with a black apical spot beneath; femora yellow, the tips conspicuously blackened; tibiæ obscure brownish yellow, the tips narrowly infuscated; tarsi obscure yellow, passing into brown. Wings strongly tinged with brown; cells *C*, *Sc*, and the stigma darker brown; prearcular region conspicuously yellowish; a conspicuous uninterrupted oblitative area extending from before the stigma in cell *C* across the base of cell 1st M_2 into cell M_3 ; veins dark brown. Venation: *m* oblique in position, giving the outer end of cell 1st M_2 a conspicuous point; cell M_1 sessile to short-petiolate; cell 2nd *A* moderately broad.

Abdominal tergites dark brown, the extreme caudal margins of the segments indistinctly pale; basal sternites yellow, the caudal margins of the segments narrowly infuscated, the amount increasing on the outer segments, which become unicolorous brown. Ovipositor with the fleshy valves hairy, the blunt tergal valves separated from one another by a V-shaped notch, covered with short silvery hairs; sternal valves very densely clothed with long golden-brown setæ.

Hab. New South Wales.

Holotype, ♀, Blue Mountains, February 12, 1922 (*E. W. Ferguson*); collector's No. 11.

Paratopotype, ♀, March 4, 1922 (*E. W. Ferguson*).

Type returned to Dr. E. W. Ferguson.

Macromastix dorrigenis, sp. n.

Female.—Length about 8.5 mm.; wing 12 mm.

Scapal segments conspicuously paler than the dark brown flagellum. Anterior half of vertex conspicuously orange. Pronotum and mesonotum obscure brown, the præscutum more testaceous medially, without distinct stripes; scutellum more testaceous. Wings distinctly tinged with brown; stigma oval, darker brown. Venation: petiole of cell M_1 two-thirds the length of *m*. Coloration of abdomen nearly obliterated by distension with eggs.

The species is closely related to *M. tortilis*, Alexander, *M. hackeri*, Alexander, and *M. brevipetiolata*, Alexander, but

must be considered as being distinct from all. The short stout frontal prolongation of the head, with a long tufted nasus, distinguishes the group from similar species with longer frontal prolongations. *M. tortilis* and *M. hackeri* have the coloration brighter yellow, the head yellow, not conspicuously darkened posteriorly. *M. tortilis* has the wings more yellowish, with the costal area faintly darkened, especially basally; R_3 , in proportion to R_2 , is considerably longer; cell 2nd A broader. *M. hackeri* has the wings more yellowish; cell 2nd R_1 larger; R_3 slightly shorter. *M. brevipetiolata*, which resembles the present species more closely in the general coloration of the body and wings, has the stigma paler, yellowish, scarcely evident; petiole of cell M_1 very short to almost obliterated; cell 1st M_2 larger.

Hab. New South Wales.

Holotype, ♀, Loowanna, Eastern Dorrigo, January 31, 1923 (*E. W. Ferguson*).

Type returned to Dr. E. W. Ferguson.

Macromastix hackeri, Alexander.

1920. *Macromastix hackeri*, Alexander, Mem. Queensland Mus. vii. pp. 62, 63.

The type-locality was Brisbane, Queensland. Dr. Ferguson has sent me a male, taken in East Dorrigo, New South Wales, January 30, 1923, by himself. This specimen differs from the alcoholic type in the following regards: scapal segments yellow, the flagellar segments more infuscated. Head orange, yellowish orange on the low vertical tubercle. Mesonotum shiny obscure yellow. Femoral apices scarcely infuscated. Proximal end of stigma in cell Sc_1 darker brown than the remainder of the stigma; Rs , R_{2+3} , and R_2 straighter.

Macromastix aurantioiceps, sp. n.

General coloration obscure yellow with three conspicuous dark brown stripes on præscutum; frontal prolongation of head relatively short, nasus distinct; vertical tubercle of head orange; femoral tips narrowly but conspicuously blackened; wings strongly tinged with brown, cell Sc darker brown; obliterative areas before and beyond the stigma and across the base of cell 1st M_2 ; abdomen brownish fulvous, the posterior half of the segments with a transverse black band or triangle.

Female.—Length 10–11 mm.; wing 12·5–15 mm.

Frontal prolongation of head relatively short and stout, obscure yellow, the dorsum more infuscated; nasus short and stout, tufted with long dark setæ; palpi dark brown. Antennæ with the basal segment ochreous; second segment brown; flagellum with the basal segment pale brown, the terminal segments darker brown; flagellum short. Vertical tubercle entire, large and conspicuous, bright orange, the posterior part of vertex and the genæ slightly more infuscated.

Pronotum obscure yellow medially, slightly darker laterally. Mesonotal præscutum obscure yellow with three conspicuous dark brown stripes, the broad median stripe faintly divided by a capillary pale line; humeral region dark brown along the margins; scutum yellowish brown, each lobe with two darker brown areas; scutellum and postnotum obscure brownish yellow, the posterior margin of the latter dark brown. Pleura testaceous yellow, the dorsal pleurites a little darker. Halteres dark brown, the base of the stem obscure yellow. Legs with the coxæ obscure yellow, the trochanters brighter yellow; femora testaceous yellow, the tips rather narrowly but conspicuously blackened; tibiæ light brown, passing into dark brown towards the tips; tarsi brownish black. Wings strongly tinged with brown; wing-base strongly flavous; cell *Sc* and stigma darker brown; base of costal cell slightly infuscated; yellowish obliterative areas before and beyond the stigma and across the base of cell *1st M*₂, the latter including portions of cells *M*, *1st M*₂, *2nd M*₂, and *M*₃; veins dark brown. Venation: *Rs* about three-fourths *R*₂₊₃; *r* more than its own length beyond the base of *R*₂; petiole of cell *M*₁ shorter than *m*; *m-cu* obliterated by fusion of adjoining veins; cell *2nd A* relatively short and narrow.

Abdominal tergites obscure brownish fulvous, each with a conspicuous black triangle, the broad base occupying the caudal margin, the narrow apex extending to the anterior margin of the segment; sides of segments 1 and 2 broadly pale; tergites 7 and 8 largely pale; sternites yellow with median infuscations. Ovipositor with fleshy valves, the sternal valves with conspicuous setæ.

The smaller paratype differs in some regards but is almost certainly conspecific; flagellar segments dark brown; sides of vertex adjoining the posterior margins of eyes strongly infuscated. The thorax has been hollowed out, rendering the præscutal stripes little evident and the surface strongly shiny where it is dull in the type. The abdominal bands are transverse, giving the abdomen a dimidiate appearance.

Hab. New South Wales.

Holotype, ♀, Megan, Eastern Dorrigo, January 30, 1923 (*E. W. Ferguson*).

Paratype, ♀, Glenreagh, Dorrigo, February 2, 1923 (*E. W. Ferguson*).

Type returned to Dr. E. W. Ferguson.

Macromastix aurantioiceps subnitida, subsp. n.

Female.—Length about 10–11 mm. ; wing 15–16 mm.

Generally similar to typical *aurantioiceps*, from which it differs as follows :—

Size larger. Frontal prolongation of head brighter-coloured. Basal segments of the antennal flagellum yellowish. Mesonotal præscutum with the surface subshiny, reddish yellow, with three darker stripes indicated posteriorly. Wings with the prearcular cells darker ; costal cell dark, at the base as dark as the subcostal cell, becoming a little paler toward the stigma ; stigma including all of cell 2nd R_1 . Venation : R_s straighter, subequal to or longer than R_{2+3} .

Hab. New South Wales.

Holotype, ♀, Blue Mountains, January 22, 1922 (*E. W. Ferguson*).

Paratopotypes, 2 ♀ ♀, February 24–March 4, 1922 (*E. W. Ferguson*).

Type returned to Dr. E. W. Ferguson.

Macromastix fergusonii, sp. n.

General coloration light grey ; mesonotal præscutum with three dark brown stripes ; halteres elongate ; legs black, the femoral bases narrowly fulvous ; wings subhyaline, cells C and Sc brown, the base light yellow ; tip of vein R_2 atrophied.

Male.—Length about 9 mm. ; wing 13 mm.

Frontal prolongation of the head dark brown above, slightly paler laterally ; palpi black ; nasus indistinct. Antennæ short, black throughout ; basal flagellar segment about one-half longer than the second. Head dark brown, the vertex surrounding the antennal bases and the orbits paler.

Mesonotal præscutum brownish grey, clearer grey near the suture, with three dark brown stripes, the median stripe feebly bifid on posterior half ; scutum light grey with two confluent rather ill-defined brown spots on each lobe ; scutellum and postnotum light grey. Pleura light grey, the dorso-pleural membrane infuscated. Halteres elongate, dark

brown. Legs with the coxæ light grey; trochanters brown; remainder of legs brownish black, the femoral bases narrowly and obscurely fulvous. Wings subhyaline; cells *C* and *Sc* dark brown; stigma pale; prearcular region conspicuously light yellow; longitudinal veins indistinctly clouded with darker to give the wing a faintly streaked appearance; veins dark brown. Venation: tip of R_2 atrophied; *m* variable, from longer than to a little shorter than the petiole of cell M_1 ; *m-cu* punctiform or barely obliterated, near mid-length of cell 1st M_2 .

Abdomen dark brown or brownish black, the posterior margins of the segments in some cases paler; hypopygium obscure fulvous.

Hab. New South Wales.

Holotype, ♂, Blue Mountains, April 17, 1922 (*E. W. Ferguson*).

Paratopotypes, 5 ♂♂, with the type.

Type returned to Dr. E. W. Ferguson.

This interesting crane-fly is dedicated to the collector, Dr. Eustace W. Ferguson, to whom I am greatly indebted for many favours.

Macromastix luteicosta, sp. n.

Male.—Length 10–11 mm.; wing 13·5–14·5 mm.

Generally similar to *M. fergusoni*, from which it differs as follows: size somewhat larger. Head brighter-coloured, especially on or near the vertical tubercle, which is feebly bifid. Wings greyish subhyaline with cells *C* and *Sc* yellow, a little duller than the bright base; stigma pale brown. Distal section of vein R_2 entirely atrophied.

Hab. New South Wales.

Holotype, ♂, Blue Mountains, April 17, 1922 (*E. W. Ferguson*).

Paratopotypes, 3 ♂♂, April 13–15, 1922.

Type returned to Dr. E. W. Ferguson.

Dr. Ferguson supplies the following notes:—

“These two species (*M. fergusoni* and *M. luteicosta*) made their appearance at Blackheath about the beginning of April and became very numerous. The two species were found in different situations, *M. luteicosta* on the higher parts and *M. fergusoni* on the slopes. I walked down to Govett’s Leap one afternoon (about two miles from the house I was staying in); it had been raining hard and was still misty, and the path which ran alongside the main road

but through the bush was still a running stream. *M. fergusoni* was present in thousands all along this path, all males, and in the trickle on the path I came across five specimens of a wingless Tipulid, which at first I thought might be the female of this species." The last statement will very probably be found to be correct, but it is better to find the flies *in copula* before describing the female as this sex of *M. fergusoni*. The occurrence of subapterous females of winter species of *Macromastix* in New Zealand is now well known.

XXIII.—*A new Trematode from the Grass-snake.* By H. A. BAYLIS, M.A., D.Sc., and H. GRAHAM CANNON, M.A.

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[Plate VI.]

THE Trematode described in the following account was found in considerable numbers in two specimens of the grass-snake (*Tropidonotus natrix*) dissected in the Zoological Department, Imperial College of Science, in June 1923. Upon inquiry it was found that the snakes had been collected in Tuscany. The worms occurred mainly in the œsophagus, but a few were found in the stomach.

The species may be referred to the family Lepodermatidæ, Odhner, 1911, and appears to be very closely related to the type-genus, *Lepoderma*, Looss, 1899 (= *Plagiorchis*, Lühe, 1899), from which it differs chiefly in the disposition of the ascending and descending limbs of the uterus. In *Lepoderma* these both pass between the testes, whereas in the form here described they pass laterally to the testes. In this respect our form differs from the majority of the genera included in the family, but it would seem more reasonable to emend the family diagnosis, provisionally at least, to include it, than to exclude it rigidly on this ground. The difference in the arrangement of the uterus (which is seen in an incipient condition in *Opisthioglyphe*) is correlated with, and probably a consequence of, the median position of both testes. After considerable hesitation we have thought it advisable to make the species, of which a description follows, the type of a new genus.

Encyclometra natrixis, gen. et sp. n.

Body flattened, oval, measuring 3·17–4·5 mm. in length