

white line ; white underneath. Wings white ; the margins fuscous grey, darkest on veins. Fore wings : a rather broad fuscous-grey band from costa across discocellular to tornus ; veins fuscous grey except on large postmedial white area. Hind wings white suffused with fuscous brown between veins 2 and 4, though streaked with white near outer margin ; the veins fuscous grey.

Expanse 39 mm.

Hab. Sixola, Juan Vinas.

Near *G. semiplecta*, Warr., but the transverse band on fore wings differently placed.

LXVII.—*Notes on Fossorial Hymenoptera*.—V.

By ROWLAND E. TURNER, F.Z.S., F.E.S.

Further Notes on the Thynnidae and Scoliidae.

WHERE not otherwise mentioned, the types of the species described here are in the British Museum, several having been received from the African Entomological Research Commission. In more than one case I have been obliged to speak rather severely of the work of Mr. Cameron ; I regret to do so, but as he is still publishing I consider it necessary. But in describing species of *Scolia*, especially *Dielis*, from the male sex he is by no means alone : this should never be attempted except from a large series and by comparison of the genitalia, which usually show good specific distinctions ; colour is not usually reliable, and even when constant locally may be different in another locality without corresponding differences in the female. Descriptions of new species in this genus when taken from the male alone are seldom anything but a hindrance to other workers. Cameron, in speaking of the African species of *Plesia* in Sjöstedt's 'Zool. Kilimandjaro-Meru Expedition,' states that they are much in need of revision. He is quite right, but it is largely his own work on the group that renders such a revision difficult or almost impossible for other workers.

Family Thynnidae.

Subfamily RHAGIGASTERINÆ.

Rhagigaster latisulcatus, sp. n.

♀. Nigra, nitida, sparse punctata ; capite subquadrato, sulco lato,

obliquo, auricomato utrinque; pygidio lato, haud compresso; flagello fusco.

♂. Niger, albido-pilosus, punctatus, alis flavo-hyalinis, tarsis brunneis.

Long., ♀ 17 mm., ♂ 19 mm.

♀. Head subquadrate, a little broader than long; the clypeus short, shallowly emarginate and with a median carina; front above the base of the antennæ closely punctured; the vertex shining, with a few scattered punctures; a deep broad groove on each side running obliquely from the eye almost to the posterior margin of the head and densely clothed with long golden hairs. Pronotum sparsely punctured, more closely on the anterior portion, where some of the punctures are confluent longitudinally; as long as the breadth on the anterior margin, distinctly broadened posteriorly. Scutellum, median segment, and abdomen very sparsely punctured; scutellum twice as broad as long, slightly narrowed posteriorly; median segment as long as the pronotum, gradually broadened from the base, vertically truncate posteriorly; first abdominal segment truncate at the base, a little broadened to the apex, and slightly longer than the second segment.

♂. Clypeus emarginate at the apex, with a narrow cordate space reaching from the base to the apex smooth and flattened and shining, margined by raised carinæ, the sides of the clypeus densely clothed with long whitish pubescence. Head, thorax, and median segment closely but not coarsely punctured; the interantennal prominence well developed and broadly rounded at the apex; a transverse carina below the anterior ocellus not nearly reaching the eyes. Antennæ inserted a little further from each other than from the eyes. Anterior angles of the pronotum not prominent, the anterior margin straight and slightly raised. Mesonotum with the usual four longitudinal furrows, the inner pair very broad and deep; scutellum more sparsely punctured, triangular; median segment short and broad, rounded. Abdomen a little longer than the head, thorax, and median segment combined, not slender, rather sparsely punctured, the segments strongly constricted at the base, the apical segment small, triangular, with a median carina; hypopygium without lateral spines. Third abscissa of the radius longer than the second by nearly one half; second recurrent nervure received close to the base of the third cubital cell, almost interstitial with the second transverse cubital nervure, strongly bent outwards in the middle.

Hab. Kuranda, Queensland (*F. P. Dodd*).

Eirone marginicollis, sp. n.

♂. Niger; mandibulis, clypeo, scapo, pronoto, tegulis, mesonoto macula quadrata, scutello, postscutello, segmentoque mediano postice flavis; abdomine segmentis 4 basalibus rufo-testaceis; pedibus testaceis, flavo-variegatis; alis hyalinis, iridescentibus, nervulis fuscis.

♀. Rufo-castanea; capite latitudine sesqui longiore; abdomine nitido, cylindrico.

Long., ♂ 7 mm., ♀ 4 mm.

♂. Clypeus convex, subcarinate from the base almost to the apex, slightly produced and truncate at the apex. Antennæ inserted further from each other than from the eyes, without a frontal prominence between them. Head and thorax finely and closely punctured, more coarsely on the head than on the thorax; pronotum smooth and shining, with the anterior margin straight and very strongly raised, the propleuræ strongly concave. Scutellum subtruncate or very broadly rounded at the apex; median segment short and broad, obliquely sloped posteriorly. Abdomen shining and almost smooth, fusiform; the hypopygium broadly rounded. Third abscissa of the radius longer than the second; first recurrent nervure received at the middle of the second cubital cell, second at about one-third from the base of the third cubital cell.

♀. The whole insect shining, very sparsely and finely punctured. Head rectangular, about half as long again as broad, very slightly convex; the eyes very small, not quite touching the base of the mandibles. Pronotum a little shorter than the median segment, slightly narrowed anteriorly, about half as long again as the greatest breadth, narrower than the head. Scutellum small, rectangular, a little longer than broad. Median segment a little broadened from the base, nearly twice as long as the greatest breadth. Abdomen slender, cylindrical; pygidium simple. Intermediate coxæ very narrowly separated.

Hab. Port Darwin (*F. P. Dodd*); March.

Subfamily *THYNNINÆ*.

Mons. J. Bréthes (*An. Mus. Nac. Buenos Aires*, xx. pp. 205-316, 1910) has recently published a paper in which he deals with many species of Thynnidae and Scoliidæ from Argentina and the adjacent countries. He has unfortunately overlooked one or two of my papers published two years previously, and, through no fault of his own, was unac-

quainted with more important papers published earlier in 1910. As a result several of his names must sink as synonyms. He places all the American Thynnidae in the genus *Elaphroptera*, considering that the material available is insufficient for division into small genera. This division has already been attempted, and as the genera founded by Guérin were based on careful dissections and are confirmed by differences in the more recently discovered females, I think they should have been allowed to stand. But M. Bréthes makes no attempt to group the species according to their natural affinities, and only once makes a note of comparison; his key to the males is based almost entirely on colour, and the descriptions are arranged somewhat after the order in which the species fall in the key to the males. Now the utter unreliability of colour-characters in this family has been shown by M. André in his valuable paper on the Thynnidae of Concepcion, which is not referred to by M. Bréthes. The descriptions are fortunately fairly complete, except where neuration is of importance, though there is much difficulty in giving a correct idea of the shape of the male clypeus in few words and without the help of plates.

The following synonymy may, I think, be regarded as certain; probably more will be added later.

Scotæna polistoides, Turn.

Scotæna polistoides, Turn. Zool. Jahrb. xxix. 2, p. 182 (1910).

Elaphroptera diodon, Bréthes, An. Mus. Nac. Buenos Aires, xx. p. 221 (1910).

Spilothynnus bituberculatus, Turn.

Telephoromyia bituberculata, Turn. Trans. Ent. Soc. London, p. 70 (1908). ♀.

Spilothynnus bituberculata, Turn. Ann. & Mag. Nat. Hist. (8) iii. p. 132 (1909). ♂.

Elaphroptera mendozana, Bréthes, An. Mus. Nac. Buenos Aires, xx. p. 237 (1910). ♂ ♀.

Spilothynnus (?) *stygius*, Turn.

Spilothynnus stygius, Turn. Zool. Jahrb. xxix. 2, p. 190 (1910). ♂.

Elaphroptera melanosoma, Bréthes, An. Mus. Nac. Buenos Aires, xx. p. 235 (1910). ♂ ♀.

Ammodromus ingenuus, Sm.

Thynnus ingenuus, Sm. Descr. n. sp. Hymen. p. 173 (1879) (nec Bréthes).

Elaphroptera fasciatella, Bréthes, An. Mus. Nac. Buenos Aires, xx. p. 232 (1910).

Eucyrtothynnus avidus, Turn.

- Elaphroptera avida*, Turn. Trans. Ent. Soc. London, p. 73 (1908). ♂.
Elaphroptera avida, Turn. Zool. Jahrb. xxix. 2, p. 201 (1910). ♀.
Eucyrtothynnus avidus, Turn., Wytzman, Gen. Insect. cv. p. 25 (1910).
Elaphroptera bruchii, Bréthes, An. Mus. Nac. Buenos Aires, xx. p. 222 (1910). ♂ ♀.

Eucyrtothynnus anisitsi, Turn.

- Elaphroptera anisitsi*, Turn. Zool. Jahrb. xxix. 2, p. 204 (1910). ♂ ♀.
Elaphroptera paraguayensis, Bréthes, An. Mus. Nac. Buenos Aires, xx. p. 240 (1910). ♀.
 ? *Elaphroptera paranensis*, Bréthes, An. Mus. Nac. Buenos Aires, xx. p. 237 (1910). ♂.

Eucyrtothynnus (?) *inferna*, Turn.

- Elaphroptera inferna*, Turn. Zool. Jahrb. xxix. 2, p. 214 (1910). ♂.
Elaphroptera tucumana, Bréthes, An. Mus. Nac. Buenos Aires, xx. p. 234 (1910). ♂ ♀.

The generic position of this species is doubtful, but it is nearer to *Eucyrtothynnus* than to *Elaphroptera*. It is allied to *E. mapirensis*, Turn.

Telephoromyia argentina, Weyenb.

- Tachypterus argentinus*, Weyenbergh, Berl. ent. Zeitschr. xxvii. p. 277 (1883).

Mons. Bréthes (An. Mus. Nac. Buenos Aires, xx. p. 229, 1910) sinks this species and *T. cordoviensis*, Weyenb., with some doubt as synonyms of *T. rufipes*, Guér. Weyenbergh evidently used the generic name *Tachypterus* because the mandibles are tridentate and both recurrent nervures received by the second cubital cell, whereas Guérin plainly states that in *T. rufipes* the second recurrent nervure is received by the third cubital cell. The name *Tachypterus* is correct, and Mons. Bréthes has been misled by a mistake in Dalla Torre's catalogue in correcting it to *Trachypterus*, which is quite a different genus, not belonging to the Thynnidae. Whether his identification of Guérin's species is correct or not I cannot say, as he gives no description of the male. He does not mention the neurulation in any of his descriptions of Thynnidae or Scoliidae.

Eucyrtothynnus rubescens, Bréthes, subsp. *fiebrigi*, nov.

- ♂. Niger; mandibulis (apice excepto), clypeo, maculis duabus supra antennas, margine interiore oculorum latissime antice, genis,

margine posteriore capitis anguste, pronoto antice et postice in medio interrupto, mesopleuris macula arcuata, tegulis, mesonoto linea utrinque supra tegulas et macula bilobata postice, scutello margine posteriore, angulis anticis et maculis duabus magnis medianis, postscutello, segmento mediano fasciis duabus obliquis apice divergentibus, segmentis dorsalibus 1-6 macula magna laterali femoribusque infra flavis; abdomine cerasino, segmento primo basi nigro; tibiis tarsisque ferrugineis, flavo-variegatis; alis subhyalinis; clypeo dimidio apicali concavo, apice late emarginato, angulis productis, acutis; hypopygio angusto, apice rotundato.

♀. Nigra; fronte, segmento dorsali primo fascia lata transversa, secundo macula transversa utrinque, tertio, quarto quintoque fascia lata transversa in medio interrupta flavis; mandibulis, clypeo, antennis, pygidio pedibusque brunneo-ferrugineis; clypeo subconcavo, emarginato, segmento dorsali secundo inter carinas 2 transverse rugoso, margine apicali insuper elevato, segmento sexto dorsali angusto, ventrali semicirculari apice rotundato.

Long., ♂ 18 mm., ♀ 14 mm.

♂. Closely and finely punctured, the concave portion of the clypeus smooth and shining, seventh dorsal segment longitudinally rugose. Antennæ about as long as the thorax and median segment combined, the apical joints arcuate beneath, scutellum convex; abdomen rather slender; third abscissa of the radius nearly twice as long as the second, third cubital cell receiving the second recurrent nervure at about one-fifth from the base; inner tooth of the mandibles obliquely truncate.

♀. Head finely and closely, thorax more sparsely punctured, abdomen almost smooth, the second dorsal segment transversely rugose in the middle between two transverse carinæ, the apical margin strongly raised; pronotum produced in the middle of the anterior margin into a rounded lobe, half as broad again on the anterior as on the posterior margin, slightly depressed in the middle. Abdomen beneath closely punctured; fifth ventral segment coarsely obliquely striated; sixth dorsal segment very narrow, pointed at the apex, and fitting into an incision in the broadly rounded lower plate of the pygidium.

Hab. San Bernardino, Paraguay (*K. Fiebrig*).

Type in U.S. National Museum.

I do not think that this is more than a geographical race of *Elaphroptera rubescens*, Bréthes (An. Mus. Nac. Buenos Aires, xx. p. 239, 1910), but in the description of that species there is no mention of the clypeus being emarginate, and the yellow markings on the scutellum and abdomen differ.

The male only of *rubescens* is described. The markings on four specimens of the present species which are before me do not vary appreciably; but colour in this genus is often unreliable.

Elaphroptera intaminata, Sm.

Thynnus intaminatus, Sm. Descr. n. sp. Hym. p. 173 (1879). ♂.

Thynnus (Elaphroptera) holomelas, André, Voy. Belgica, Zool. Hym. p. 61 (1902). ♂.

Elaphroptera arcuata, Turn. Trans. Ent. Soc. London, p. 76 (1908). ♂.

E. arcuata is merely a variety with clear hyaline wings; the wings in the type of *intaminata* are unusually dark; it is probably from a more northern locality. The first abdominal segment seems to be distinctly longer and more slender in the Patagonian form of the species than in the Chilean specimens, but they do not differ otherwise except in the length of the third abscissa of the radius, which is shorter in the Chilean form. I do not think they can be treated as distinct species; but if they are, then André's name should stand for the Patagonian form.

GENUS EUROHWERIA, nom. nov.

Æolothynnus, Turn. Proc. Linn. Soc. N.S.W. xxxiii. p. 113 (1908) (partim).

Æolothynnus, Turn., Wytsman's Genera Insect. cv. p. 39 (1910) (nec Ashmead).

Turnerella, Rohwer, Entomological News, xxi. p. 349 (1910).

My identification of Ashmead's genus, of which the type was undescribed, was incorrect, as has been pointed out by Mr. Rohwer, who renamed the genus *Turnerella*. That name, however, was used by Professor Cockerell for a genus of bees; his paper was published in London on the same day as Mr. Rohwer's paper was published in America, and I believe the name should be retained for the bee. I therefore have to propose a new name for the genus.

Eurohweria pentadonta, sp. n.

♂. Niger; punctatus, abdomine nitido; mandibulis basi, clypeo macula apicali lineaque longitudinali basali nigris, margine posteriore oculorum, macula magna bilobata inter antennis, pronoto angulis anterioribus et margine posteriore, mesonoto macula, mesopleuris maculis duabus, scutello macula bilobata, tegulis, postscutello, segmento mediano fascia curvata utrinque, segmentisque dorsalibus 1-6 macula obliqua utrinque pallide flavis; pedibus testaceis; alis hyalinis, nervulis fuscis; clypeo convexo,

modice producto, apice truncato; pronoto antice subemarginato; hypopygio quinquedentato.

♀. Testaceo-brunnea; capite ferrugineo, longitudine sesqui latiore, haud compresso, in medio longitudinaliter sulcato, albo-piloso; pronoto longitudine latiore, dense albo-piloso; segmento mediano obliquo, nitido; abdomine nitido; segmento dorsali secundo transverse tricarinato, margine posteriore insuper elevato; pygidio elongato, angusto.

Long., ♂ 7-9 mm., ♀ 4-5 mm.

♂. Antennæ inserted further from each other than from the eyes, a little shorter than the thorax without the median segment, the interantennal prominence not developed. Clypeus moderately produced, strongly convex, truncate at the apex, the labrum exposed. Head and thorax closely but not coarsely punctured; abdomen shining and almost smooth, the segments constricted at the base. Pronotum widely and very shallowly emarginate; median segment rounded; scutellum broadly truncate at the apex, almost flat; sixth ventral segment with a spine on each side at the apical angles; hypopygium truncate at the apex, with the usual three spines, the apical spine the longest, but all rather short, a lateral spine on each side a little before the apex.

♀. The first, third, and fourth dorsal segments are depressed broadly at the apex and sides, the raised basal portion is very strongly bilobed and rounded on each side. Median segment obliquely sloped from the scutellum. The pronotum is very densely clothed with whitish hairs, so as to hide the sculpture; the head is much less thickly pubescent, the hairs being confined to the front round the base of the antennæ and to the median line; the eyes are separated from the base of the mandibles by a distance exceeding their own breadth. Ventral surface of the abdomen punctured, most strongly on the fourth and fifth segments.

Hab. Kuranda, Queensland (*F. P. Dodd*).

Eurohweria myola, sp. n.

♂. Niger, nitidus, sparse et delicatissime punctatus; clypeo convexo, haud elongato, apice anguste truncato; hypopygio tridentato; mandibulis, clypeo, marginibus oculorum, fronte macula magna utrinque, vertice macula, capite margine posteriore anguste, pronoto macula nigra utrinque, mesonoto macula maxima quadrata, tegulis, scutello basi nigro, postscutello, mesopleuris fascia curvata, segmento mediano apice et lateribus, segmentisque dorsalibus 1-6 macula obliqua utrinque late flavis; pedibus flavis, testaceo-variegatis; alis hyalinis, iridescentibus, nervulis pallide testaceis.

♀. Testacea; thorace fusco-brunneo; capite fusco, haud compresso, latitudine paullo longiore, subconvexo, nitido; pronoto longitudine sesqui latiore; segmento dorsali secundo transverse tricarinato, margine apicali insuper paullo elevato; pygidio elongato, angusto.

Long., ♂ 7 mm., ♀ 4 mm.

♂. Clypeus strongly convex, not elongate, narrowly truncate at the apex, much broader than long, produced into a point on each side above the base of the mandibles. Antennæ shorter than the thorax without the median segment, inserted further from each other than from the eyes, without an interantennal prominence; the front marked with a shallow longitudinal sulcus. Anterior margin of the pronotum strongly raised and transverse; scutellum rather narrowly truncate at the apex, only slightly convex; median segment rounded; abdomen slender, the sides almost parallel except at the extremities; the segments constricted at the base; sixth ventral segment with a short spine on each side at the apical angles; hypopygium not broad, ending in three spines, the middle spine more than twice as long as the lateral. Very sparsely and rather finely punctured, the abdomen almost entirely smooth. Third abscissa of the radius longer than the second; the second recurrent nervure received at about one-sixth from the base of the third cubital cell.

♀. Smooth and shining, with a few small punctures on the abdomen. Head subrectangular, rounded at the posterior angles, a little longer than broad, a lateral carina reaching from the eye nearly halfway to the posterior margin of the head, the sides of the head concave. Pronotum slightly narrowed posteriorly, half as broad again as long; scutellum transverse, not very narrow, more than twice as broad as long, equal in length to the dorsal surface of the median segment. First dorsal segment broadly depressed at the apex; second with three transverse carinæ in addition to the raised apical margin, the basal carina sometimes concealed by the first segment; third and fourth segments broadly depressed on the apical margin, the raised portion before the depression deeply emarginate in the middle and rounded at the sides. Pygidium long and narrow, almost linear.

Hab. Kuranda, Queensland (*F. P. Dodd*).

This is very near *perelegans*, Sm., which is probably distinct from *cerceroides*, but which is at present only known in the male sex. The punctures on the thorax in *perelegans* are very large and deep.

Eurohweria compressiceps, sp. n.

♀. Testaceo-brunnea; capite nigro, elongato-arcuato, lateraliter compresso, latitudine duplo longiore; pronoto longitudine paullo latiore; segmento dorsali secundo transverse bicarinato; pygidio elongato, angusto.

♂. Niger; mandibulis basi, clypeo macula basali utrinque, pronoto margine anteriore interrupto et margine posteriore, mesopleuris linea antice, postscutello, segmentisque dorsalibus 2-4 macula utrinque albidis; abdomine rufo-ferrugineo; alis subhyalinis; clypeo elongato, carinato, apice emarginato; antennis brevissimis; pronoto antice emarginato; hypopygio trispinoso.

Long., ♀ 4 mm., ♂ 6 mm.

♀. Head shining, very strongly compressed laterally, arched, twice as long as broad, smooth and shining; eyes very small, touching the base of the mandibles. Thorax and median segment finely but not closely punctured; pronotum a little broader than long, subrectangular, as long as the scutellum and median segment combined, and as broad as the head. Abdomen almost smooth; the segments rather narrowly depressed on the apical margin, more broadly in the middle than at the sides; second dorsal segment with two strong transverse carinae, the apical margin less strongly raised, forming a third. Pygidium long and very narrow. Intermediate and posterior tarsi slender.

♂. Clypeus long, as long as the greatest breadth, shallowly emarginate at the apex, with a median longitudinal carina, the labrum exposed. Head, thorax, and median segment finely and closely punctured; antennae no longer than the thorax without the median segment, of even thickness throughout, as far from the eyes as from each other, the interantennal carina almost transverse and not very prominent. Pronotum as broad as the head, widely emarginate anteriorly; a very deep hollow in front of the mesopleurae for the reception of the anterior femora. Scutellum convex, subtriangular, rounded at the apex, with a deep transverse groove at the base, rather sparsely punctured. Median segment rounded, not truncate. Abdomen scarcely longer than the head, thorax, and median segment combined, tapering slightly towards the extremities, especially towards the apex; the segments strongly constricted at the base. Hypopygium with three spines, the median spine the longest. Third abscissa of the radius longer than the second; the second recurrent nervure received at about one-sixth from the base of the third cubital cell. The spine at the angles of the sixth ventral segment is short, but quite distinct.

Hab. Kuranda, Queensland (*F. P. Dodd*).

Allied to *sanguinolentus*, Turn., especially in the strongly compressed head of the female.

Eurohweria immitis, sp. n.

♂. Niger; clypeo basi, pronoto antice et postice, mesopleuris antice, postscutello, segmentis dorsalibus 1-5 macula laterali obliqua utrinque, tibiis subtus tarsisque anterioribus albis; segmentis abdominalibus 5-7 rufo-ferrugineis; alis hyalinis, sub-iridescentibus, nervulis nigris; clypeo convexo, elongato, latitudine æquilongo, apice anguste truncato; pronoto haud emarginato; hypopygio tridentato.

♀. Nigra; abdomine pedibusque testaceis; capite modice compresso, latitudine longiore, antice paullo dilatato; segmento secundo dorsali transverse tricarinato, margine posteriore insuper elevato; pygidio elongato, angusto.

Long., ♂ 7 mm., ♀ 4 mm.

♂. Clypeus convex, as long as broad, produced and narrowly truncate at the apex; the labrum slightly exposed. Antennæ about as long as the thorax without the median segment; the interantennal carina low and almost transverse. Head closely punctured on the front, more sparsely on the vertex; thorax rather sparsely and finely punctured; base of the median segment and the whole dorsal surface of the abdomen smooth and shining, the ventral surface of the abdomen sparsely punctured. Pronotum nearly half as long in the middle as the mesonotum, the anterior margin almost transverse; scutellum depressed at the base, not very strongly convex, broadly truncate at the apex. Median segment rounded. A strong depression in front of the mesopleuræ for the reception of the anterior femora. Abdominal segments strongly constricted at the base; the abdomen slender, sixth ventral segment with a spine on each side at the apical angles; hypopygium ending in three spines, the middle spine the longest.

♀. Head flattened above, longer than broad, slightly widened anteriorly, moderately compressed, the sides flattened, smooth and shining. Thorax sparsely punctured; pronotum as long as broad, the anterior angles prominent. Apical margin of the first dorsal segment strongly depressed, second segment with four strong transverse carinæ including the raised apical margin; pygidium long and very narrow; abdomen almost smooth, with a few large punctures.

Hab. Kuranda, Queensland (*F. P. Dodd*).

Zaspilothynnus obliquestriatus, sp. n.

♂. Niger; clypeo convexo, sparse punctato, apice late truncato; hypopygio triangulari, angulis basalibus tuberculatis, apice spina armato; clypeo, mandibulis, marginibusque oculorum flavis; alis flavo-hyalinis, nervulis nigris.

♀. Nigra, nitida, sparsissime punctata; capite convexo, longitudine latiore; abdomine segmento primo oblique striato, segmento secundo transverse sex-carinato; pygidio oblique truncato, latitudine fere duplo longiore, obscure longitudinaliter striato.

Long., ♂ 18 mm., ♀ 11 mm.

♂. The clypeus is very strongly convex, the apical margin depressed and broadly truncate. Head, thorax, and median segment closely and finely punctured, the pubescence on the head and pronotum fulvous, on the median segment grey. Abdomen narrowed a little at the extremities, shining, more sparsely punctured than the thorax; sixth ventral segment with a spine on each side at the apical angles; seventh dorsal segment produced into a flattened plate, coarsely punctured and truncate at the apex; hypopygium triangular, distinctly longer than the breadth at the base, with a stout apical spine, the basal angles with a well-developed tubercle. Third abscissa of the radius a little longer than the second; first recurrent nervure received beyond two-thirds from the base of the second cubital cell, second just before one-third from the base of the third cubital cell. The groove between the first and second ventral segments is not deep. The carina between the antennæ is almost transverse; abdominal segments feebly constricted at the base.

♀. Mandibles falcate, acute at the apex; head about half as broad again as long, strongly rounded at the posterior angles, moderately convex; front rather closely punctured above the base of the antennæ, with a short longitudinal sulcus; the vertex shining, with a few scattered punctures. Thorax and median segment shining, with a few shallow punctures; pronotum subrectangular, more than half as broad again as long, the posterior margin arched; scutellum broader than long, broadly rounded at the apex; median segment only half as long as the pronotum. First abdominal segment strongly obliquely striated, second segment with six strong and even transverse carinæ; segments 3-5 shining, with a few scattered punctures. Pygidium obliquely deflexed, about twice as long as broad, the sides parallel, indistinctly longitudinally striated, with a tuft of fulvous

setæ on each side, ventral plate broadly rounded at the apex.

Hab. Kuranda, Queensland (*F. P. Dodd*); September.

This species is somewhat intermediate between the genera *Zaspilothynnus* and *Leptothynnus*. Unfortunately the antennæ of the male are broken.

Family Scoliidæ.

Subfamily ELIDINÆ.

Myzine (Pseudomeria) neavei, sp. n.

♀. Nigra, nitida, sparsissime punctata, albo-pilosa; flagello mandibulisque basi fusco-ferrugineis; tarsi testaceis; pronoto, mesonoto scutelloque rufis; segmento abdominali secundo fascia interrupta, tertio macula utrinque albis.

Long. 10 mm.

♀. Head subrectangular, nearly half as broad again as long, slightly rounded at the posterior angles, smooth and shining; the clypeus short and transverse. Scape smooth and shining above, clothed with long grey hairs beneath; the basal joint of the flagellum concealed, only ten joints visible, the apical joint the longest. Ocelli small; the eyes ovate and touching the bases of the mandibles. Long grey pubescence on the posterior margin of the head, the anterior margin of the pronotum, the pleuræ, and more sparsely on the sides of the abdomen. Pronotum nearly as long as the greatest breadth, slightly narrowed anteriorly, shining, with a few scattered punctures. Pleuræ closely punctured, the sides of the median segment smooth. Mesonotum very short, smooth; scutellum closely punctured, longer than the mesonotum; median segment shining, obliquely sloped posteriorly. Abdomen shining, with a few scattered punctures, the sixth dorsal segment rounded at the apex. Wings very short, reaching a little beyond the base of the second dorsal segment, the fore wings deeply bilobed, the stigma situated at about one-sixth from the base.

Black; flagellum and mandibles at the base fusco-ferruginous; tarsi testaceous; pronotum, mesonotum, and scutellum red; a transverse band narrowly interrupted in the middle on the second dorsal abdominal segment and a spot on each side of the third white. Wings fusco-hyaline, with a bronze flush.

Hab. Mombera District, Nyassaland, 4000 ft. (*S. A. Neave*); June 1910. One specimen.

Type in B.M. (*A. E. R. C.*).

The wings are a little longer than in *dakarensis*, Buyss., but much shorter than in *perornata*, Turn. In the latter species the stigma is placed much further from the base of the wings.

Myzine politissima, sp. n.

♂. Niger, nitidus, punctatus; abdomine subtilissime punctato; clypeo emarginato; mandibulis, clypeo, scapo subtus, pronoto antice et postice, segmentis abdominalibus fasciis latis apicalibus flavis; alis hyalinis, nervulis nigris, stigmate testaceo; pedibus flavis.

Long. 14 mm.

♂. Clypeus widely and shallowly emarginate at the apex, nearly twice as broad as long, and produced at the lateral angles into a short spine projecting over the base of the mandibles. Head, thorax, and median segment finely and closely punctured, shining; with rather long white pubescence, which is very close on the front, posterior margin of the head, mesopleuræ, and median segment. Pronotum as long as the mesonotum, strongly narrowed anteriorly. Posterior ocelli widely separated, further from each other than from the eyes; all the ocelli small and situated on the sides of deep depressions. Median segment obliquely sloped posteriorly. Abdomen shining, minutely and shallowly punctured, the segments not constricted; basal segment with a narrow petiole forming the basal third, the apical two-thirds as broad as long, slightly swollen and only a little narrower than the second segment; segments 2-6 very much broader than long; the apical dorsal segment convex, deeply emarginate at the apex, the emargination deeper than the breadth at the apex, the lateral processes rather narrowly produced, bluntly pointed at the apex. Posterior tibia as long as the first joint of the posterior tarsus plus half of the second joint. Second abscissa of the radius slightly longer than the third.

Black; mandibles, except at the apex, clypeus, scape beneath, the apex of the prominence above the base of the antennæ, the anterior and posterior margins of the pronotum broadly, a broad apical band on each dorsal segment and on all except the basal ventral segment, and the legs yellow. Wings hyaline, nervures black, stigma testaceous, tegulæ yellow.

Hab. Upper Luangwa River, N.E. Rhodesia (*S. A. Neave*); 27th July-13th August, 1910. A. E. R. C.

This male may be distinguished from all others known to me by the shining and almost impunctate abdomen.

Myzine rufifrons, Fabr.*Larra rufifrons*, Fabr. Ent. Syst. ii. p. 222 (1793).*Myzine violaceipennis*, Cam. Records Albany Museum, i. p. 301 (1904).Var. *Myzine erythrostomus*, Cam. Ann. Transv. Mus. ii. 3, p. 117 (1910).

There seems to be absolutely no reason for separating the northern specimens from those from the Cape. The presence of a white spot on each side of the fifth dorsal segment as well as on the three preceding segments is certainly not a sufficient character to form a new species on, this being essentially a variable point in allied species; and the other slight differences mentioned by Cameron seem to me, after an examination of several specimens from various localities, to be overstated. The reckless description of new species on very insufficient material is certainly much to be deplored.

In the same paper (pp. 118–119) Cameron describes two males of the genus *Plesia*, according to his determination, to which unfortunately I can attach no value, as he has previously described males as *Plesia* which beyond doubt belong to *Myzine*. He omits in both descriptions all mention of the form of the basal abdominal segment, which is of much importance in this group, but from his description of the anal segment I consider that the species (*pacificatrix* and *transvaalensis*) are more likely to belong to *Myzine* than to *Plesia*.

Myzine (?) *swalei*, sp. n.

♂. Niger, mandibulis, tegulis, tibiis tarsisque pallide flavis; segmentis abdominalibus 2–6 apice flavo trimaculatis; alis hyalinis, nervulis nigris, stigmatibus magno, vena cubitali ultra cellulam cubitalem tertiam vix producta, cellula radiali apice obtusa; clypeo apice rotundato; segmento mediano longitudinaliter impresso; segmento abdominali primo petiolato, apice nodoso.

Long. 6 mm.

♂. Clypeus a little broader at the apex than long, the apical margin broadly rounded. Antennæ inserted very far apart, about twice as far from each other as from the eyes, gradually thickened towards the apex, the front between them not prominent. Posterior ocelli situated fully twice as far from each other as from the eyes. Ocelli small, eyes shallowly emarginate on the inner margin. Median segment margined at the sides, with a broad, shallow, longitudinal depression in the middle, truncate posteriorly.

Abdomen slender, a little longer than the head, thorax, and median segment combined; the first segment longer than the second, the basal third forming a narrow petiole, the apical two-thirds swollen; segments 2-6 slightly constricted at the base; the apical segment with the emargination broader at the apex than deep, the lateral processes rounded at the apex, the spine of the hypopygium long and sharply recurved. Head and thorax closely punctured and rather thickly clothed with long white pubescence, abdomen more sparsely and finely punctured. Radial cell rounded at the apex, less than twice as long as the greatest breadth, extending on the costa for less than two-thirds of the distance from the apex of the stigma to the apex of the wing, second abscissa of the radius as long as the third, the third cubital cell only about one quarter longer on the cubitus than on radius; first recurrent nervure received beyond the middle of the second cubital cell, second before the middle of the third cubital cell, the neurulation not continued beyond the cubital and discoidal cells.

Black; the mandibles, tegulae, a transverse spot in the middle and one on each side of dorsal segments 2-6 pale yellow; tibiae and tarsi yellow marked with black. Wings hyaline, nervures black.

Hab. Caia, Zambesi R. (*H. Swale*); September.

This species is very distinct in neurulation from typical *Myzine*, more nearly approaching some of the species of *Iswara*, though in other respects it does not resemble that genus. It can only be placed in *Myzine* provisionally.

Elis (Mesa) pyxidata, sp. n.

♀. Nigra, mandibulis basi fusco-ferrugineis; pygidio rufo, striato: alis hyalinis, venis nigris.

Long. 10 mm.

♀. Clypeus sparsely punctured, rounded at the apex. Head and thorax closely and rather deeply punctured, more finely and sparsely round the ocelli and on the scutellum, the median segment finely punctured, with a median groove. Abdomen finely and shallowly punctured, the ventral surface shining and with very scattered punctures; pygidium closely longitudinally striated, the striae not reaching the broadly rounded apex. First abscissa of the radius longer than the third, which is a little longer than the second. First recurrent nervure received at the middle of the second cubital cell, second just before the middle of the

third cubital cell. Stigma very small, radial cell not detached from the costa and narrowly truncate at the apex, receiving the strongly oblique third transverse cubital nervure at the apex.

Black, with sparse white pubescence; the mandibles fusco-ferruginous at the base; pygidium red. Wings hyaline, nervures black; spines of the tibiae white.

Hab. Mid-Luangwa Valley, N.E. Rhodesia; August (S. A. Neave). A. E. R. C.

Elis varicolor, Turn.

Elis varicolor, Turn. Ann. & Mag. Nat. Hist. (8) vii. p. 306 (1911).

A specimen from San Bernardino, Paraguay (*Fiebrig*), in the U.S. National Museum, shows that the reddish colour of the head and thoracic markings in the type were due to discoloration. The Paraguay specimen differs from the type, having the clypeus and antennae black, and yellow marks on the apical angles and sides of the median segment; the femora are also yellow at the apex. This may prove to be a local race, but I have only seen the two specimens.

Elis andina, Turn.

Plesia andina, Turn. Ann. & Mag. Nat. Hist. (8) i. p. 513 (1908). ♀.
Elis immaculata, Schrottky, Deuts. ent. Zeitschr. p. 198 (1910). ♀.

These descriptions without doubt refer to the same species.

Elis ameghinoi, Bréthes.

Elis ameghinoi, Bréthes, An. Mus. Nac. Buenos Aires, xx. p. 251 (1910). ♂.

Plesia bonaerensis, var., Turn. Zool. Jahrb. xxix. p. 223 (1910). ♂ ♀.

I do not think that this is more than a local form of *bonaerensis*, Burm., as I have before suggested. The female is, I consider, the form described by Bréthes as the female of *cuyana*, Burm., but this is not certain. The yellow spots on the median segment of the male are usually present, one on each side near the apex, but occasionally absent. The second recurrent nervure is usually received close to the apex of the second cubital cell, but is sometimes interstitial with the second transverse cubital nervure. There are males of this species in the Berlin Museum from the province of Salta, 3500 ft., the type being from Mendoza.

Subfamily *TIPHINÆ*.

Tiphia meridionalis, Turn.

Tiphia meridionalis, Turn. Ann. & Mag. Nat. Hist. (8) ii. p. 123 (1908). ♀.

Tiphia plutensis, Bréthes, An. Mus. Nac. Buenos Aires, xx. p. 255 (1909). ♀.

I think my identification is correct, but M. Bréthes omits to mention the comparative length and breadth of the median segment, an important point in this genus, in all his descriptions of *Tiphia*. This character, however, has usually been overlooked.

Subfamily *SCOLIINÆ*.

Scolia (Triscolia) opalina, Sm.

Scolia opalina, Sm. Journ. Proc. Linn. Soc., Zool. ii. p. 89 (1857). ♀ ♂.

Scolia unimaculata, Kirby, Trans. Ent. Soc., London, p. 446 (1889). ♀.

Scolia lathona, Cam. Proc. Zool. Soc. 1901, ii. p. 18. ♂.

This species ranges from Borneo to Tenasserim.

Scolia erratica, Sm.

Scolia erratica, Sm. Cat. Hym. B.M. iii. p. 88 (1855); Sauss. Ann. Soc. ent. France, (3) vi. p. 211 (1858).

Scolia molesta, Sauss. et Sichel, Cat. spec. gen. *Scolia*, p. 111 (1864).

I consider that Saussure's first identification of this species was correct, the description of *molesta* answering well to Smith's type.

Scolia westermanni, Sauss.

Scolia westermanni, Sauss. Ann. Soc. ent. France, (3) vi. p. 212 (1858).

Scolia erratica, Sauss. et Sichel, Cat. spec. gen. *Scolia*, p. 110 (1864) (nec Smith).

Saussure's name *westermanni* should, I think, stand for this species.

Scolia indica, Sauss.

Scolia indica, Sauss. Mém. Soc. phys. et hist. nat. Genève, xiv. p. 46 (1854). ♀.

Scolia eliformis, Sauss. Ann. Soc. entom. France, (3) vi. p. 215 (1858). ♂.

I have taken both sexes at Kandy under circumstances which leave no doubt as to the identity of the species, though not actually *in coitu*.

Scolia patara, Cam.*Scolia patara*, Cam. Journ. Straits Br. Asiat. Soc. xxxvii. p. 83 (1902).

♂.

Scolia thyatira, Cam. *l. c.* p. 138 (1902). ♂.

S. patara differs from *thyatira*, as far as I can see, only in the absence of the small yellow marks at the base of the clypeus. The idea of founding a species on such a distinction in this group without the amplest evidence is unreasonable. The difference in the neurulation at the apex of the radial cell noticed by Cameron is only imaginary. I have seen a specimen of each labelled "type" by Cameron himself in the National Collection. I consider that descriptions of male *Scoliinae*, where the female is unknown, are seldom useful, and should only be published after comparison of long series, if at all. I must also protest against the very objectionable habits of some authors as regards types; there should be one specimen only marked as the type of a species, and not every specimen which has been seen by the author. The commercial value of a "type" is unfortunately the cause of much rash and unscientific description and of lax habits in the marking of types.

Scolia wahlbergii, Sauss.*Lacosi wahlbergi*, Sauss. Stett. ent. Zeit. xx. p. 183 (1859). ♀.*Scolia wahlbergi*, Sauss. et Sichel Cat. spec. gen. *Scolia*, p. 94 (1864). ♀.

♂. Niger, punctatus, albo-pilosus; clypeo macula obliqua utrinque, orbite exteriori anguste, interiori sub emarginatione oculorum flavis; flagello aurantiaco; alis fusco-violaceis, abdomine iridescenti.

Long. 14 mm.

♂. Clypeus with a few large punctures, broadly truncate at the apex; interantennal prominence transverse at the apex, with a low longitudinal carina, closely and finely punctured; vertex sparsely punctured, a smooth space below the anterior ocellus. Antennæ about as long as the head, thorax, and median segment combined. Thorax very closely but not coarsely punctured; median segment widely and shallowly emarginate posteriorly. First abdominal segment almost as broad as the second, much broader than long, broadly rounded at the base, with a minute and very short carina in the middle at the base. The three anal spines are long. The abdomen is less closely punctured than the thorax, the segments are clothed with white pubescence, thinly on the

basal, more thickly on the apical segments, with the apical margins of the segments indistinctly ciliated. There are a few fulvous hairs on the disc of the mesonotum and on the clypeus. The yellow colour on the inner margin of the eye extends upward to the emargination which is wholly yellow. Radial cell broadly rounded at the apex, extending very little beyond the second cubital cell.

This beautiful species seems to be common round Lake Nyassa, many specimens having been sent by Mr. S. A. Neave (A. E. R. C.) captured in February and March on the south-west shore and on the Upper Shiré. There are also specimens in the Berlin Museum from Langenburg.

Scolia (Dielis) collaris, Fabr.

Tiphia collaris, Fabr. Syst. Ent. p. 354. ♀.

Scolia senilis, Fabr. Ent. Syst. ii. p. 237. ♂.

Scolia eriophora, Klug, Symb. phys. iii. p. 14. ♂.

The male of this species is very variable, though the form *eriophora* seems to be tolerably constant in the localities in which it is prevalent. In the localities in which the form *senilis* is prevalent, varieties showing more or less tendency to orange-red abdominal bands frequently occur. The localities for the species in the British Museum collection range from the Gambia River to Karachi. The male form *senilis* occurs throughout North Africa from Mogador to Tripoli, there being no specimen in the collection from those localities with the abdominal bands at all strongly developed. In Egypt, Arabia, Baluchistan, and Karachi *eriophora* seems to be constant, and may be called the Eastern form of the male; but a considerable series from Gibraltar and a few specimens from the Gambia are all *eriophora*. The same form also occurs throughout East Africa as far south as Mashonaland and in Madagascar as the male of *Scolia cælebs*, Sichel; which may be looked on as the Ethiopian race of *collaris*. Saussure suggests that *S. dimidiatipennis*, Sauss., is also a form of the female, but apparently the two forms occur together on the Gambia, and in other localities *cælebs* and *dimidiatipennis* seem to occur together, though larger collections and more accurate data are needed before certainty can be reached. The male of *dimidiatipennis* is scarcely to be distinguished from the form *senilis*, though more strongly glossed with blue on the abdomen.

Scolia (Dielis) fasciatella, Klug.*Scolia fasciatella*, Klug, Symb. phys. iii. p. 17 (1832). ♂.*Elis aureola*, Klug, Symb. phys. iii. p. 20 (1832). ♀.*Colpa dimidiata*, Lepel. Hist. nat. Insect. Hym. iii. p. 549 (1845). ♀.*Hab.* Mogador to Karachi.

There can, I think, be no doubt, after comparison with the nearly allied Ethiopian forms, that *fasciatella* and *aureola* are sexes of one species. It appears to belong to the desert fauna, and is in the British Museum from Mogador, Harkeko, and Karachi. By almost all authors a mistake has been made in confusing it with a common Ethiopian species, in which the mesonotum is highly polished and almost without punctures and the wings strongly infuscated along the costal margin. I consider that the descriptions of Klug and Lepeletier both apply to the North African form, and cannot find that the Ethiopian species, which is distinct from *felina*, Sauss., has received a name. Saussure's description applies to the Ethiopian species, as also does Tullgren's.

Scolia (Dielis) hyalina, Klug.*Scolia hyalina*, Klug, Symb. phys. iii. p. 18 (1832). ♀.*Elis (Dielis) klugii*, Sauss. et Sich. Cat. spec. gen. *Scolia*, p. 172 (1864). ♀.

The male of this little-known desert species is still unknown. It may possibly prove to be *antennata*, Klug, which occurs with *hyalina* ♀ from Mogador to Karachi. Saussure looked on *antennata* merely as a variety of *fasciatella*, and he may be right, both forms having the recurrent nervures nearer together than is usual. It seems to me, however, that the claspers of *fasciatella* are distinctly broader than in *antennata*, though the genitalia are otherwise very similar. In the Escalera collection from Mogador, *hyalina* ♀ was associated with *S. (Dielis) villosa* ♂; but the differences between *hyalina* and *villosa* are very considerable, though *villosa* is so variable that it is quite possible that *hyalina* may be a desert form of that species. But specimens of *villosa* from Biskra in the Saunders collection differ much from the typical form in another direction, the female having the abdomen red; the clypeus shining, sparsely punctured, with short longitudinal striæ at the apex; the third cubital cell well defined, the radial cell shorter and narrower. In Spanish specimens of the

female the clypeus is marked with a strongly margined triangular area, and the third cubital cell is very rarely present; the colour is black in all specimens I have seen, and the spine of the posterior tibia is more strongly spatulate than in other specimens. The form from S.W. Persia has the clypeus finely and closely punctured and the pubescence more golden, but does not differ much otherwise from the Spanish form. The male of the Biskra form has the antennæ two-thirds as long as the costa, the usual length in other localities being little more than one-half the length of the costa; the third abscissa of the radius is scarcely two-thirds of the length of the second transverse cubital nervure, instead of a little longer as in the normal form, the radial cell is shorter on the costa than the stigma and truncate at the apex, in the normal form very broadly rounded at the apex and longer than the stigma; the fifth dorsal segment is without an apical band and the seventh dorsal segment is red. The shape of the third cubital cell in Albanian specimens is similar to that in Biskra specimens, and the red form of the female seems to be prevalent in Albania.

Further observations on the desert forms are needed.

Scolia (Dielis) lindenii, Lep., subsp. *ceylonica*, Kirby.

Campsomeris ceylonica, Kirby, Trans. Ent. Soc. London, p. 452 (1889). ♂ (nec ♀).

This seems to me to be the Ceylon form of *lindenii*; but the male differs from the typical form in the more elongate form of the three basal abdominal segments, the fulvous colour of the abdominal bands and the legs, and the more distinct dark patch at the apex of the fore wing. The female differs from the form of *lindenii* with fulvous pubescence in the smooth area on the disc of the mesonotum and on the middle of the scutellum, and in the greater development of the dark apical patch on the fore wing. The female described by Kirby as *ceylonica* is really a variety of *iris*, Lep., and is not the same species as the male. I have taken *ceylonica* ♂ coupled with *lindenii* ♀ at Kandy, and can therefore speak with absolute certainty.

S. prismatica, Sm., seems to be a variety of *lindenii*.

Kirby's mistake in associating the sexes is not surprising, as the colour is very similar.

Scolia (Dielis) tasmaniensis, Sauss.

Elis tasmaniensis, Sauss. Mém. Soc. phys. et hist. nat. Genève, xiv. p. 61 (1854). ♀.

Elis (Dielis) formosa, Sauss. et Sich. Cat. spec. gen. *Scolia*, p. 209 (1864), ♀ ♂; Turn. Ann. & Mag. Nat. Hist. (8) iv. p. 178 (1909) (nec Guérin).

I was wrong in following Saussure's identification of this insect. Guérin's type was from New Ireland and has the second recurrent nervure incomplete. This species is represented in Queensland by *Scolia (Dielis) subopaca*, Turn., which may prove to be absolutely identical with *formosa*; but as I have not seen specimens of that species from the typical locality it is possible that there may be subspecific distinctions. Mantero (Ann. Mus. Civ. Storia Nat. Genova, xl. p. 592, 1900) and Schulz (Berlin. ent. Zeitschr. xlix. p. 212, 1904) refer to specimens of *formosa* from New Guinea, but without noticing the error in Saussure's identification of the Australian species.

In addition to colour differences, which, though small, seem fairly constant, the male *tasmaniensis* may be distinguished from *radula*, Fabr., and *carinifrons*, Turn., by the length of the antennæ. Compared with the length of the costa of the fore wing, this is in *tasmaniensis* as 10 to 14, in *radula* as 9 to 14, and in *carinifrons* as $5\frac{1}{2}$ to 10 in millimetres. The genitalia of *tasmaniensis* and *radula* are very different. The antennæ of *carinifrons* ♂ are much shorter than in the other species.

Scolia (Dielis) limosa, Burm.

Scolia limosa, Burm. Abh. naturf. Ges. Halle, i. pt. 4, p. 23 (1853). ♀ ♂.

Elis mexicana, Cam. Biol. Centr.-Amer. pt. 112, Hymen. ii. p. 232 (1893).

Scolia rokitanskyi, D. T. Cat. Hym. viii. p. 179 (1897).

Cameron's name is undoubtedly a synonym of this common Mexican species.

Scolia (Dielis) fallax, Sauss.

Elis fallax, Sauss. Mém. Hymen. i. p. 62 (1854), ♂.

Campsomeris hyalina, Lep. Hist. nat. Insect. Hym. iii. p. 497 (1845) (nec Klug).

Klug's name *hyalina* has to be retained for the North-African species, having priority. The name of the well-known S. American species must therefore be changed. Saussure preferred to rename Klug's species *klugii*, but this cannot stand.



Turner, Rowland E. 1911. "Notes on fossorial Hymenoptera. V." *The Annals and magazine of natural history; zoology, botany, and geology* 8, 602–624.

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