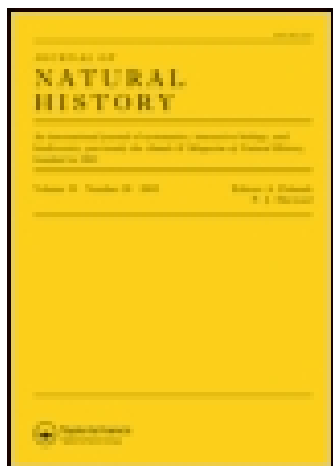


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### X.—Descriptions of new species of fossorial Hymenoptera from the Khasia Hills, Assam

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an entirely different group. The name *Tonatia* (Gray, 1827) was rightly applied by Mr. T. S. Palmer\* in 1898 to the genus called *Lophostomâ* (d'Orb., 1847) in Dobson's Catalogue, of which the type is Spix's species.

*Tonatia amblyotis*, Wagn.

Examples of this rare bat have been received by the Museum from Bogava, Chiriqui, Panama (*H. J. Watson*), and Bogota (*G. D. Child*). It may be noticed that by a mistranslation of a sentence in Peters's description ("durch ein kurzes Band mit der Stirn verbunden") the species is erroneously stated by Dobson to have a connecting-band across the forehead between the ears. The structure described by Peters is the usual small basal band behind each ear present in all members of the group. The point is of importance, as Dobson has placed the character in a prominent position in his synopsis of species.

X.—*Descriptions of new Species of Fossorial Hymenoptera from the Khasia Hills, Assam.* By P. CAMERON.

THIS paper is in continuation of previous papers published in this Magazine on the Hymenoptera of the Khasia Hills. The types of the species are in the Collection of Mr. G. A. J. Rothney.

*Ampulex Rothneyi*, sp. n.

Black, with some violet patches on the head and thorax, the basal half of the hinder femora red; the wings smoky, the stigma and nervures black; the front wings with two cubital cellules. ♀.

Long. 16–17 mm.

Antennæ black, bare; the third joint nearly as long as the fourth and fifth united. Head well developed behind the eyes and not much narrowed there; the vertex is strongly punctured, more closely and strongly in front than behind; the front is coarsely and irregularly punctured; there is a longitudinal keel down the centre with some less distinct oblique keels running into it. Prothorax stout, twice longer than wide; the base is narrowed and is separated from the main body by a curved furrow. Mesonotum with two irregular transverse rows of furrows on the basal half. The

\* Pr. Biol. Soc. Wash. xii. p. 111 (1898).

three central keels on the median segment are of equal length and reach to the apical area, which has two irregular longitudinal and two irregular transverse keels; the central part has the transverse striæ stout, those on the part bordering it closer and finer; on the two outer they are stouter and more widely separated; the lateral teeth are broad at the base. The upper half of the mesopleuræ is stoutly irregularly longitudinally striated; the lower strongly and closely punctured. The basal part of the metapleuræ irregularly shagreened; the lower irregularly obliquely striated. Legs black; the four anterior tibiæ and femora more or less blue in front; the tarsi are long and slender, with the joints not dilated. Abdomen black, very smooth and shining. The basal segment of the abdomen is narrowed into a narrow distinct petiole, which is clearly separated from the greatly dilated apical part, and it is nearly as long as it. The species is related to *C. Constanceæ*, Cam., but is much larger than it or *A. ruficornis*, Cam.

*Ampulex trichiosoma*, sp. n.

Blue, marked with greenish tints; the wings fuscous, with two transverse cubital nervures; the head obliquely narrowed behind the eyes; the pleuræ coarsely reticulated.

Long. 13 mm. ♀.

Antennæ black; the scape dark blue; the third and fourth joints equal in length. The vertex and the upper half of the front are dark blue; they are strongly irregularly striated, and irregularly punctured on the sides; the striæ behind and on the sides of the ocelli are curved, on the front they are twisted. The face and clypeus are minutely punctured; the centre of the clypeus is keeled and ends at the apex in a short blunt tooth. The part behind the eyes is straight and is obliquely narrowed, and ends in a distinctly separated neck, which is not much more than one half of the space behind the eyes. Mandibles black. The head is somewhat thickly covered with long black hair. Prothorax two-thirds of the length of the mesothorax, distinctly but not very closely punctured and covered with long black hair; the prosternum rugosely punctured. Mesonotum strongly, irregularly, and deeply punctured; the punctures run into reticulations behind; the mesopleuræ coarsely closely reticulated. Mesosternum coarsely transversely reticulated. Median segment transversely striated; the three central keels reach to the base of the apical third of the segment; the keel outside these reaches to the apex of the

segment, which ends laterally in a stout, somewhat triangular tooth; the keel outside this again is shorter, reaching only to the base of the lateral tooth. Metapleuræ in the middle stoutly irregularly reticulated. Legs dark blue, thickly covered with long black hair; the tarsal joints are long and slender, and not much dilated at their apices. Abdomen shining, with a more distinctly blue tint than the thorax; the petiole is sparsely, minutely punctured; the second segment is, if anything, more closely punctured than it at the base, at its apex the punctures are stronger and more numerous; the apical segments are coarsely rugosely reticulated and punctured. Wings fuscous, with a distinct violaceous tint; the first transverse cubital nervure is obliterated entirely.

*Ampulex ruficoxis*, sp. n.

Bluish green, sparsely punctured; the four posterior femora, trochanters, and coxæ red; the wings fuscous violaceous, with three transverse cubital nervures; the front with three longitudinal keels. ♀.

Long. 13 mm.

Antennæ black, slender, bare; the third joint fully one-third longer than the fourth. Head bare; the vertex is sparsely punctured; on the front a keel reaches from the ocelli to the face and one, two thirds of its length, runs to each antenna. Mandibles black, bare, rufous towards the apex. Prothorax bare, in length about one-third longer than the width at the apex; there is a distinct longitudinal furrow in the middle. Mesonotum almost impunctate; the mesopleuræ with longitudinal rows of deep punctures. The central keel on the median segment is longer than those on either side of it; the outer one unites to that bounding the apex; the striæ are moderately stout and close; the apical slope is shagreened and, on the upper part, is obscurely obliquely striated; the teeth are stout and bluntly rounded at the apex. The upper part of the metapleuræ is closely obliquely striated; the lower impunctate. Legs dark blue; the four hinder femora, except at the apex, the four hinder trochanters, the hinder coxæ, and the greater part of the middle pair vermilion-red. Wings fuscous violaceous, paler at the base; the three transverse cubital nervures are distinct; the first two are oblique, parallel, and straight. Abdomen smooth and shining; blue for the greater part; the narrowed basal half of the petiole is red, like the femora; the second segment is one-third longer than the width at the apex; all the segments are impunctate.

A distinct species. The characteristic features are the red coxæ and trochanters, the smooth head and thorax, the longish slender antennæ, and the three distinct longish keels on the front.

*Cerceris fortinata*, sp. n.

Nigra, facie clypeoque flavis; lineis duabus pronoti, tegulis, postscutello abdominisque segmento 3<sup>o</sup> late rufis; alis hyalinis, anticis fumatis. ♀.

Long. 12 mm.

Antennæ black, the scape brownish beneath, the former minutely punctured and covered with long white hair. Head black, the face, the inner orbits broadly on the inner side, the clypeus and oral region, except at the apex, lemon-yellow; front and vertex closely and strongly punctured and sparsely covered with longish white hair; the yellow-coloured part more sparsely punctured and (especially laterally) thickly covered with silvery pubescence; the apex of the clypeus slightly roundly projecting in the middle and depressed. Mandibles black, with a yellow mark at the base. Pronotum and mesothorax strongly and closely punctured; the propleuræ stoutly striated, the metapleuræ at the base above obliquely striated, below aciculated; the apex rugosely punctured. On either side of the pronotum, behind, is a broad band; the tegulæ and the postscutellum are rufous. The basal area on the median segment is triangular, is closely longitudinally striated, and has the basal half furrowed in the middle, the furrow being continued to the apex as an elongated area. Legs black, the knees and anterior tibiæ and tarsi in front rufo-testaceous, as are also the fore claws; the spurs are pale. Wings hyaline; the fore wings broadly smoky in front, especially towards the apex, on the radial and cubital cellules. Abdomen black, the third segment, except for a broad curved mark at base, rufous; the fifth segment is rufous at the apex. Pygidium irregularly wrinkled; the apex smoother and dull rufous; the hypopygium is deeply incised in the middle at the apex, the sides forming stout teeth.

Comes into Bingham's Section C *a c*<sup>2</sup>, near *C. unifasciata*.

*Cerceris erythropoda*, sp. n.

Head and thorax rufous, largely marked with black; the area on median segment black; the petiole, the base of the second segment and the apex of the third rufous; the legs

rufous; the wings for the greater part smoky fuscous; the stigma and the apex of the costa fulvous. ♀.

Long. 17 mm.

Antennæ black; the basal two joints and the greater part of the third rufous. Head dark rufous; the front except below, the vertex except a large semicircular mark behind the ocelli, and the occiput broadly in the centre, black. Front and vertex closely punctured; the antennal keel stout, longish, and sharply pointed on the top. The cheeks are closely minutely rugosely punctured; the face and the centre of the clypeus are shining and distinctly but not closely punctured; the sides are punctured like the cheeks. Mandibles black, broadly rufous in the centre at the base. The upper part of the thorax is dark rufous, except the sides of the scutellum and postscutellum, and the area on the median segment, which are black; the pro- and mesopleuræ are black, except above. The thorax is closely and minutely punctured, and is thickly covered with bright pale fuscous pubescence. Legs rufous; the apex of the hinder tibiæ all round, the apical half on the outer side, and the tarsi black. The wings have the radial and cubital cellules darker coloured than the others. Abdomen black; the petiole, a band, rounded at the apex, on the base of the second segment and a narrow band on the apex of the third rufous. The third and following segments are closely and distinctly punctured; the basal two are less strongly; the pygidium opaque, irregularly reticulated; the fourth and fifth ventral segments are thickly covered with fuscous pubescence; the incision on the last segment is nearly as wide as it is long. The sides of the last segment are irregularly largely punctured. The petiole is short, broad at the sides, and nodose.

The apical margins of the abdominal segments are depressed and smooth. The cheeks are covered densely with a golden pile, as are also the lower inner orbits. The area on the median segment is closely punctured and has a narrow smooth line down the middle. On the lower side of the mesopleuræ, near the apex, is a short, rounded, not very prominent, tubercle. The apex of the clypeus is roundly and deeply arched in front.

Comes near to *C. dentata*, Cam., but, apart from the structural differences, it may be known from it by the great extension of the rufous colour and the absence of yellow markings.

*Crabro assamensis*, sp. n.

Niger, nitidus, linea pronoti, scutello, postscutello basi apiceque abdominis flavis; coxis posticis subtus dentatis; alis hyalinis. ♂.

Long. 8 mm.

Antennæ black, the scape lemon-yellow beneath; the base of the flagellum (the basal four joints) covered on the underside with long soft white hair. Front and vertex shining, smooth, plumbeous black; the frontal furrow indistinct; ocelli . . .; the face and clypeus thickly covered with silvery pubescence; the apex of the clypeus projecting in the middle and transverse. Mandibles yellow, black at the base and apex. Thorax smooth and shining, above with a plumbeous line; a broad line on the edge of the pronotum, slightly and roundly narrowed in the middle behind; the scutellum and postscutellum and the tubercles yellow. The "enclosed space" on the median segment is smooth and shining, and has a shallow furrow down the middle; the apical slope is aciculated irregularly on the upper edges; the middle furrow is deep; the middle and the sides on the apical part (almost the half) are distinctly keeled; pleuræ smooth and shining; the mesopleural furrow almost entirely and the lower half of the metapleural are crenulated. Sternum thickly covered with white hair. Legs black; the apex of the trochanters, the lower part of the four anterior femora, the outer side of the four anterior tibiæ, and a line on the outer side of the posterior, yellow; the middle tarsal joints are more or less rufous, as are also the calcaria; on the inner side of the hinder coxæ at the base is a broad tooth, narrowed and rounded at the apex; the intermediate tarsi have the middle joints spined. The petiole above has the sides and apex lemon-yellow; the black at the apex is dilated in the middle; below the apex is broadly yellow; the apex of the penultimate and the whole of the last segments are yellow; on the apex of the penultimate ventral segment are, in the middle, two broad projecting spines, which are narrowed towards the top; the base of the hypopygium is broadly raised at the base.

The female may have an irregular mark on the sides of the second and third abdominal segments, that on the third being the larger and more irregular; there may be a minute mark on the sides of the fourth; the large mark on the scutellum may be more or less incised at the apex; the pygidium is for the greater part yellow, and there may be



yellow on the penultimate segment. The quantity of yellow on the tibiæ and on the femora in the male varies.

*Crabro melanotarsis*, sp. n.

Niger, scapo antennarum, linea pronoti, scutello, postscutello, femoribus, tibiis lineaque basi abdominis segmenti 3<sup>i</sup> flavis. ♀.  
Long. 12 mm.

Scape of antennæ yellow; the flagellum covered with a pale down. Front and vertex alutaceous, sparsely covered with longish fuscous hair and with a golden down. Ocelli . . . Face and clypeus thickly covered with golden-silvery pubescence, keeled in the middle; the apex of the clypeus transverse. Mandibles black. Thorax alutaceous, neither punctured nor striated; a broad band on the pronotum, the tubercles, the scutellum, and postscutellum yellow; there is a longitudinal furrow above the middle of the mesopleuræ. The "enclosed spot" on the median segment is alutaceous, there are a few striæ outside it; the middle furrow is narrow, but distinct. Legs black; the femora and tibiæ yellow. Wings smoky; the stigma fulvous; the nervures darker. Abdomen black, except for a yellow band near the base of the third segment; the pygidium is shining, its base bears large deep punctures; the middle is almost bare, the apex has a few small punctures; the penultimate segment bears a golden down.

Belongs to Bingham's Section B, in which it might form a new division *f*. "Mesonotum opaque, alutaceous," not distinctly punctured as in *c*.

*Crabro fulvopilosellus*, sp. n.

Niger, flagello antennarum subtus testaceo; abdomine flavo maculato, medio dense fulvo piloso; alis fusco-hyalinis. ♀.  
Long. 14 mm.

Scape of antennæ lemon-yellow; the base of the flagellum rufo-testaceous, the rest of it testaceous, black above. The front is closely punctured; the vertex less closely and not quite so distinctly; the front is densely covered with golden pubescence; the vertex is sparsely covered with pale fuscous, behind with golden, pubescence; the outer orbits densely with silvery pubescence. Ocelli . . .; below them is a shallow furrow. Clypeus keeled in the middle, densely covered with pale golden pubescence; its sides are waved; below the eyes the pile is of a brighter golden colour. On the pronotum is an interrupted yellow band; there is a yellow mark

on its lower edge, a yellow mark on either side of the scutellum at the base, and the postscutellum is for the greater part yellow. The mesonotum is closely obliquely striated at the base; at the apex the striæ become longitudinal. The postscutellum is longitudinally striated. The "enclosed space" on the median segment has, on either side, three oblique keels, and there is also one on the outer side; the sides are irregularly obliquely striated, stoutly on the top, indistinctly and irregularly below. Propleuræ irregularly and indistinctly striated; the mesopleuræ strongly longitudinally striated, the perpendicular furrow with a few striations; the metapleuræ closely striated. Wings fuscous hyaline; the nervures black. Legs black; the four posterior trochanters are for the greater part yellow; the four posterior femora are broadly lined with yellow below; the middle have a yellow mark on the apex above; the four anterior tibiæ are more or less testaceous in front; the calcaria are dark testaceous; the base of the metatarsus is yellow. Abdomen black; the second and following segments marked laterally with irregular yellow marks, the mark on the second being the larger; on the penultimate is a broad transverse yellow band; the apex of the second narrowly, and the third and fourth are broadly, covered with dark fulvous pubescence; the pygidium is depressed at the apex, and has, on the sides, some large deep foveæ; the sides are sharply keeled; at the base of the depressed part there is, in the centre, a small yellow mark.

Belongs to the section with non-petiolated abdomen, and comes near to *C. auricomus*, Bingham (Faun. Br. Ind., Hymen. i. p. 322).

*Crabo khasianus*, sp. n.

Niger, basi mandibularum, scapo antennarum, linea pronoti, scutello, postscutello, pedibus lineisque abdominis flavis; pedibus flavis, coxis nigris; alis fumato-hyalinis, stigmatе nervisque fulvis. ♀. Long. 15 mm.

Comes nearest to *C. auricomus*, Bing.: that species may be known from it by having the base of the median segment reticulated; the pronotum has only "indications" of a median groove, the tibiæ have only "very few spines," and the pronotum has no yellow line. Antennæ black, short; the scape straw-yellow, bare, shining. Head large, broad, largely developed behind the eyes; the face, clypeus, front, and hinder orbits covered with golden pubescence; the vertex has a bluish tinge, is shining, obscurely punctured, in front

sparsely, behind thickly, covered with dark fulvous hair; the upper part of the front indistinctly, the lower more distinctly furrowed. Mandibles yellow, except at the apex, their base rugose; the eyes are oblique on the inner side above; the ocelli . . . Thorax black; the apex of the pronotum, tegulæ, scutellum, its tubercles, the apex of the postscutellum, the pleural tubercles, and an oblique mark, more than double their length, yellow. The hair on the thorax is dense, short, dark fulvous above, paler on the sides; the furrow on the centre of the pronotum is deep and moderately wide; the base of the mesonotum is strongly and closely transversely striated, the striæ are curved at the sides. Scutellum strongly and closely punctured. Median segment opaque; its base obscurely longitudinally striated; the apex has an oblique slope, is furrowed narrowly down the centre, and, at the apex, is irregularly transversely striated. Propleuræ opaque, the lower part in the middle with some stout longitudinal keels; mesopleuræ shining, finely striated, more strongly and closely below than above; the metapleuræ finely and closely obliquely striated. Mesosternum closely punctured and thickly covered with fulvous hair. Legs yellow, their coxæ black; the apices of the tarsi and the hinder knees blackish; the hinder tibiæ stoutly and thickly spinose. Wings hyaline, with a distinct fulvous tint; the stigma and nervures are dark fulvous. Abdomen black, covered with a fulvous pile; the base of the petiole is triangular; there is a transverse yellow line near the apex of the petiole, a large transverse line, roundly incised at the apex, on the middle of the second segment, a narrower one in the centre of the third and fourth, both incised in the middle at the base, and a broader one on the sixth, yellow. The pygidial area is shining, its sides sharply margined, the basal two-thirds with large deep punctures, each having a long pale hair; the apex is closely finely rugosely punctured. The ventral surface is black; in the centre of the second segment are four small yellow marks, the two central being placed more behind than the others; the apices of the second and third segments are obscure rufous.

The colour of the hair in *C. auricomus* is not stated; the striæ on the mesonotum are called "very fine and regular," the scutellum is said to be "slightly punctured" only, the wings "hyaline," in all of which points it differs from *C. khasianus*.

The male is similarly coloured; the middle joints of the antennæ are broadly dilated on the underside, and the flagellum is brownish on the underside. The apex of the

median segment is, in some examples, distinctly transversely striated.

This is probably a variable species as regards coloration, size, and sculpture.

*Psen nigrinervis*, sp. n.

Niger, facie clypeoque dense argenteo pilosis; petiolo lævo; alis hyalinis, nervis stigmatæque nigris. ♀.

Long. 11 mm.

Antennæ black; the scape sparsely covered with longish white hair; the flagellum almost bare. Head shining, the face, clypeus, and the outer orbits, except at the top, densely covered with long silvery hair; the front and vertex finely and closely punctured, more sparsely near the eyes; they are covered with long black hair; the front is not furrowed. Mandibles sparsely covered with white hair, and rufous before the teeth. Pro- and mesothorax sparsely covered with long fuscous hair; the metathorax, except at the base, more thickly with long white hair; the mesonotum closely and moderately strongly punctured; the scutellum impunctate; the basal area on the median segment strongly longitudinally irregularly striated, the central more widely separated than the lateral; the apex of the segment has an oblique slope; in the centre above there is a shallow area, rounded at the top; the apex with the sides bordered by oblique keels; the middle with a deep sharply bordered furrow, which becomes wider and deeper towards the apex; the sides have three stout oblique keels. Pro- and mesopleuræ smooth, the base of the latter with a crenulated furrow; the upper part of the mesopleuræ roundly raised and bordered below by a narrow furrow. The apex of the metapleuræ is reticulated and bordered on the inner side by a stout keel; the base is deeply depressed. Mesosternum smooth, shining, and covered with long fuscous hair; the broad middle furrow has a central keel. Legs covered with longish white hair; the calcaria, spines, and claws rufotestaceous. Wings hyaline, with a slight fuscous tinge; the first cubital cellule is half the length of the third, and receives the recurrent nervure in the basal fourth; the second recurrent nervure is interstitial. Abdomen, including the petiole, smooth and shining; the pygidial area closely aciculated, the sides with a few punctures margined by a distinct keel.

The transverse median nervure is not quite interstitial, it being received shortly behind the transverse basal; the apex

of the clypeus projects outwardly and is slightly incised in the centre; the two longitudinal furrows on the basal half of the mesonotum are indistinct; there is a narrow keel on front extending from the front ocellus to the antennæ. The keels on the median segment are very irregular and more or less broken or disconnected; there is no central depression; the third joint of the antennæ is about one-third longer than the fourth. There is no clearly defined area on the base of the median segment. The species is allied to *P. orientalis* and *P. reticulatus*.

*Tachytes andreniformis*, sp. n.

Nigra, capite thoraceque dense aureo pilosis; pedibus rufis, coxis, trochanteribus basique femorum nigris; alis flavo-hyalinis, apice fere fumatis; cellula cubitali 2<sup>a</sup> duplo longiore quam 1<sup>a</sup>. ♀.  
Long. 17 mm.

Scape of antennæ brownish beneath, sparsely covered with long fuscous hair; the flagellum thickly covered with a pale down. Vertex covered with long fuscous hair, which does not hide the skin; the front, face, and clypeus thickly covered with longish bright golden hair, hiding completely the texture. Base of mandibles covered with pale golden pile, the middle is rufous; palpi bright rufo-testaceous. Thorax covered all over with bright fulvous hair; the texture under the hair is granular. On the mesosternum behind the transverse keel is a narrower longitudinal one; the metasternal area has a narrow keel, narrowed in the middle down the centre, the apex is depressed and rounded. Legs bright rufous, the coxæ, trochanters, and sometimes the base of femora, black; the tibial and tarsal spines are rufous. Wings distinctly yellowish hyaline; the nervures rufous, the apex slightly infuscated; at the top the first cubital cellule is equal in length to one-third the length of the second; the first transverse cubital nervure is obliquely curved above the lower fourth; the second recurrent nervure is received shortly beyond the middle of the cellule. Abdomen black, shining, the basal segment thickly covered with fuscous hair; the hypopygium is thickly covered with bright fiery-red pubescence; the epipygium is distinctly incised on the apex, the sides of the incision are somewhat oblique. The second recurrent nervure is roundly curved, not angled anywhere.

Agrees in form and coloration with *T. fulvopilosa*, which may be known from it by the first cubital cellule being not

much shorter than the second, by the lower half of the first transverse cubital nervure being roundly curved, and by the lower part of the second recurrent nervure being angled.

*Philanthus dentatus*, sp. n.

Niger, clypeo, basi mandibularum maculisque duabus metanoti flavis; alis hyalinis, nervis stigmaticque testaceis. ♀.  
Long. 13-14 mm.

Antennæ black, the apex brownish beneath; the base of the flagellum distinctly narrowed, shining. Head black; the clypeus, a curved mark between the antennæ, the inner orbits broadly from the incision, the mandibles, except at the apex, the maxillæ, and a small mark in the middle behind the eyes, yellow. The clypeus is broadly and shallowly depressed in the middle; the apex is slightly depressed; black, marked with some indistinct striæ and roundly projecting; the sides above in the centre armed with stout black teeth. The vertex bears shallow punctures, which are more widely separated in the middle; the front is closely longitudinally punctured; the front ocellus anteriorly and the hinder ocelli laterally are bordered by a smooth shining depression; the outer orbits, except at the top, are impunctate. Thorax black, a small spot on the edge of the pronotum, the apex of the tubercles, a small mark behind them, and two small spots on the apex of the median segment, yellow. The pronotum above is transverse, raised and projects triangularly at the sides, and finely rugose. Mesonotum strongly and closely punctured. Scutellum shining, smooth, the sides and apex punctured. Postscutellum closely punctured. Median segment closely punctured; the base more closely than the apex; the base with a shallow indistinct furrow in the middle; the apex with a much wider deeper depression, which is smooth and shining, especially at the apex. Pleuræ closely punctured; the mesosternum less strongly punctured and more shining. Legs black; the apex of the femora, tibiæ, and the tarsi yellow in front, the posterior femora at the base yellow all round; the spines on the tibiæ and tarsi are numerous, stout, and sharp. On the apex of the petiole are two rufous marks with a small yellow mark on their outer side; the second segment is rufous, with a wedge-shaped mark in the middle, the narrow end being at the base, and at the apex, on the sides, is a yellow mark; the third, fourth, and fifth segments are lined with yellow at the

apex; the last segment is shining, black, and bears a broad row of large punctures outside the middle.

The petiole is longer than the second segment, is narrow at the base, becoming gradually, but not much, wider towards the apex; the second segment has a narrow smooth depression at the base; the ventral segments are yellow on the sides. The eyes are distinctly emarginate on the inner side above.

A distinct species. In Bingham's arrangement (p. 294) it would come in near *depredator* and *basalis*.

*Pseudagenia erythropoda*, sp. n.

Nigra, dense aureo-pilosa; pedibus rufis, coxis trochanteribusque nigris; alis fusco-violaceis. ♀.  
Long. 18-19 mm.

*Hab.* Sikkim, Khasia Hills, and Madras.

Antennæ entirely black, covered with a depressed pile. Head densely covered with golden pubescence; the hinder ocelli are separated from the eyes by a greater distance than they are from each other. Clypeus broadly rounded at the apex, bare, the rest covered with golden pubescence. Mandibles black or dark rufous, and covered thickly with depressed dark fulvous pubescence; the pubescence of variable tint. Thorax densely covered with depressed golden pubescence; the median segment strongly transversely striated, broadly furrowed down the centre, the furrow becoming wider towards the apex; the metapleuræ above obliquely striated. Legs rufous; the coxæ and trochanters black; the apices of the tarsal joints more or less black; the hinder spurs are black, at the base thickly covered with fulvous pubescence. Wings dark violaceous, the hinder pair lighter in colour; the transverse median nervure is received at some distance in front of the transverse basal; the first recurrent nervure is received at the base of the apical third, the second near the apex of the basal third of the cellule. Abdomen pruinose; the pygidial area is clearly defined, smooth, and shining, and is fringed laterally with long pale fulvous hair.

Comes nearest to *P. danaë*, which differs from it, *inter alia*, in having the scape of the antennæ and the trochanters ferruginous. The tarsi are rather thickly covered with short stiff spines; the amount of black on the hinder pair varies. Except that the basal cellule is paler, the fore wings are uniformly coloured. The species shows an approach to *Macromerus*.

*Pseudagenia montanata*, sp. n.

Nigra, femoribus posticis rufis; alis fere hyalinis, nervis nigris, cellula cubitali 2<sup>a</sup> longiore quam 1<sup>a</sup>. ♀.

Long. 13-14 mm.

Face and clypeus densely covered with silvery pubescence; the sides of the clypeus oblique; the apex depressed, smooth, and shining; the base of mandibles thickly covered with silvery pubescence. Palpi black, covered with silvery pubescence; the apex of mandibles piceous. Eyes scarcely converging above. Thorax thickly covered with silvery pubescence; scutellum and postscutellum aciculated. Median segment strongly, somewhat irregularly, but not very closely, transversely striated; the basal part broadly, but not deeply, furrowed down the middle. Pleuræ pruinose; the oblique furrow on the mesopleuræ narrow, but distinct; the part of the metapleuræ above the furrow is obliquely striated. Legs black, pruinose; the hinder femora, except at the extreme base and apex, red. Wings hyaline, with a slight fuscous tinge: the first cubital cellule is distinctly shorter than the second above and beneath; the first transverse cubital nervure is roundly curved; the transverse median nervure is widely remote from the transverse basal; the accessory nervure in the hind wing is shortly appendiculated. The wings have a slight, but distinct, fulvous-violaceous tinge. The tibiae are slightly, the tarsi more thickly spinose. Tegulae black. The abdomen is as long as the thorax; the base of the petiole is distinctly narrowed; the apical segments and, to a less extent, the basal are densely pruinose. The upper part of the propleura is broadly rounded; this dilated part is bordered at the apex below by a curved furrow, the part below this is roundly dilated, but not so much as the lower part. The apical part of the pronotum is transverse in the centre at the base. The claws are toothed at the base.

Comes nearest to *P. stulta*, Bingham.

*Pseudagenia gnoma*, sp. n.

Nigra, femoribus posticis rufis; alis hyalinis, macula substigmalati fusca. ♀.

Long. 10 mm.

Face and clypeus densely covered with a silvery pile. The apex of the clypeus depressed, smooth, and shining; the sides oblique to near the middle, which is rounded. Mandible black, broadly rufous before the apex; palpi black,



covered with white pubescence. Eyes parallel, slightly converging at the top and bottom; the hinder ocelli separated from the eyes by double the distance they are from each other. Thorax pruinose; the median segment alutaceous, finely and closely transversely striated, obscurely at the base, more strongly at the apex; on the basal region in the middle is a broad shallow furrow. Legs pruinose, the tibiæ and tarsi spinose; the hinder femora ferruginous, except at the base and apex. Wings hyaline, iridescent, a fuscous cloud at the apex of the stigma, extending to the middle of the discoidal cellule on the inner side of the second recurrent nervure; the first cubital cellule is slightly shorter than the second; the first recurrent nervure is received shortly, but distinctly, in front of the middle, the second near the apex of the basal fourth of the cellule. Abdomen pruinose.

Comes nearest to *P. hypsipyle* in Bingham's Section D, p. 108, but is abundantly distinct.

*Pseudagenia excellens*, sp. n.

Ferruginea, dense aureo-pilosa; metanoto striato; alis fere hyalinis, nervis fuscis. ♀.

Long. 15 mm.

Antennæ of a paler ferruginous colour than the body, bare; the scape covered with short fulvous pubescence; the apical joints blackish. Front and vertex alutaceous, bare; the clypeus covered with depressed golden pubescence. Clypeus roundly convex, the apex smooth, bare, shining; the sides of the apex oblique. Mandibles of a slightly paler tint than the clypeus; the apex black; palpi with only the basal joints pilose. Eyes parallel; distinctly curved on the inner side. The propleuræ before the tegulæ raised, the raised part at the base bounded by a deep furrow; in the centre of the mesopleuræ is a narrow slightly oblique furrow, from its end a broader furrow runs to the bottom, this furrow being dilated at the top and bottom and irregularly striated. Mesosternum black; the sides at the apex roundly tuberculate. Legs of a brighter, slightly paler tint than the body; the apices of the joints of the hinder tarsi black. Wings hyaline, with a distinct fulvous smoky tint; the nervures dark fulvous; the second and third cubital cellules are equal in length on the top; the first recurrent nervure is received in the middle, the second near the apex of the basal third of the cellule; the basal two transverse cubital nervures are straight, oblique; the third is roundly curved.

Abdomen shining, the base of the petiole black; the apex of the pygidium is depressed, smooth, and shining, its sides keeled.

In Bingham's arrangement (Faun. Br. Ind., Hym. i. p. 107) this species would form a new section of A. "Wings yellow, apex infusate." c. Head, thorax, and abdomen ferruginous, the head covered with a bright golden pile.

[To be continued.]

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XI.—*Diagnoses of new Cichlid Fishes discovered by Mr. J. E. S. Moore in Lake Nyassa.* By G. A. BOULENGER, F.R.S.

*Paratilapia nototænia.*

D. XVII 10. A. III 9. Sq.  $36 \frac{3}{12}$ . Lat. l. 23/9.

Five series of teeth in both jaws, outer largest. Depth of body  $2\frac{2}{3}$  times in total length, length of head 3. Snout with convex upper profile, a little longer than the eye, the diameter of which is 4 times in length of head; maxillary extending to below anterior border of eye; 3 series of large scales on the cheek; 11 gill-rakers on lower part of anterior arch. Dorsal spines increasing in length to the last, which measures a little more than  $\frac{1}{3}$  length of head. Third anal spine  $\frac{1}{3}$  length of head. Caudal slightly emarginate. Caudal peduncle  $1\frac{1}{2}$  as long as deep. Scales with finely denticulated border. Brown above, white beneath; a blackish band along each side of the back, above the lateral line; dorsal fin with a regular series of round brown spots between every two rays; ventrals and anal blackish.

Total length 230 millim.

A single badly preserved specimen.

CYRTOCARA, gen. nov.

Allied to *Paratilapia*, but membrane between the dorsal and anal spines with rectilinear edge, not forming lappets, and four spines in the anal fin. Jaws with broad bands of conical slightly curved teeth, the outer enlarged and pointing outwards.

Whether or not the hump on the forehead, from which the generic name is derived, is a sexual character, as in some South-American Cichlidæ, is at present uncertain.