

# THE ANNALS

AND

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INCLUDING

ZOOLOGY, BOTANY, AND GEOLOGY.

(BEING A CONTINUATION OF THE 'ANNALS' COMBINED WITH LOUDON AND  
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CONDUCTED BY

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1901.

- 2 or 3 series of scales on cheek; dorsal spines  
 about  $\frac{1}{3}$  length of head ..... 11. *P. subocellatus*,  
 \*\* Last dorsal spine longest; maxillary [Gthr.  
 not extending to below anterior  
 border of eye; 2 or 3 series of scales  
 on cheek ..... 12. *P. pulcher*, Blgr.  
 3. D. XVIII 7; pectoral  $\frac{4}{5}$  length of head;  
 caudal rounded; 2 series of scales on [Blgr.  
 cheek. .... 13. *P. taniatus*,

XIX.—*Descriptions of Three new Genera and Seven new Species of Hymenoptera from Eastern Asia and Australia.*  
 By P. CAMERON.

ANTHOPHILA.

CTENOAPIS, gen. nov.

The longer joint of the four posterior calcaria pectinated; the spurs bifid; the teeth unequal in length. Labrum deeply or moderately deeply incised in the middle at the apex. Mandibles unidentate. Radial cellule not quite so long as the two cubital cellules together; it is indistinctly appendiculated at the apex, which is moderately acutely pointed. There are two cubital cellules; the second receives both the recurrent nervures; it is narrowed at the top, being there about one third of its length on the lower side. Trophi long, the maxillary palpi?, the labial?-jointed. Antennæ stout; the basal joints of the flagellum broader than long, the apical longer than broad. Eyes long, parallel, reaching near to the base of the mandibles. Ocelli in a curve [••].

The body is only moderately pilose. The legs are stout; the hinder femora, tibiæ, and metatarsus are thickened; the recurrent nervures are received near the transverse cubitals; the transverse basal nervure is interstitial. In the female the hinder tibiæ and the metatarsus are thickly covered with long soft hair; the second and following ventral segments are fringed with long soft hair. The antennæ are placed above the clypeus and shortly below the middle of the eyes; the apical joint of the hinder tarsi is long and curved, longer than the middle three joints united. There is a short distinct longitudinal keel on either side of the mesonotum; the tegulæ are moderately large; there is no area on the base of the median segment; the face and clypeus are bare and flat.

The general form of this genus is somewhat like *Panurgus*, but it cannot readily be confounded with that genus. The

pectinated spurs and tarsi are pretty similar to those of *Ctenoplectra*, but that genus may be known from it by the labrum not being incised, by the transverse median nervure being received distinctly behind the transverse basal, and not interstitial as in the present genus. The two species I have included in *Ctenoapis* are very dissimilar in appearance. I have not a spare specimen to run any risk with to dissect for an examination of the trophi.

*Ctenoapis lutea*, sp. n.

Lutea, albo pilosa; alis hyalinis, stigmatibus luteo, nervis fuscis. ♀. Long. 5 mm.

*Hab.* Ferozopore, Punjab (*Major C. S. Nurse*).

The lower orbits and the clypeus are pale yellow and much lighter in tint than the rest of the head; the clypeus and front are sparsely punctured; the apical third of the mandibles is dark brownish. The scape of the antennæ is sparsely covered with pale hair; the flagellum is almost bare. The mesonotum and scutellum are almost bare; the pleuræ, sternum, and median segment are covered with white pubescence. Mesonotum sparsely punctured. Abdomen smooth and shining; the segments fringed with white soft hair. Legs coloured like the body; the four hinder femora are lined broadly with black; the teeth on the inner spur of the calcaria are stout. Wings clear hyaline; the stigma and nervures luteous; the nervures, if anything, darker in tint.

*Ctenoapis flavomaculata*, sp. n.

Nigra, dense albo pilosa; sterno, pleuris infra, facie clypeoque flavis; abdominis basi late flava balteata; pedibus flavis, dense albo pilosis; femoribus tibiisque posterioribus late nigris. ♂. Long. 7 mm.

*Hab.* Ferozopore, Punjab (*Major C. S. Nurse*).

Head black; the face, clypeus, labrum, the inner orbits above narrowly, the lower half of the outer entirely, yellow; the lower part of the front at the antennæ is thickly covered with long soft white hair, as is also the hinder region; the face and clypeus are sparsely covered with long pale hair. The apex of the mandibles broadly rufous. Abdomen black, above thickly covered with long soft white hair, as is also, but not quite so thickly, the sternum; the apical half of the median segment is broadly furrowed in the middle. The four hinder femora are broadly black above, the middle tibiæ are black behind; the hinder tibiæ are black except at the

base and apex; the apical four joints of the hinder tarsi are black. Abdomen black; a broad band near the apex of the basal segment, the second almost entirely, the third except for an interrupted black line at the apex and the apical segment, yellow; the basal ventral segments are for the greater part yellow.

## FOSSORES.

## CHRYSOLARRA, gen. nov.

Recurrent nervures appendiculated or touching each other. Inner eye-margins with folds. Mandibles with an incision near the base. Pronotum placed below the level of the dorsulum. Median segment as long as the mesonotum, rounded behind. Pedicle of antennæ pilose. Base of anterior femora not emarginate near the base. Anterior tarsi armed with stiff, moderately long spines. Ocellus broad, triangularly dilated in front. Pygidium covered with stiff bristles and with longish stiff hairs.

The presence of a fold on the inner eye-orbits separates this genus from *Tachytes* and *Tachysphex*; from *Notoгонia* it may be known by the pygidium not being covered with a hoar-frost-like pubescence, but by a stiff pile and with longish stiff hairs. Characteristic is the fact that the recurrent nervures are united to each other, and not distinctly separated as in the other genera. The apical abscissa of the radius is oblique. In the hind wings the apical nervures are faint except the lower one. The legs are stout; the femora are distinctly narrowed towards the apex; the tarsi are longer and more slender than in *Tachytes*, the hinder are twice the length of the tibiæ; the metatarsus is twice the length of the second joint; the abdomen is also narrower and longer than in that genus. The pygidium is sharply margined. In the three known species the recurrent nervures are received near the apex of the basal third of the cellule. The eyes are large, reach near to the base of the mandibles, and converge towards the top. The hinder tibiæ are keeled behind. The pubescence on the four species is golden.

*Chrysolarra appendiculata*, sp. n.

Nigra, capite mesonotoque dense aureo pilosis; abdomine aureo balteato; alis flavo-hyalinis, nervis flavis. ♀.  
Long. 22 millim.

*Hab.* Khasia Hills. Coll. Rothney.

Scape of antennæ on the underside thickly covered with

pale golden pubescence, the flagellum with a microscopic down. Head thickly covered with golden pubescence; the cheeks and face bearing also long pale hairs. The large eyes distinctly converge above. Clypeus closely punctured; the apex smooth, with a slight incision in the middle. Mandibles at the base thickly covered with golden pubescence. Palpi black, thickly covered with pale hair. Pro- and mesothorax with the scutellums thickly covered with depressed bright golden pubescence, which hides the texture of the skin; the median segment above sparsely, on the sides thickly, covered with fulvous pubescence; the upper part at the base and apex closely irregularly transversely striated; on the apex near the top is a pyriform depression. Breast thickly covered with golden pubescence and with long pale hair; the central furrow is shallow, the transverse one before the middle coxæ is deeper and more distinctly defined; the process between the four hind legs is clearly defined; furrowed down the middle except at the base; the apex is rounded at the sides and incised in the middle. Wings yellowish hyaline, the apex slightly infuscated; the nervures are yellow; the first cubital cellule at the top is one third the length of the second; the first transverse cubital nervure is roundly curved; the two recurrent nervures are united at the top before reaching the cubital nervure, being shortly but distinctly appendiculated. Legs thickly covered with depressed golden pubescence; the tibial and tarsal spines are rufous; the calcaria and claws black. Abdomen with the basal four segments broadly banded on the apex with depressed golden pubescence; pygidium black; the stiff pile black; on the sides and apex are a few long black hairs; the base has an irregular smooth and shining space in the middle.

The basal segments of the abdomen may be entirely covered with golden pubescence.

*Chrysolarra aureosericea*, sp. n.

Long. 18-19 mm.

*Hab.* Khasia Hills. Coll. Rothney.

Comes near to *C. appendiculata*, with which it agrees in the colour of the pubescence and in having the two recurrent nervures united at the top; may be known from it by the first transverse cubital nervure having an oblique straight slope at top and bottom; the first cubital cellule is longer, being half the length of the second above; the metasternal process is distinctly keeled down the middle at the base, and



the furrow is wider and deeper; its apical lobes are more widely separated and the tarsi are more slenderly built.

Head covered with golden pubescence; the front and vertex closely punctured; the furrow above the antennæ is wide and deep; the clypeus is sparsely punctured below the middle. Mandibles and palpi black, the latter thickly covered with white hairs. Mesonotum alutaceous, as is also the scutellum; the postscutellum is more distinctly punctured. Median segment irregularly, closely, transversely striated; the apex has the apical three fourths furrowed down the middle. Mesopleuræ closely and finely punctured. The metasternal process is large, keeled in the middle at the base; the rest furrowed, the furrow deepest at the base and apex; the latter is triangular in the middle. Legs black, pruinose, the tibial and tarsal spines rufous; the calcaria and spurs black. Wings yellowish, lighter coloured in the middle of the cellules; the apex darker; the stigma and nervures yellow; the first cubital cellule at the top is more than half the length of the second; the first transverse cubital nervure is obliquely sloped at top and bottom; the recurrent nervures united shortly before reaching the cubital nervure. The basal four segments of the abdomen are thickly covered with golden pubescence. The stiff pile on the pygidium is rufous at the edges.

This is a smaller species than *C. appendiculata*; the recurrent nervures are not so distinctly appendiculated above; the first cubital cellule at the top is longer compared with the second, being more than half its length, and the first transverse cubital nervure is straighter and more distinctly angled above.

*Chrysolarra japonica*, sp. n.

Long. 16 mm.

*Hab.* Japan (George Lewis).

This is a smaller species than *C. appendiculata* or *C. aureosericea*, and differs from them in the recurrent nervures not being appendiculated, although they touch each other at the cubital nervure.

The lower part of the front, the cheeks, and oral region densely covered with bright golden pubescence; the front and vertex alutaceous, sparsely covered with bright golden pubescence; the ocellus is triangularly produced in front. Pro- and mesothorax covered with deep rufo-fulvous pubescence, most thickly on the mesonotum; the pubescence on the median segment is paler, more fulvous in tint. Median

segment alutaceous; the apex obscurely transversely striated, and with a smooth conical depression in the middle. Legs thickly covered with golden pubescence, more thickly on the tibiæ and tarsi than on the femora; there are five rows of stout rufous spines on the four hinder tibiæ; the tarsal spines are long, stout, and rufous. Wings yellowish hyaline, the apex from the base of the radial cellule infuscated; the first cubital cellule at the top is not quite half the length of the second; the first transverse cubital nervure is obliquely curved from shortly above the middle and straight; the lower part has a more rounded slope; the two recurrent nervures are received near the apex of the basal third of the cellule. The three basal segments (and perhaps the others also) are banded at the apex with depressed pale golden pile. The pygidium appears stoutly, longitudinally, and closely striated and bears some longish dark rufous hairs. The tarsi have a more rufous appearance than the tibiæ; the golden pile appears to be thicker on the front legs than on the others.

*Chrysolarra pruinosa*, sp. n.

Black, thickly covered with a pale golden pile, the pygidium densely with stiff golden bristles; wings hyaline, slightly infuscated at the apex; the third cubital cellule above twice the length of the second; the recurrent nervures united, but not appendiculated. ♀.

Long. 16 mm.

*Hab.* Matang, Borneo. Mus. Sarawak.

The lower part of the front, the face, and probably the clypeus densely covered with a golden pale pile. Front and vertex alutaceous; there is a deep furrow below the lower ocellus; the eyes at the top are separated by about half the length of the third antennal joint. Thorax covered with a golden pile; the scutellum has an indistinct shallow furrow in the centre; the median segment at the base has a narrow furrow down the middle, which ends in a fovea shortly before the top of the truncation. The latter has an oblique slope and has a narrow furrow in the centre. There is a narrow longitudinal furrow near the centre of the mesopleuræ. Wings hyaline, with a slight yellowish tinge; the apex slightly infuscated; the basal nervures are yellowish, the apical darker in colour; the second cubital nervure is half the length of the third; the recurrent nervures are united and are received shortly behind the middle of the cellule. Legs black, pruinose; the tibial and tarsal spines are black, some of the latter are rufous at the base, those on the front tarsi

are longer than they are on the other legs. Abdomen black; the segments banded with pale golden pubescence; the pygidium is thickly covered with stiff bright golden pubescence and more sparsely with long golden hair. The apex of the hinder tibiæ and the underside of the metatarsus are thickly covered with stiff golden pubescence.

Comes nearest to *C. japonica*, Cam., which agrees with it in the recurrent nervures not being appendiculated.

### Braconidæ.

#### PÆCILOBRACON, gen. nov.

Head cubital, largely developed behind the eyes, the temples being longer than the eyes. Occiput roundly but not deeply incised and not margined. Eyes oval, widely distant from the base of the mandibles. The upper half of the face is widely and deeply furrowed; the apex of the furrow is wider and deeper than the base. Abdomen smooth, with only the suturiform depression; the penultimate segment shorter than the preceding; the hypopygium large, projecting beyond the upper segment, cultriform. Ovipositor projecting. The anterior tarsi are twice the length of their tibiæ. Second cubital cellule twice the length of the first; the second abscissa of the radius twice as long as the first transverse cubitus. The scape of the antennæ is short and projects on the underside at the apex; the pedicle is short. In the hind wings the costal and præbrachial and the radial and cubital cellules only are complete, but the latter two are open at the apex; at the base there is a distinct small cell, formed by a stout oblique nervure, which unites with the costal.

The body is smooth and shining, black, with the abdominal segments banded with pale yellow; the mandibles are stout, curved, and unidentate at the apex; the legs are covered with soft hair, but not so thickly as in *Myosoma*; the suturiform articulation bifurcates laterally; the metathoracic spiracles are oval and distinct; the apices of the tarsal joints are spinose, their claws are small, the palpi are long and pilose.

Belongs to the Braconini, and, in Ashmead's arrangement (Proc. U.S. Nat. Mus. xxiii. 136), would come near to the American genus *Megaproctus*.

#### *Pæcilobracon flaviceps*, sp. n.

Niger, capite flavo, vertice nigro; abdomine flavo lineato; alis fuscis, stigmatibus nervisque nigris. ♀.

Long. 10, terebra 7 mm.

*Hab.* Australia.



Smooth, shining, and moderately thickly covered with soft pale hair. Mandibles pale yellow, black at the apex; the front and the ocellar region black; the black mark becoming gradually narrowed above from below. Palpi long, black at the base, testaceous at the apex, and covered with soft white pubescence. Postscutellum broadly depressed laterally at the base. The sides and ventral surface of the petiole are pallid yellow; the basal area on the second segment is large and becomes gradually roundly narrowed towards the apex; the bounding furrow is wide and deep, this being also the case with the oblique lateral; both may be rufous. The suturiform articulation is closely striated, the lateral fork is smooth, deep, and does not reach to the end of the segment; the five basal segments have their apices lined narrowly with pale yellow, the yellow extending on to the ventral surface on the third and fourth segments. There is an oblique narrow hyaline cloud in the first cubital cellule, which extends as a small round spot into the discoidal cellule.

The abdomen is shorter than the thorax, broad, the apical three segments becoming gradually narrowed.

XX.—*New and little-known Moths from India and Australia.*  
By Colonel C. SWINHOE, M.A., F.L.S., &c.

Family Eupterotidæ.

*Eupterote dulcinia*, nov.

♂. Bright chrome-yellow; the antennæ, head, thorax, and outer portions of the wings slightly darker than the general colour; a faint indication of a straight discal line on the hind wings, otherwise absolutely without markings: underside slightly paler than above, with indications of a straight discal line across both wings.

♀. Dark chrome-yellow, absolutely without markings above and below.

Expanse of wings, ♂  $3\frac{1}{10}$ , ♀  $3\frac{1}{2}$  inches.

Salayar Island, south of Celebes (*Everett*).

A long series of both sexes: some of the males are nearly as pale as *E. calandra*, Swinh., from the Khasia Hills, but the antennæ are longer and more deeply pectinated; in three or four of the females the straight discal line in hind wings is more or less apparent.