

Descriptions of New Genera and Species of Hymenoptera from India.

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Ichneumonidae.

I. Heresiarchini.

1. *Miojoppa* gen. nov.

♀. Antennae thickened and compressed beyond the middle. Scutellum flat, stoutly keeled to near the middle. Areola longer than broad, open at the base, and therefore confluent with the lateral areae; it is widely distant from the base of the segment, which has no teeth. Petiole longer than the 2nd segment, becoming gradually wider from the middle to the apex. Gastrocoeli shallow, longer than broad; the space between them closely longitudinally striated. — 2nd and 3rd segments closely punctured; the sheaths of the ovipositor projecting, as long as the last two segments united. Head not wider than the thorax, roundly narrowed behind the eyes; the temples shorter than their width; the face rather flat, not separated from the clypeus. Malar space moderately large. The mandibles become gradually narrowed towards the apex. Palpi long and slender.

The antennae are not much longer than the body; they are stout; the palpi are long and slender; there is an oblique keel above the middle of the propleurae. The transverse basal nervure is not interstitial; there is a stump of a nervure before the middle on the disco-cubital nervure. The post-scutellum is bifoveate at the base. The median segment has a gradually rounded slope. On the lower half of the metapleurae is an elongate area, closed and rounded at the base and open at the apex, formed by a curved keel and which extends from the base to the apex of the pleurae. The ventral abdominal keel is on the 2nd and 3rd segments. The antennae are broadly ringed with white.

If it were not for the toothless mandibles the Indian genera of *Heresiarchini* might very well be referred to the *Joppini*, which they resemble closely and more particularly in

the form of the antennae and of the median segment. In some of the Indian *Joppini* the subapical tooth of the mandibles is small and bent inwardly.

M. rufa sp. nov. Rufous; the mesonotum, the upper part of the pleurae, and the posterior median area of the median segment, black; the eye orbits, the upper part of the pronotum, the tubercles, 2 lines on the mesonotum, the scutellum and postscutellum, yellow; wings hyaline, the costa and stigma fulvous. ♀. — Length 12 mm.

H a b. Simla.

Antennae yellowish-fulvous, the thickened apical part black; the middle is of a paler yellow tint. Face and clypeus smooth and shining, impunctate and thickly covered with white pubescence. Front and vertex smooth and shining, broadly black in the middle; the black band on the front narrower than that on the vertex. Mandibles yellow at the base, black at the apex. Palpi yellowish. Mesonotum closely punctured; the yellow lines do not extend to the apex; there is an impressed line outside these on the apical half. Median segment closely, rugosely punctured, except on the areola and the sides and apex of the lateral areae which are smooth. The middle of the propleurae is broadly black; the lower half of the apex is closely striated. The black mark on the upper half of the mesopleurae is much narrowed at the base; the middle is obscurely striated. The base of the metapleurae and the lower part are broadly black; the black colour on the latter extending above the keel. Legs coloured like the body; a spot on the outside of the hinder coxae and the apex of the hinder femora black. Abdomen shining; the 2nd and 3rd segments closely and minutely punctured; the base of the 2nd segment closely, longitudinally striated between the gastrocoeli; the striae not extending much beyond the middle of the latter; the apical segments are thickly covered with fulvous hair; the sheaths of the ovipositor are coloured like the body, with the tips black.

2. *Algathia* gen. nov.

Antennae long, slender, thickened beyond the middle, the apex attenuate; the middle broadly ringed with white. Occiput margined. Apex of clypeus transverse, slightly incurved, its sides broadly rounded. Labrum small. Mandibles roundly curved, becoming gradually narrowed towards the apex, which has only one tooth. Scutellum more or less pyramidal, with an oblique slope at the base and apex; its sides more or less keeled. Median segment areolated; the sides bluntly keeled;

the areola distinctly wider than long; its spiracles are small, oval, about 3 times longer than wide. Areolet 5-angled, narrowed at the top, the nervures almost uniting there; the transverse median nervure is interstitial; there is a stump of a nervure on the cubito-discal. Legs normal; the tarsi long, spinose. Abdomen with 8 segments; the sheath of the ovipositor largely projects; the last segment is small, the gastrocoeli are distinct; the ventral fold extends on to the 4th segment.

The colour of the species is black, marked with white; the last 2 segments are white with all the species; the palpi are long and have the 2nd joint dilated; there is a distinct curved keel on the lower side of the metapleurae. The areola is finely rugose, opaque; it is clearly separated behind from the base of the segment by an oblique depression, this depression being confluent with the lateral basal areae. The head is well developed behind the eyes; the occiput concave; the face is flat, the cheeks not buccate. In addition to the keel uniting the 2 hinder coxae there is another, more or less distinct one, above. The abdominal petiole is long, slender, the post-petiole curved; the gastrocoeli are shallow and broader than long.

The mandibles being edentate and acute at the apex would refer this genus to the *Heresiarchini*. The genus contains numerous species of small or medium size.

A. maculiceps sp. nov. ♀ *Nigra; scutello, post-scutello, lineis abdominalis apiceque late flavis; pedibus anterioribus rufis, coxis trochanteribusque albis; pedibus posticis nigris, trochanteribus basique femorum rufis; alis hyalinis, nervis nigris.* — Long. 10—11 mm.

Hab. Khasia Hills. (Coll. Rothuey).

Head black; a large trilobate (narrowest below) yellow mark on the face below the antennae; the face and clypeus punctured, but not closely; the sides of the clypeus smooth; the mandibles black, broadly ferruginous in the middle and thickly covered with long fulvous hair; the face and clypeus covered with pale hair; the palpi pale yellow. The front and vertex have a plumbeous hue, shining; the front impunctate, carinate in the middle; the vertex strongly, but not closely, punctured. Scape of antennae punctured, brownish beneath at the apex; the flagellum brownish beneath at the base; the 10th to 16th joints white beneath and thickly covered with short, stiff pubescence. Thorax black, the tegulae, scutellum, post-scutellum and the lateral outer areae on the median segment, yellow. Mesonotum closely and strongly

punctured; the middle near the scutellum is irregularly longitudinally striated. Scutellum shining, covered with long pale hair; the post-scutellum black on the base; the base deeply and widely bifoveate; the depression at the base of scutellum smooth, deep; at the sides of the post-scutellum they are larger, wider and bear a few stout keels at the base; the sides of the mesonotum, outside the post-scutellum project; the projection is stoutly bordered and, on the outerside, forms a hollow triangle. At the base of the median segment, in the middle, is a deep, rounded depression; the lateral basal areae are strongly punctured, smooth on the innerside; the areola is twice longer than broad, the basal half is distinctly narrowed towards the base; the apex is transverse: in the middle are 3 stout, longitudinal keels, the middle one being straight, the outer twisted; joined to the sides are a few transverse keels. The posterior median area is of equal width throughout and closely transversely striated; the outer apical areae are much more stoutly transversely striated; the spiracular area is closely punctured at the base, the apex is closely transversely striated. The base of the propleurae is smooth, the rest punctured, but not closely or deeply; the apex, except above, stoutly striated; the metapleurae are more strongly and closely punctured. Mesosternum closely punctured, the middle deeply furrowed; the furrow triangular and deeply enlarged at the apex. The 4 anterior legs are rufo-fulvous; the coxae and trochanters white; the apical joint of the front and the whole of the middle tarsi black; the hinder legs black, the middle of their coxae behind, the trochanters and the extreme base of their femora, rufous; the calcaria white; the hinder tibiae are thickly covered with rufous spines. Wings hyaline, with a slight fulvous tinge; the stigma and outer nervures fuscous; the basal blackish; the areolet narrowed at the top, being there hardly one half of the length of the space bounded by the recurrent and the 2nd transverse cubital nervures; the 1st transverse cubital nervure has a more sharply oblique slope than the 2nd, which is thinner and fainter; the recurrent nervure is roundly eurved and is twice bullated; it is received shortly beyond the middle of the areolet; the transverse median is received shortly in front of the transverse basal. Abdomen black; the apex of the petiole, of the 2nd segment more broadly and of the 3rd broadly at the sides, pale yellow. The petiole is smooth and shining; the sides of the post-petiole strongly punctured; the 2nd and 3rd segments are closely punctured; the base of the 2nd is closely strongly punctured in the middle, more finely and closely at the sides; the gastrocoeli oblique, dull brownish and smooth at the apex. The petiole beneath is closely longitu-

dinally striated and rufous at the apex; the ventral segments coloured like the dorsal.

II. Joppini.

3. *Cosmiojoppa*, gen. nov.

Antennae compressed and dilated before the apex; in ♂ serrate. Scutellum roundly convex; its sides not margined; the post-scutellum not foveate at the base. Median segment regularly areolated, its base in the middle obliquely depressed; the sides bluntly toothed; the areola not raised, longer than broad and clearly defined. Wings uniformly fuscous-violaceous; the areolet 5-angled, narrowed above; there is no stump of a nervure on the cubital-discal nervure; the transverse basal nervure is almost interstitial. Legs stout, the tarsi spinose; the apex of the hinder femora not extending much beyond the 3rd abdominal segment.

The face is flat: the clypeus is not separated distinctly from it; the apex of the clypeus is transverse; the labrum is obliquely depressed. The head is well developed behind the eyes and is slightly roundly narrowed there; the occiput is roundly and deeply incised. The areola is of variable form; it may be longer than broad, or broader than long; it is clearly defined all round and is widely separated from the base of the segment. The bodies of the species are black, largely marked with pale or orange yellow. The genus comes near to *Amblyjoppa*, from which it may easily be separated by the convex scutellum and by the spined median segment.

C. violaceipennis sp. nov. ♂. Black, largely marked with pale yellow; the wings uniformly fuscous-violaceous; the lower half of the mesopleurae, a small irregular mark on the apex above, and an irregular mark, incised at base on the mesonotum, yellow; the hinder femora black, broadly lined with yellow above. — Length 20—21 mm.

H a b. Khasia Hills (Coll. Rothney).

Scape of antennae yellow, black above; the flagellum more or less brownish beneath, the middle with a yellow band. Head black, the face, clypeus, the inner orbits — more narrowly in the middle — the outer narrowly above, broadly below, the base of the mandibles and the palpi, yellow. Face and clypeus closely and uniformly punctured; the front and vertex

are more strongly, but not so closely, punctured. Thorax closely punctured; black, a broad line on the pronotum, not reaching to the base; a narrower, shorter one on the lower side of the propleurae, an irregular mark, incised at the base, on the centre of the mesonotum; the mesopleural tubercles, almost the lower half of the mesopleurae, an irregular mark on their apex above, the scutellum, post-scutellum, the sides of the median segment broadly in the middle and a large mark in the centre of the metapleurae, pale yellow. Mesonotum covered with a short pale down; the scutellum more thickly with loughish pale pubescence. The base of the median segment is closely and finely punctured; the areola bears stout, irregular, longitudinal striae; the posterior median area is stoutly, irregularly longitudinally striated, the sides irregularly reticulated. Pleurae closely punctured; the propleurae irregularly striated. There is a small yellow mark behind the meta-thoracic spiracles; the base of the pronotum is yellow; there is a small curved mark on the base of the propleurae — its broad end above — behind the larger mark, and the tegulae are pale yellow. Legs yellow; the 4 front legs have the base and apices of the joints narrowly black; the hinder coxae are broadly black on the innerside; the hinder femora are black above and at the base below; the apical third of the hinder tibiae, the base and apex of the metatarsus and the apex of the last joint are black, as are also the hinder calcaria. The post-petiole is yellow; the apical half of the 2nd segment is yellow; the black part on its base projects conically in the middle, and, on either side of this, is an oblique narrow, short black line; on the 3rd to 6th segments, on the sides, are yellow marks which become gradually obliquely wider towards the apex, and become gradually smaller; the last segment is entirely black.

4. *Hadrojoppa* gen. nov.

♀. Antennae short, dilated and compressed beyond the middle. Head obliquely and largely developed behind the eyes; the occiput deeply incised. Eyes widely separated from the mandibles, their lower part not reaching to the top of the clypeus. Labrum projecting. Thorax largely developed in front of the tegulae; the part there being distinctly longer than the part behind. Scutellum not much raised, flat, not depressed on the innerside; its sides not keeled. Base of median segment obliquely depressed. Areola raised, flat, not depressed on the innerside; the bordering keels flat, smooth, scarcely raised. Areolet narrow, 5-angled. Petiole narrow,

of equal width; the post-petiole distinctly and largely bordered and clearly separated. Gastrocoeli large, deep. The 2nd and 3rd segments are closely punctured; the segments distinctly project at the apex; the 7th segment is small, not half the length of the preceding.

The areae between the central and the spiracular are absent, the keels being obliterated; the spiracular area is only indistinctly defined on the innerside; the areola is separated by a greater distance than its own length from the base of the segment. The legs are stout; the hinder femora do not reach beyond the middle of the third segment; the tarsi are spinose. The transverse median nervure is not interstitial.

The distinguishing features of this genus are the deeply incised occiput; the large, obliquely narrowed temples, the short dilated antennae and the areola widely separated from the base of the segment. The post-petiole is larger compared with the petiole than usual; and the last abdominal segment shorter compared with the penultimate than in most *Joppini*. The ventral fold is only indicated on the second segment.

II. annulitarsis, sp. nov. ♀. *Nigra, late flavo-maculata; femoribus nigris, posticis albomaculatis; tarsis nigro-maculatis; alis fulvo-hyalinis, stigmatibus testaceo, nervis nigris.* — Long. 22—23 mm.

H a b. Simla.

Antennae black; the 9th to 16th joints white. Head black; the inner orbits, a large oblique mark on the lower third of the outer, two small irregular marks on the top of the face in the centre, the clypeus, except narrowly on the sides, and a triangular black mark in the middle at the apex, and the labrum, yellow. Face and clypeus closely and rather strongly punctured, as is also the vertex. There is a curved mark on the base of the mandibles. Palpi yellow. Thorax thickly covered with short white pubescence; the base of the pronotum, its upper edge, except at the base broadly, two longish yellow marks on the centre of the mesonotum (their base obliquely narrowed, their apex more broadly roundly narrowed), the scutellum, post-scutellum, two large marks on the centre of the median segment — their innerside following the boundary of the central areae and on the outer extending into the spiracular area — a broad, longish mark, roundly narrowed at the apex, on the centre of the mesopleurae and a similar oblique one on the centre of the metapleurae, yellow. The basal lateral areae are not clearly defined behind; the apical two have the bounding keels distinct; the top of the

posterior median area is rounded and projects into the areola. The wings are smoky at the apex; the areolet is oblique, rather narrow compared to the length; it is five-angled and projects below; the recurrent nervure is sharply angled below the middle. The middle coxae are black at the base and below; the hinder below and on the greater part of the sides; the four front femora are black, lined below with yellow, except at the base; the hinder pair black, with a broad band on the lower and front edges below the middle; the four anterior tibiae are yellow in front; the hinder yellow with the apex black all round; the three apical joints of the four front tarsi are entirely black; their basal two joints are black at the apex; the apices of the basal three joints and the apical two entirely of the hinder pair are black. Abdomen black; the apical half of the post-petiole, a large mark on the sides of the 2nd and 3rd segments at the apex and two smaller ones on the 4th, pale yellow; the 4 basal segments are closely punctured; the post-petiole has 2 stout longitudinal keels. Gastrocoeli large, deep, their basal slope with stout keels; the space between them is closely longitudinally striated.

5. *Cyanojoppa* gen. nov.

Antennae stout, thickened and dilated beyond the middle; in the ♂ longer and serrate. Labrum hidden. Clypeus not separated from the face. Head not much developed behind the eyes. Scutellum flat; its sides not keeled. Median segment completely areolated; the areola open behind, where there is a depression. Legs short and stout; the hinder femora reach close to the middle of the 3rd segment; the tarsi are spinose. Areolet rather narrow, 5-angled; the transverse median nervure is not quite interstitial, being received shortly beyond the transverse basal; there is a short nervure on the discocubital and the recurrent nervures. Abdomen with 7 segments; the last is as long as the penultimate; the 2nd and 3rd project at the apices; the apical are obliquely narrowed; the last is bluntly pointed at the apex; the ovipositor projects; the gastrocoeli are large and deep; the 2nd, 3rd and 4th segments are longitudinally striated at the base. The ventral keel is on the 2nd and 3rd segments only; the last ventral segment is largely developed; the dorsal segments are closely punctured.

(Continuation follows.)