

NEW SPECIES OF INDIAN HYMENOPTERA.

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In addition to species now described for the first time, I have, as usual, given the names of several others obtained by me which are new to India, so as to render the list of those that are known to have occurred within Indian limits as complete as possible. I sent a number of *Chrysididæ* to M. du Buysson, and he informs me that the following three species described by me as new, belong to species already described. As his knowledge of this family is probably unrivalled, and he has opportunities for comparing specimens with types and others which are denied to a field entomologist like myself, I defer to his opinion, and suppress my species—

NOTOZUS KASHMIRENSIS (*Nurse*) = *N. VIOLASCENS* (*Mocs.*).ELLAMPUS TIMIDUS (*Nurse*) = *E. HYPOCRITA* (*Buyss.*).CHRYSIS THALIA (*Nurse*) = *C. ACCEPTABILIS* (*Rad.*).

As regards the genus *Notozus*, I cannot agree with Col. Bingham in uniting it with *Ellampus*. The two genera seem to me to be distinct, though allied. M. du Buysson keeps them distinct, as does Dr. W. H. Ashmead in his classification in the *Canadian Entomologist*, and Col. Bingham has shown no reason for uniting them.

HOLOPYGA GLORIOSA (*Fabr.*) VAR VIRIDIS (*Guer.*).

Five specimens from Quetta.

HEDYCHRIDIUM AMATUM, n. sp.

♀ Front sharply angled below vertex, and with very thick, snow white pubescence, hiding the sculpturing; head, pronotum and abdomen closely, remainder of thorax more coarsely punctured; head as wide as pronotum, abdomen about the length of thorax, and with a median longitudinal carina on second segment. Shining green, with a cupreous effulgence on second abdominal segment; antennæ and tarsi rufo-testaceous; wings clear hyaline, tegulæ deep blue. The whole insect is covered with a short, sparse, greyish pubescence, and the last few joints of the antennæ with a thin, silvery pile, the latter only visible with a microscope.

Long. 4-5 mm.

HABITAT: Deesa.

Nearest to *H. minutum*, but may be distinguished by the cupreous effulgence being confined to the second abdominal segment, and by the carina on the same segment.

HEDYCHRIDIUM ROTUNDUM, n. sp.

♀ Head and thorax closely and coarsely, abdomen closely and very finely punctured, the third segment somewhat less finely than the second; front above the base of antennæ somewhat convex, head slightly wider than pronotum, abdomen much wider than thorax, very rounded posteriorly, shorter than the thorax and median segment united. Head and thorax blue-green, dark-blue on the front and at the different divisions of the thorax; abdomen shining metallic green, without any cupreous effulgence; antennæ and tarsi rufo-testaceous; wings hyaline, tegulæ reddish brown; a very little sparse greyish pubescence on the cheeks and abdomen.

Long. 5 mm.

HABITAT: Deesa.

Nearest to *H. amatum* above, but may be at once distinguished from it by the very finely punctured abdomen.

HEDYCHRUM LAMA (*Buyss.*).

This species is not uncommon at Quetta.

HEDYCHRUM MONOCHROUM (*Buyss.*).

One specimen from Quetta.

CHRYSIS PULCHELLA (*Spin.*).

One specimen from Quetta.

CHRYSIS SARA, n. sp.

♀ Slenderly built; facial cavity quadrate, pubescent, margined by a slight carina; head and thorax closely but not deeply punctured, the punctures largest in the centre above; abdomen more finely punctured than head and thorax, apical portion of third segment with a pellucid or chitinous margin, which is bi-emarginate or tridentate, all the teeth blunt, the middle one projecting furthest. Dark-blue, with greenish reflections; antennæ, except the first two joints, rufo-piceous; all the tarsi pale rufo-testaceous; pubescence short, greyish, sparse; wings hyaline, the nervures pale.

Long. 3-5 mm.

HABITAT:—Quetta; a single specimen.

This species, having a pellucid margin to the third abdominal segment, would belong to Klug's genus *Spintharis*, but I follow du Buysson in considering that this difference is not of sufficient importance to warrant the separation of *Spintharis* from *Chrysis*.

CHRYSIS DEPOSITA, n. sp.

♀ Facial hollow not very concave, terminated above by a slight carina; head and thorax finely and somewhat closely punctured, abdomen, especially the second and third segments, more finely and closely punctured than the head and thorax; pronotum transverse anteriorly, with a slight median impression, its sides very slightly concave; second abdominal segment with a trace of a median longitudinal carina, third segment with its apical margin bluntly rounded, without teeth, and with an anteapical series of eight or ten distinct, rather large, foveæ. Bright green; the central quadrate portion of the mesonotum and the lateral angles of the median segment dark-blue; second and third abdominal segments with coppery effulgence; antennæ and tarsi piceous; wings hyaline, nervures rufo-piceous to piceous.

Long. 7 mm.

HABITAT: Quetta; a single specimen.

Nearest to *C. pelopœcida* from Jerusalem.

CHRYSIS CHLOROCHRISA (Mocs.).

In the Entomologist, Vol. XXXVI, p. 40, I described under the name of *C. hoggei* what appeared to me to be a new species of *Chrysis*. I sent specimens to Lt.-Col. Bingham and M. du Buysson. The former, in Vol. II, Hymenoptera, of the Fauna of India series, united *C. hoggei* with *C. perfecta* (Cam.) from Barrackpore. M. du Buysson identified the ♀ as *C. subcœrulea* (Rad.) and the ♂ as *C. chlorochrisa* (Mocs.). In his volume on the Chrysididæ of "Species des Hymenopteres d' Europe," p. 500, M. du Buysson observes that the ♂ described by Radoszkowsky, as *C. subcœrulea* is *C. chlorochrisa* (Mocs.). Accepting this identification of the ♂, and taking into consideration that both Radoszkowsky and I united these as the same species quite independently, it appears to me that the name of *chlorochrisa* should stand for both sexes, and that both *C. subcœrulea* (Rad.) and *C. hoggei* (Nurse) must be sunk as synonyms. Whether *C. perfecta* (Cam.) is another species or only a variety I cannot express an opinion, not having seen a specimen. I may mention that I have about a dozen specimens of each sex, all obtained at Quetta, and I have no doubt whatever that they are one species. I should not venture to differ from such a high authority as M. du Buysson without having considerable material at my disposal.

CHRYSIS DENTIPES (*Rad.*).

Two specimens from Quetta.

CHRYSIS PSITTACINA (*Buys.*)

A single specimen from Quetta.

CHRYSIS URANA, n. sp.

♀ Head and pronotum somewhat irregularly but closely, remainder of thorax more coarsely punctured, abdomen closely and finely punctured; head somewhat wider than pronotum, the latter with its anterior margin strongly rounded, and with a median longitudinal depression; first abdominal segment with three deep impressions at base, second segment with a trace of a longitudinal carina, third segment with an antepical series of foveæ which are large and conspicuous in the middle, obscure laterally; the segment quadridentate, the teeth long and acute, about equidistant, the central pair projecting much beyond the lateral ones. Dark-blue, with greenish reflections, antennæ and tarsi piceous; wings hyaline, nervures rufo-testaceous to piceous.

Long. 6-5 mm.

HABITAT: Quetta; two specimens.

Nearest to *C. grohmanni* (Dahlb.).

CHRYSIS REPARATA, n. sp.

♂ Head as wide as pronotum, transverse, viewed from the front slightly longer than broad; the space between the base of the mandibles and the lower margin of the eyes very large, the base of the antennæ being distinctly below the level of the lower margin of the eyes; clypeus raised in the centre, its anterior margin slightly emarginate; antennæ filiform, the second joint of the flagellum the longest, nearly twice the length of the next joint; clypeus and front finely and shallowly punctured, the size of the punctures increasing towards the vertex, where they become close, deeper and almost granular; thorax coarsely punctured, the punctures being finer at the base of the mesonotum than elsewhere on the thorax; abdomen longer than head and thorax united, very broad, closely punctured, the punctures being smaller than those on the thorax, those on the first abdominal segment only slightly so; second and third segments with a very distinct longitudinal carina; five teeth on the third segment as follows; the middle tooth short, obtuse, the two outer pairs acute but not very long; the antepical series of foveæ distinct. Dark-blue, the clypeus and front in some specimens light green; second

abdominal segment with a lateral spot light green ; scape, first two joints of flagellum, and legs, except the tarsi, bluish green ; remainder of flagellum, and the tarsi piceous ; the anterior portion of the mesonotum black ; facial hollow with rather long, thick, silvery pubescence, antennæ and all the tarsi with thick short pile ; forewing with the base hyaline, the apical half very slightly infuscated, hindwing hyaline ; nervures piceous, tegulæ purple.

Long. 11 mm.

HABITAT : Quetta ; three specimens.

EUCHRÆUS PURPURATUS (*Fabr.*).

Fairly common at Peshin and Quetta ; the wings of those that I obtained are hyaline, not infuscated as is usual in this species.

EUCHRÆOIDES, n. gen.

Differs from *Euchræus* in having the mesopleuræ produced into a conspicuous tubercle, the sides of which are carinate ; the radial cell is broader and more open at apex than in *Euchræus*, and the teeth on the apical abdominal segment are longer and more regular than in that genus ; there is, moreover, scarcely a trace of pubescence in either sex. This genus is closely allied to *Euchræus*, but the very conspicuous tubercle on the mesopleuræ is, I consider, sufficient to separate them.

In the shape of the radial cell it approaches *Spinolia*, and its position would seem to be between these two genera.

EUCHRÆOIDES OBLATUS, n. sp.

♀ Facial hollow closely and finely punctured, vertex very closely, but more coarsely punctured, granular ; thorax more coarsely punctured than vertex, especially on scutellum and postscutellum ; first and second abdominal segments, especially on the disc above, more sparsely and shallowly, third segment closely and finely punctured ; head slightly broader than pronotum, no transverse carina above the facial hollow, but a slight longitudinal carina in front of anterior ocellus ; third joint of antennæ slightly longer than the fourth ; pronotum with the sides slightly converging anteriorly, and with a median impression at base ; mesopleuræ with a very large tubercle, the sides of which are carinate ; abdomen about as long as head and thorax united, third segment longer and less bluntly pointed than in the genus *Euchræus*, almost semicircular, with fourteen teeth, the latter very regular ; a subapical row of about eighteen small foveæ. Metallic

coppery green, the clypeus and abdomen more distinctly coppery golden ; antennæ very dark red, the first two joints metallic purple ; anterior femora metallic green, anterior tibiæ and intermediate and posterior femora and tibiæ metallic purple ; anterior tarsi dark testaceous, intermediate and posterior tarsi piceous ; ventral abdominal segments metallic purple ; almost entirely devoid of pubescence or pile ; wings hyaline, nervures blackish, tegulæ of the same colour as thorax.

♂ Similar, the abdomen proportionately broader, the third segment shorter and more obtuse at apex, the teeth longer but not quite so regular ; a slight carina above facial hollow, and the portions of the front on each side of the carina which runs towards the anterior ocellus flattened and depressed, the punctures on this portion running into longitudinal striæ ; the clypeus and the whole of the front below the anterior ocellus deep-blue, changing into purple in some lights ; second joint of antennæ metallic green.

Long. 8 mm.

HABITAT : Quetta ; a single specimen of each sex.

PARNOPE VARILLESII (*Buyss.*).

One specimen from Quetta.

MUTILLA VESTA, n. sp. (*Dudgeon MS.*)

Eyes wide apart, small and round ; head and thorax coarsely punctured, abdomen longitudinally striate ; head slightly wider than thorax, rounded and without a carina ; thorax sub-hexagonal, being extended laterally into a sharp tubercle, dorsally convex ; abdomen with the first segment constricted, and with a sharp ventral carina. Head, antennæ, legs, and abdomen black ; thorax brick red ; head and thorax sparsely clothed with coarse black hairs, abdomen with black pubescence, a broad band of golden pubescence on the apical margin of the first, and a narrower one on the apical margin of the second segment ; some golden pubescence on the sides of the third and fourth segments ; tibiæ and tarsi with silvery pubescence.

Long. 29 mm.

HABITAT : Baijnath, Kangra Valley, 3,000 feet.

Position in Bingham's key—A. f. á. Much larger than any of the others in this group, and differs in having the first abdominal segment constricted, with a broad gold band on its apical margin, and also in the eyes being small and wide apart.

ASTATA LUCINDA, n. sp.

Front and mesonotum minutely and shallowly punctured, scutellum and postscutellum almost impunctate, median segment minutely rugose, abdomen smooth and shining; clypeus very concave at base, its anterior margin emarginate; antennæ long, filiform, the second joint of flagellum longer than the third; front above the base of antennæ raised, with a median notch; an impressed longitudinal line on scutellum; abdomen small, shorter and narrower than the thorax, pygidium smooth. Black; a large irregular spot on the front below the ocelli, a spot below the bases of the wings, and two oval spots on each of the first two abdominal segments, yellow, the spots on first segment frequently coalescing; tibiæ and tarsi of anterior legs red; pubescence white, very fine and silky, but somewhat sparse; wings clear hyaline and iridescent, a fuscous patch on the radial and second and third cubital cells; radial cell short, broadly truncate at apex; second cubital cell almost triangular, third cubital cell about half as wide above as below; tegulæ yellow; nervures of forewing for the most part brownish testaceous, except for a short distance from the tegulæ, where they are very pale yellowish; those of hindwing very pale.

Long. 6-8 mm.

HABITAT: Quetta; six specimens.

Nearest to *A. quadripunctata* (Rad.); but may be at once distinguished by the antennæ being entirely black.

AMMOPHILA BOLANICA (*Nurse*).

When I described this species in Journal Bombay Natural History Society, Volume XV, p. 8, I had not obtained a male. I subsequently caught both sexes in coitu, and found that the ♂ differs to a considerable extent from the ♀, so I give its full description.

♂ Head and thorax apparently finely punctured, but with the sculpturing almost hidden by the pubescence; median segment very minutely striate, the striæ at base being outwardly divergent, becoming almost transverse towards the apex of the segment; abdomen impunctate, pruinose; clypeus very long, its anterior margin produced and slightly emarginate or notched; scutellum slightly notched; median segment rather long, gradually sloping and narrowed towards apex; petiole slightly longer than the next abdominal segment. Black; clypeus and front with rather long silvery pile, intermixed with long

black hairs ; thorax with blackish pubescence ; abdomen with segments 2—4 above covered with short but conspicuous silvery pile ; wings hyaline, with the apical margin of forewing infuscated as far as the neuration.

Long. 12-15 mm.

EUMENES MONTANA, n. sp.

♀ Clypeus smooth, front punctured, the punctures increasing in size towards the vertex, where they are close and deep ; thorax, median segment, and petiole closely but shallowly punctured, almost granular ; remaining abdominal segments impunctate ; clypeus produced, its apex transverse ; mesonotum with two impressed parallel longitudinal lines on its apical half ; scutellum with a slight median longitudinal carina at base ; median segment almost vertical, with a broad groove ; petiole shorter than thorax, narrow at base, widening towards the centre, where it is three times as wide as at base ; second abdominal segment as long as or longer than the petiole. Red ; the clypeus and the portion of front immediately above it yellowish ; apical four joints of antennæ, vertex, and some marks on mesonotum blackish ; second abdominal segment narrowly black at base, then red, then with a broad black band, its apex narrowly yellow ; the visible part of the remaining abdominal segments yellow ; ventral abdominal segments similarly coloured, except that the second segment has no yellow band at apex ; almost entirely without pubescence ; wings flavo-hyaline, with infuscated patches at apex of forewing, nervures rufo-testaceous, darker towards apex, tegulæ red.

Long. (to end of second abdominal segment). 17 mm.

HABITAT : Quetta ; two specimens.

This species is in colour very similar to *E. petiolata* (Fabr.), but the petiole in that species is about twice as long as in the present and is differently shaped. The present species is nearest to *E. arbustorum* (Penzer) as regards the shape of petiole, but differs in colouring.

HALICTUS ORPHEUS, nom. nov.

In Vol. LXX, Part II, of the Journal of the Asiatic Society, p. 148, I described a species of *Halictus* under the name of *H. testaceus*. I find that this name had already been given to a North American species, and I, therefore, propose to rename my species *H. orpheus*. In a genus like *Halictus*, which occurs almost all over the world, it is very difficult to be certain that a name has not been used before.