

LIV.—*Descriptions of new Genera and Species of Hymenoptera.* By P. CAMERON.

A. *New Species of Vespidae from India and Japan.*

Polistes Rothneyi, sp. n.

Ferrugineus, nigro maculatus; facie, clypeo apiceque tarsorum flavis; alis hyalinis, nervis stigmatique flavis. ♂.
Long. 20 mm.

Hab. Barrackpore, Bengal (*Rothney*).

Antennæ rufous, the scape yellow beneath; the basal six joints black above; the third joint fully longer than the succeeding two united; the terminal joint black except at the base, compressed, rounded and slightly dilated at the apex. Head distinctly broader than the mesothorax; in front densely covered with silvery pubescence, granular; the lower part of the front, the face, and clypeus yellow; the occiput and a broad band across the vertex, extending to the eyes, black. Clypeus broadly roundly projecting in the middle, the sides waved. Mandibles rufous, tinged with yellow; the three teeth are black, the middle is slightly smaller. Thorax rufous, the lower parts of the pleuræ with a yellowish tinge; mesonotum black, the middle, especially at the base, with two broad irregular rufous marks. Scutellum and postscutellum rufous, the two separated by a black line. Metanotum black, the sides and two somewhat pyriform marks in the middle rufous; it is not very strongly or closely transversely striated. Mesopleuræ sparsely and indistinctly punctured; the base narrowly, the furrow, a broad irregular splash behind on the upper half, and with a small rufous mark in the middle, the apex more broadly than the base; the base, the lower side, the part along the furrow and the apex, except for a large mark in the middle, black—or, in other words, the mesopleuræ are black, with an upper and two lower rufous marks, the posterior being much the larger. Wings hyaline, slightly suffused with yellow along the eyes. Legs rufous, the four anterior yellowish in front, the four hinder coxæ, femora, and tibiæ lined with black above; the basal two thirds of the metatarsus black. The base of the first and second abdominal segments and the apices of the others, except the last, broadly black.

A distinct species. The form of the terminal joint of the antennæ is as in *P. schach*; that species differs from it in

having the eyes "very small, separated from the base of the mandibles by more than two thirds of their own length," they being here separated by one third only or by the length of the three mandibular teeth; in *schach* there are only two teeth, and it bears no black markings. Saussure ('Vespides,' i. p. 104) says that the mandibles of the male are "très fortes, longues et arquées, . . . leur base très épaisse, armée d'une forte dent dirigée en dedans," which is certainly not the case in our species, in which they are broad at the base, slightly obliquely narrowed towards the apex. The clypeus is quite flat, not convex; the sides at the top are broadly rounded; the centre is transverse; the occiput is sharply margined.

Polistes gallicus, Fabr.

This common European species may be added to the Indian fauna. I have seen an example from Gilgit. It belongs to the European form, not to the Eastern Asian var. *chinensis*, Fabr.

Polistes rufolineatus, sp. n.

Ferrugineus; vertice, meso- metathoraceque nigris, lineis 2 mesonoti, scutello postscutelloque rufis; pedibus rufis, coxis, trochanteribus, femorum anterioribus basi, femoribus tibiisque posticis nigris; tarsis flavis, basi nigra; alis fulvo-hyalinis.

Long., ♀ 23, ♂ 15 mm.

Hab. Khasia Hills. Coll. Rothney.

Head ferruginous; the ocellar region from shortly behind the posterior pair, from eye to eye, and extending along the upper part of the eye-incision, black; the front and vertex punctured, but not very strongly or closely; the antennal keel stout, roundly dilated behind and carinate in the middle. Clypeus broader than long, roundly convex, the top transverse, the angles oblique; the apex with the sides oblique; the punctures are sparse and moderately large. Mandibles rufous, sparsely punctured; the teeth black, the middle one smaller than the others. Antennæ rufous; the five basal joints of the flagellum black above. Thorax black; the prothorax, two lines on the centre of the mesonotum, a much shorter one opposite the tegulæ, a mark, narrowed below, under the tubercles, the scutellum and postscutellum, rufous. Mesonotum almost impunctate; the scutellum with shallow scattered punctures. Metanotum, except at the base, irregularly and rather widely transversely striated. Pleuræ bearing shallow punctures; the apical half of the metapleuræ obliquely

striated. Legs black; the greater part of the four anterior femora, the anterior tibiæ, the apical third of the middle, and the apex of the third rufous; the four posterior tarsi yellowish; the basal joints black, except at the apex. Wings fulvous, with a violaceous tinge; the stigma rufo-testaceous; the second cubital cellule at the top is as long as the space bounded by the first transverse cubital and the first recurrent nervures; the second and third transverse cubital nervures are parallel and roundly curved outwardly from shortly above the middle. Abdomen dark rufous. The base of the petiole and a narrow line on the base of the second segment black.

The male has the face, clypeus, and mandibles paler, of a more yellowish hue; the clypeus is longer than broad, almost impunctate; the apex is bluntly rounded, the lateral angles above are more rounded; the antennal tubercle is narrowly furrowed in the middle above; the mesopleuræ rufous, with three irregular marks above and in the middle behind, the latter being the larger and narrowed in the middle; the four anterior coxæ are only black at the apices, the posterior are irregularly marked with yellow behind; the black on the vertex is more extended and is united in the middle by a narrow line to the black on the occiput.

Polistes rugifrons, sp. n.

Ferrugineus; meso- metathoraceque nigris; pedibus rufis; coxis, trochanteribus, femoribus tibiisque posticis nigris; alis fulvo-fumatis. ♀.

Long. 25 mm.

Hab. Khasia Hills. Coll. Rothney.

Antennæ rufous, the third and following joints black above. Head rufous, the ocellar region and the occiput black; the inner orbits of a paler colour; the vertex, the eye-incision, and the centre of the front strongly and distinctly punctured; the space between the antennæ bluntly tuberculate. Eyes large, separated by, if anything, slightly more than the length of the last joint of the antennæ from the base of the mandibles. Clypeus roundly convex, strongly but not very closely punctured. The base of the mandibles with scattered punctures, their three apical teeth are of equal size. Thorax black, except the prothorax and the sides of the scutellum, which are ferruginous; the pronotum is lined with yellow on the top. Mesonotum closely and strongly rugosely punctured, the punctures running into reticulations in the middle behind. The scutellum and postscutellum are more rugosely punctured than the mesonotum. The median segment is transversely

but not closely striated, and has a wide, moderately deep furrow down the middle. Pro- and mesopleuræ closely rugosely punctured; the basal half of the metapleuræ is covered sparsely with shallow round punctures; the lower half has them much more widely separated. Legs rufous; all the coxæ and trochanters, the hinder femora, and the hinder tibiæ except at the apex are black. Wings dark fuscous-fulvous, iridescent; the stigma testaceous; the nervures blackish; the second cubital cellule is equal in length to the space bounded by the first transverse cubital and the second recurrent nervures. Abdomen dark ferruginous, the base of the segments darker, the apex of the first and second with a broad dull yellowish band.

Polistes khasianus, sp. n.

Ferrugineus, lineis pronoti abdominisque flavis; mesosterno femoribusque posticis subtus nigris; tarsis posticis flavis; alis fulvo fumatis, stigmatibus fulvis. ♀.

Long. 14 mm.

Hab. Khasia Hills. Coll. Rothney.

Antennæ rufous, the flagellum darker above; the third joint is slightly but distinctly longer than the following two united. Head smooth, the front and vertex covered with a silky down, the clypeus sparsely with black hairs and with a few punctures; above it is distinctly incised, roundly in the middle; the apex is triangularly produced, the middle point rounded. Mandibles rufous, sparsely punctured in the middle; the three teeth are sharply pointed and of almost equal size. Thorax smooth, the mesopleuræ closely punctured, the punctures deep and distinct; metapleuræ obscurely striated, the base indistinctly crenulated. The mesosternum has the apex and the middle at the base black, as are also the edges of the divisions and the central furrow on the metanotum. Legs coloured like the thorax, the hinder femora lined with black on the outer half above; the apical four joints of the metatarsus yellow. Abdomen smooth and shining, silky: the petiole is black at the base, it and the other segments are narrowly lined at the apex with pale yellow.

A distinct species. Characteristic is the form of the clypeus, which is longer than usual compared to its breadth, it being much longer than broad, and is more largely developed below the eyes than usual.

Polistes nigratarsis, sp. n.

Ferrugineus; abdomine flavo-lineato, dimidio apicali nigro; metanoto

flavo bilineato; tarsi postici nigris; alis hyalinis, apice fumato. ♂.
Long. 15 mm.

Hab. Barrackpore, Bengal (*Rothney*).

Antennæ rufous, darker towards the apex, the last joint one half longer than the penultimate. Head densely covered with pubescence, which is very dense and silvery on the clypeus, darker and longer on the top; the occiput is black, the outer orbits and the eye-incision narrowly lined with yellow. The clypeus is twice longer than broad, is slightly narrowed towards the top, where it is slightly and roundly incised; the antennal tubercle is not very convex, broad, slightly and gradually dilated towards the apex, which is rounded. The eyes are separated from the base of the mandibles by the length of the second antennal joint. The lower and upper teeth of the mandibles are large and sharply pointed, the middle one shorter and narrower. Thorax densely covered with a silky fulvous pubescence; the base of the mesonotum—the mark dilated in the middle behind—a transverse narrow line on the apex, the extreme base of the median segment, the central furrow (narrow at the top, broader below), and a mark (narrowed gradually behind on either side at the apex) black; a narrow line on the pronotum, a narrow line on the base of the scutellums, spots at their sides, and two large marks on the median segment (straight on the inner side, rounded on the outer, and narrowed gradually towards the apex) yellow. The pro- and mesothorax are granular, the sides more coarsely than the top; the median segment obscurely transversely striated; the metapleuræ obliquely striated above, below the furrow sparsely punctured. The hinder tarsi are entirely black, the middle black, white at the base, the anterior yellowish white; calcaria white. Wings hyaline, the stigma fulvous, the nervures darker; there is a fuscous cloud occupying the greater part of the radial cellule and the upper part of the apical cubital cellules; the apex of the costal cellule is brownish. Abdomen black, the two basal segments rufous; the sides broadly and apex of the basal segment and the apices of the second, third, and fourth segments yellow; the petiole below, except for a narrow line in the middle, and the apices of the second and third segments are yellow.

A distinct species allied to *P. maculipennis* and *P. stigma*; easily known from them by the much longer and narrower clypeus; it differs also in having a distinctly defined area above the clypeus, bounded by distinct furrows, and the apex of the clypeus is quite differently formed, it making a semi-circle, while in *stigma* its sides are straight and oblique.

Polistes ephippium, sp. n.

Niger; clypeo, orbitis oculorum, mandibulis, prothorace, scutello, postscutello, lineis duabus metanoti petioloque rufis; pedibus rufis, apice tarsorum nigris; alis fuscis, costa stigmatique rufo-testaceis. ♀.

Long. 16-17 mm.

Hab. Khasia Hills. Coll. Rothney.

Antennæ rufous, the flagellum darker above. Head black, the outer orbits, the inner from the inside of the lower part of the incision, the space between the antennæ and the clypeus rufous. The front and vertex rugose, thickly covered with short fuscous hair. Clypeus with scattered punctures and with short fuscous hair; its edges narrowly black. Mandibles rufous; the teeth black. Prothorax rufous, except the basal slope. Mesothorax black; the scutellum, postscutellum, the sides near the tegulæ, the tubercles, and an oblique mark (narrowed gradually beneath) below them rufous. Pro- and mesonotum closely rugosely punctured, as are also the scutellum and postscutellum, thickly covered with fuscous pubescence. The striæ on the metanotum are not very close together; on each side is a large red mark, broad at the top, gradually narrowed towards the apex. Legs rufous; the greater part of the coxæ below, more or less of the trochanters, the base of the femora, and the apical three joints of the four hinder tarsi, black. Abdomen black, the petiole and the apical segment rufous.

A stout easily recognized species.

Polistes khasianus, sp. n.

Niger; clypeo, pronoto late, apice petioli segmentoque 4° rufis; alis fuscis, stigmate ochraceo. ♂.

Long. 12 mm.

Hab. Khasia Hills. Coll. Rothney.

Antennæ black, thickly covered with pale pubescence. Head black, the clypeus (except narrowly round the eyes) red; there is a narrow red band on the upper outer orbits. Vertex closely and distinctly punctured, as are also the eye-incisions and the front broadly in the middle; they are covered thickly with longish fuscous hair. Clypeus sparsely punctured and with a few blackish hairs. Thorax black, closely punctured and thickly covered with short pale hairs; the base of the prothorax to near the coxæ and the pleuræ broadly above brick-red; the red on the pleuræ broad and

rounded behind. Scutellum sparsely, postscutellum more thickly rugosely punctured, behind almost impunctate. The apex of the median segment has an oblique slope; on either side on the upper part are three curved distinctly separated keels. Pro- and mesopleuræ closely and distinctly punctured; the base of the metapleuræ smooth, except for a narrow row of striæ at the base; the apex and the lower part behind the oblique furrow with shallow round punctures and irregularly striated. Wings dark smoky, lighter behind and below towards the apex; the stigma ochraceous; the nervures black. Abdomen black, the apical third of the petiole and the fourth segment almost all round brick-red; the red band on the fourth segment is incised at the base on either side.

A distinct species. There is no known Indian species with which it can be confounded. The apex of the metanotum is not quite so closely striated as in most of the species.

Polistes Wattii, sp. n.

Flavus; tibiis posticis supra nigris; alis fulvo-hyalinis, nervis testaceis. ♀.

Long. 13 mm.

Hab. Bengal (*Dr. George Watt, F.L.S.*).

The third joint of the antennæ is nearly as long as the following three united, the apical slightly longer than the penultimate. Front and vertex finely granular, of a darker shade than the face. Clypeus broader than long, the middle at the top transverse, the sides oblique, the apex with the sides oblique, the middle rounded. Mandibles yellow; the teeth black, of nearly equal size, bluntly triangular. Pro- and mesothorax smooth; the scutellum has a narrow longitudinal furrow in the centre at the base. Median segment closely transversely striated, the furrow deep. Wings fulvo-hyaline, suffused with fuscous; the second cubital cellule at the top is slightly less than the distance bounded by the first transverse cubital and the first recurrent nervures. Legs coloured like the thorax, except that the hinder tibiæ are black behind, this being also the case with the base of the metatarsus. The base of the petiole, the greater part of the second segment, and to a less extent the base of the third, are infuscated, the darkened bands being dilated at the sides at the apex.

This species has no near ally, and is readily known by the unicolorous body. The clypeus is broader than usual; the antennal keel is broad, forming a large tubercle with a fovea

on the top; above it is a short narrow furrow; on the front, below the ocelli, is a narrow, not very distinct furrow.

Polistes japonicus, sp. n.

Long., ♂ ♀, 22 mm.

Hab. Japan (George Lewis).

This species so closely resembles the exceedingly variable *P. hebraeus*, especially the dark varieties, that it easily might be passed over for it. The difference in the form of the clypeus, however, enables them to be readily separated. In *hebraeus* ♀ the clypeus above has its sides straight and oblique; in *japonicus* the top forms a semicircle, the sides not being straight. The males are easily separated by the fact that in *hebraeus* the bordering furrow of the clypeus touches the eyes, while in *japonicus* it is separated from them by a clear space; in the latter, too, the top is bordered by a distinct furrow, which is incised in the middle; in the common species this upper bordering furrow is absent or scarcely noticeable and it does not project downwards in the middle. In *japonicus* the curved transverse lines on the abdomen are united to a broad black band at the base of the segments, so that enclosed lateral marks are formed. Head testaceous; the occiput, the vertex from shortly behind the middle to the upper half of the eye-incision, the part between the antennæ, and the sides and top of the clypeus narrowly black. Clypeus sparsely punctured on the lower half, the apex with the sides oblique, the centre rounded. Front and vertex distinctly, but not very closely, punctured, the front with a narrow but distinct furrow. Mandibles testaceous, the three teeth of nearly equal size. Thorax black, the edge of the pronotum behind, the upper third of the sides, their base more narrowly, leaving in the centre a triangular black space, two large lines in the middle of the mesonotum, a curved spot near the tegulæ, the scutellum, postscutellum, two lines (narrowed gradually below) on the slope of the metanotum, a mark (narrowed below) near the tubercles on the mesopleuræ, and a more irregular one (narrowed gradually towards the middle) on the apex lower down, and a mark in the centre of the metapleuræ behind the furrow, yellow. Mesonotum obscurely punctured on the sides; the metanotum transversely striated, its central furrow much wider than in *hebraeus*. Pleuræ obscurely punctured, the lower part of the mesopleuræ smooth at the base. Legs testaceous; the coxæ, trochanters, the base of the front femora, the basal half of the middle, the hinder (except at the apex), the four anterior tibiæ and tarsi, and the hinder tarsi (except at the

base) rufo-testaceous. Wings hyaline, with a smoky violaceous tinge; the costa and stigma rufo-testaceous. Abdomen testaceous, the basal two thirds of the petiole (except for two irregular curved marks), the base of the second segment broadly (with the middle dilated), a curved line running from its centre to the sides, where it becomes united to the base, thus forming a large enclosed space, and similar curved lines on the third, fourth, and fifth segments, but with the basal lines much narrower, black; the ventral segments are somewhat similarly marked, the basal two are almost entirely black.

The male is similarly coloured, but with more black on the vertex behind; the clypeus is clearly bounded by a deep furrow at the sides and above and distinctly separated from the eyes; the middle is turned down on the top; the sides of the epipygium are broadly and roundly raised, in the centre behind are two stout teeth, rounded behind.

Polistes erythrocerus, sp. n.

Niger; prothorace late, lineis 2 mesonoti, scutello, postscutello lineisque 2 metanoti flavis; abdomine late flavo balteato; alis fulvo-fumatis, stigmatibus nervisque fulvis. ♀.
Long. 22 mm.

Hab. Kamakura, Japan (*George Lewis*).

Antennæ rufous, the scape lined with black above; the third joint is slightly longer than the fourth and fifth united, the last two equal in length. Head fulvous yellow; a broad band on the ocellar region, extending to the eyes and round the upper part of the eye-incision, a line above and below the base of the antennæ, the occiput, a line above it (united to the eyes by a small oblique line), black; the part between the antennæ is distinctly tuberculate, the centre of the upper part keeled. Front and vertex distinctly but not very closely punctured. Clypeus very sparsely punctured, longer than broad; the sides of the apex oblique, the top narrowed, its sides rounded, the middle roundly incised. Mandibles coloured like the head, except that the teeth are black. Thorax black; the prothorax (except for a triangular black mark near the middle behind), two lines in the middle of the mesonotum, two short ones opposite the tegulæ, the scutellum (except in the middle), its keels, the postscutellum, two large lines (narrowed below) on the metanotum, and a small irregular mark under the tubercles, yellow. Pro- and mesonotum closely and distinctly but not deeply punctured, the punctures running into reticulations; the middle impunctate

at the base. The scutellum is, if anything, more rugosely punctured than the mesonotum; the postscutellum is more sparsely punctured. Median segment transversely striated as usual. Propleuræ punctured, more closely above than in the middle. Mesopleuræ more closely and strongly punctured; metapleuræ much less strongly punctured, the middle almost smooth. Coxæ, trochanters, and femora black; the fore coxæ below, the fore femora above and below, and the hinder at both sides below yellow; the fore tibiæ rufous, tinged with yellow; the middle tibiæ rufous, lined with black at the base behind; the posterior entirely black behind; the tarsi rufous, the joints black at the apex. Wings fulvous, tinged with violaceous, the hinder more hyaline in tint. Abdomen black; the apex of the petiole narrowly and the apical half of the other segments testaceous.

One of the examples bears a large species of *Stylopidae*.

[To be continued.]

LV.—*On the Presence of Echis coloratus, Günther, in Africa.* By JOHN ANDERSON, M.D., LL.D., F.R.S.

THIS viper, along with four other species of reptiles, was found by Mr. D. MacAlister in the neighbourhood of the Emerald Mines on the coast of the Red Sea, in nearly the same latitude as Assuan, and was presented by him to the British Museum. I am indebted to the courtesy of Mr. G. A. Boulenger, F.R.S., for his permission to direct attention to the occurrence of this snake in the Eastern Desert of Egypt, as the species is not included in my work on the Reptiles and Batrachians of Egypt, this being the first occasion on which it has been met with on the African continent.

Mr. MacAlister informs me that the five species of reptiles collected by him in the afore-mentioned locality were obtained in a tract of country not more than 9 miles in breadth at any point, lying between the Wadis Rousbaid, Sakêt, and Nugrus, which open one into another and ultimately join the Wadi Gemâl. The first two of these Wadis are dry and stony, but they are covered more or less with "low scrub, *Gash* (*Bassilla*) and *Soyal* (*Mimosa*), and occasionally with small pumpkins." The Wadi Nugrus is sandy and with rather more scrub than in the two preceding Wadis, and the Wadi Gemâl partakes of the same character, but it is more open.



Cameron, Peter. 1900. "LIV.—Description of new genera and species of Hymenoptera." *The Annals and magazine of natural history; zoology, botany, and geology* 6, 410–419. <https://doi.org/10.1080/00222930008678398>.

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