

ON THE HYMENOPTERA
(EXCLUSIVE OF THE ANTHOPHILA AND FORMICIDAE)

COLLECTED BY M^{RS}. DE BEAUFORT IN THE PAPUAN ISLANDS OF WAIGEU
AND SAONEK

BY

P. CAMERON.

PRAEDA ITINERIS
a L. F. de Beaufort in Archipelago indico facti
annis 1909—1910.

VIII.

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Our knowledge of the Hymenoptera of the Island of Waigeu hitherto has been based on the material collected by Dr. A. R. Wallace and described by Mr. Frederick Smith in the Journal of the Linnean Society of London, 1863, pp. 6—48. Omitting the bees (5 species) and the ants (27 species) Smith describes and enumerates 27 species of the Families dealt with in this paper. An examination of this list shows a great difference between the species collected by Mrs. de Beaufort and Dr. Wallace, as will be seen by the Catalogue given here for the purpose of making my paper more complete and useful as regards Waigeu.

Evaniidae.	<i>Megischus spoliator</i> , Sm.
Braconidae.	None.
Ichneumonidae.	<i>Mesostenus pulcherrimus</i> , Sm.
Thynnidae.	<i>Thynnus placidus</i> , Sm., <i>Ælurus comatus</i> Sm.
Mutillidae.	<i>Mutilla mirabilis</i> , Sm.
Pompilidae.	<i>Pompilus viligans</i> , Sm. <i>Agania</i> (probably <i>Pseudagenia</i>) <i>amalthea</i> , Sm. <i>A. clavata</i> Sm.
Scoliidae.	<i>Scolia fulgidipennis</i> , Sm. <i>S. nitida</i> Sm. <i>S. larridiformis</i> , Sm. <i>S. captiva</i> , Sm. <i>Dielis fimbriata</i> , Burm. <i>D. agilis</i> , Sm.
Sphegidae.	<i>Sphex umbrosus</i> , Christ. (<i>argentatus</i> of Smith's list) <i>S. aurulentus</i> , F. (<i>sericea</i> and <i>ferox</i> of Smith's list) <i>S. formosus</i> , Smith, Cat. Hym. Ins., IV, 254. Kohl, Ann. d. K. K. Hof Mus., Wien, 1890; 207. <i>Larrada modesta</i> , Sm. <i>L. funerea</i> , Sm. <i>Cerceris immolator</i> , Sm. <i>Stizus magretti</i> , Hand.
Diploptera.	<i>Eumenes arcuatus</i> , F. <i>Odynerus agilis</i> Sm. <i>Ischnogaster unicolor</i> , Sm. <i>Icaria morosa</i> , Sm. <i>Polistes tepidus</i> , F. <i>P. nigrifrons</i> , Sm.

A comparison of the above list with that of the species taken by Mrs. de Beaufort shows some noteworthy differences. In Mrs. de Beaufort's collections there are few of the large-sized species of *Sphex* and *Scolia* taken by Dr. Wallace, nor is the wide-ranging *Eumenes arcuatus* in it, nor a *Megischus*, a genus widely spread over Austral and Hindu-Malaya. On the other hand Dr. Wallace collected no species of *Vespa*, nor of *Braconidae* and only one of *Ichneumonidae*. Unless otherwise noted the species are from Waigeu.

DIPLOPTERA.

Vespidae.

Vespa cincta, F. *affinis*, F.

Cameron, Nova Guinea, Resultats de l'Exp. Scient. Néerl. à la Nouv.-Guinée, V, 59;
Tijdschr. v. Ent. XLVIII, 21; Dubuysson, Ann. de la Soc. Ent. Fr., 1904, 534.

January. A worker with the basal and abdominal segments rufo-fulvous, the outer orbits, front and vertex of a darker reddish colour; the wings to the stigma fuscous violaceous, the rest fulvous tinged with violaceous. There is no orange tint on the basal abdominal segments nor any black markings.

Polistes stigma, F. *marginalis*, F.

Cameron, *l. c.* p. 60.

A form with the clypeus, lower inner orbits, base of post-scutellum and apices of the 4 basal abdominal segments, bright lemon-yellow, as well as the usual 2 lines on metanotum, a narrow line on the outer orbits, antennae, upper two-thirds of propleurae, scutellum, apical 2 segments of abdomen, the greater part of the 4 front femora, a line on the front of the posterior, the 4 anterior tibiae and all the tarsi red; the antennae are of a brighter red colour, as are also the tegulae. This is the form *maculipennis* Saus. and appears to be the common Papuan one.

Icaria irritata, Smith.

Proc. Linn. Soc., 1863, 42.

A male taken in January is probably this species which was described from Mysol, it agreeing with Smith's colouration description except that there is a narrow yellow line in the centre of the apex of the pronotum and a small spot on the sides of the post-scutellum. As in Smith's description the line on the basal abdominal segment is narrower than the others, the line on the 2nd has 3 squarish incisions on the base; that on the 3rd two. The basal abdominal segment is distinctly narrowed at the base; the dilated apical part is almost semicircular, not quite so long as it is wide at the apex. The 2nd ventral segment is largely testaceous at the base. The yellow mark on the base of the mandibles is longish and narrow and does not extend to the middle. The pleurae and base of abdomen have a plumbeous hue. The alar nervures and stigma are black.

Icaria waigeuensis, sp. n.

Black, the under side of antennal scape, 2 marks narrowed towards the apex and almost touching in front, on the apex of the clypeus, a somewhat similar, but smaller one on the base of the mandibles, an irregular mark on either side of the base of the post-scutellum, a line on the basal 5 abdominal segments, that on the 1st narrower than the others and only on the upper side, the others extending to the ventral surface where they are incised laterally, yellow; the apical segment yellow tinged with rufous. Wings hyaline, tinged with yellow, the stigma fuscous, the nervures blackish. ♀.

Length 12 m.m.

December 31st.

The 1st abdominal segment becomes gradually widened from the base to the apex, and is fully one half longer than it is wide there. The underside of the flagellum is reddish below; the apical tarsal joints are reddish. Mesonotum and scutellum almost impunctate. The pubescence is white and dense; it is longer and denser on the metanotum.

This species is not unlike what I make out to be *I. irritata* Sm., the 2 may be separated thus:

Abdominal petiole distinctly narrowed at the base, clypeus immaculate, antennal scape black below; mesonotum, scutellum and base of post-scutellum punctured *irritata*.

Abdominal petiole not distinctly narrowed at the base; apex of clypeus with 2 marks, antennal scape yellow below; thorax impunctate. *Waigeuensis*.

Icaria Catharinae, sp. n.

Black, densely covered with white pile, which is longer and denser on the metanotum; an irregular mark, widened in the middle, on either side of the apex of clypeus, their inner side touching the apical tooth, a line on the lower inner orbits, its middle opposite the antennae, a narrow line on the top of the 1st abdominal segment and a wider one, extending on to the outside of the ventral segment, on the 2nd, pallid yellow; the apical tarsal joints rufous. Wings hyaline, the apex of costal cellule narrowly and the radial cellule fuscous; the stigma and nervures black; the 1st abscissa of radius roundly curved, as long as the following 2 united, the 2nd one third of the length of the 3rd. The underside of the antennal scape and the apical joints of flagellum below yellow. ♀.

Length 11 m.m.

29th December.

Abdominal petiole pyriform, a little longer than it is wide at the apex; a short neck at the base, not clearly separated. Apex of clypeus smooth and shining, above it is a transverse row of strong punctures, followed by a smooth space; the rest weakly, closely punctured.

Icaria dispila, sp. n.

Black, covered with a white pile, a broad curved mark on the apical half of the clypeus, the lower apical central part narrower than the lateral, a narrow line at the eyes below the incision, opposite the antennae, a small spot over each antennae, a semicircular mark at the base of mandibles, a squarish spot on the sides of post-scutellum, and a small one on the apex of the 1st abdominal segment on either side, pale yellow. Wings hyaline, tinged with fuscous, the stigma and nervures black, the radial and apical 2 cubital cellules fuscous violaceous; the 1st abscissa of radius a little longer than the following 2 united; the 2nd a little more than half the length of the 3rd and more than the space between the recurrent nervures. ♀.

Length to end of 1st abdominal segment 6 m.m.

January.

The abdominal petiole has the basal third narrowed, the rest becomes gradually wider towards the apex. The 2nd and following segments are absent. The apex of the clypeus is more broadly rounded than usual and is sparsely punctured; the vertex and upper part of the front are more strongly and closely punctured. The pronotum, mesonotum and scutellum are somewhat strongly and closely punctured; the middle of post-scutellum striated; the mesopleurae more weakly punctured.

Polybia papuana, sp. n.

Black, an oval spot on the sides of the clypeus close to the lower edge of the eyes, a line on the inner orbits, commencing near the eye incision and extending to the clypeus, 2 small spots on the inner side at the antennae, 2 lines on the lower two-thirds of the outer eye orbits, the lower thicker, shorter and more irregular, a narrow line all round the prothorax, above near the apex of the pronotum, extending obliquely on to the pleurae, to behind the fore coxae, the post-scutellum almost entirely, 2 large oblique, irregularly oval marks on the metanotum, commencing shortly behind the middle and reaching to the apex, and narrow lines of equal width on the apex of the basal 3 abdominal segments, the line on the 2nd extending all round, pale yellow. Legs black, the spurs pale. Wings hyaline, the radial cellule dark smoky, the stigma and nervures black. ♀.

Length 8 m.m.

Densely covered with a short white pile, almost opaque, the apical half of the clypeus shining, sparsely punctured; abdominal petiole pyriform, becoming gradually widened from the base to the apex, not quite twice longer than it is wide at the apex. Metanotal furrow narrow, clearly defined in the middle, the sides widened, obliquely sloped. The 1st abscissa of the radius not quite so long as the following 2 united, the 4th distinctly longer than these.

The abdominal petiole is shorter than usual, it showing an approach to what it is in *Icaria*.

Ichnogaster spilaspis, sp. n.

Black, the face except a small mark, twice longer than wide and of equal width, in the middle above, the clypeus except the lower edges, basal half of mandibles, a broad curved line on the lower fourth of the outer orbits, extending on to the malar space, a mark in the middle of the pronotum, transverse above, roundly narrowed below, a narrow line below, at the base, an oblique oval spot on the sides of the scutellum on the base, a large, transverse spot on the sides of the post-scutellum, the apical third of the metanotum, the mark dilated laterally and extending on to the pleurae, a large mark, roundly dilated above, bounded at the apex by the furrow which runs down from the top and below by the larger longitudinal one; below the latter is a slightly smaller oblique spot, transverse, the base roundly curved, the lower apical third dilated posteriorly and rounded below, a spot on the lower side of the 3rd abdominal segment, transverse at the base, the upper half triangularly dilated behind, 2 lines on the basal three-fourths of the 2nd ventral, the lines diverging from near the base and an irregular transverse spot on the centre of the 3rd, yellow; the yellow markings are more or less bordered by rufous. Legs rufo-testaceous, the hinder almost black, the 4 anterior coxae in front, the posterior behind, the anterior tibiae and base of tarsi, the base of middle tibiae and the middle trochanters, yellow; the middle tarsi fuscous. Wings hyaline, iridescent, tinged with fuscous, the radial cellule darker coloured, the nervures and stigma black; the 1st and 4th abscissae of radius almost of the same length, the 2nd twice the length of the 3rd. ♂.

Length 15 m.m.

December 30th.

Front irregularly transversely wrinkled, more strongly below than above; the vertex opaque, granular. Propleurae obliquely striated, the striae more or less wrinkled; mesonotum irregularly wrinkled-striated, more strongly towards the apex; on the apical third, near the centre is a narrow, oblique furrow. Metanotum punctured at the base, the rest closely obliquely striated. Scutellum finely, but distinctly punctured. A fine, but distinct, smooth furrow runs down the middle of metanotum. The longitudinal furrow is crenulated. The clypeus becomes gradually narrowed from the eyes to a fine point. The dilated apex of the abdominal petiole has the apical part slightly broader than the base; the apex is transverse; the petiole of the 2nd segment is short, a little longer than wide.

This species comes near to *I. malayensis*, Cam. (Tijds. v. Ent., XLIX, 231), but it is not, I consider, its ♂; *malayensis* has the thoracic markings rufous; the prothorax and mesopleurae are entirely rufous and yellow as is also the metathorax except at the base of the metanotum, there is an oval spot on the side of the 2nd abdominal segment, the one mark on the 2nd ventral is much larger, bifurcates near the base, while in *spilaspis* there are two separated lines; the 2nd abscissa of the radius is shorter than the following 2 united; in the present as long as them. *I. unicolor*, Smith, from Mysol and Waigeu, has no yellow markings on the pleurae and scutellums, while the 1st and 2nd submarginal cellules are equal in length.

Ancistrocerus Catharinae, sp. n.

Black, covered with a white pile, an irregular mark, twice longer than wide, of almost equal width, on either side of the apex of clypeus, a short line at the eyes, at and below

the antennae, 2 small spots over the antennae, between them, a spot, almost twice longer than wide, at the base of the antennae in front, 2 lines on the apex of the 1st abdominal segment, wider than the central backpart, and a narrow band all round the apex of the 2nd, yellow; legs black, the knees and spurs rufo-testaceous; wings hyaline, the stigma and nervures black. Clypeus sparsely, distinctly punctured, its apex gradually narrowed from the eyes to a sharp point at the apex. Base of pronotum transverse; the apex of post-scutellum from shortly above the middle smooth, almost transverse below. Pro- and mesothorax with scutellum closely, not very strongly punctured; the apex of mesopleurae and the metapleurae almost smooth; the metanotum finely closely transversely striated, the sides broadly rounded, roundly projecting in the middle. Basal slope of 1st abdominal segment smooth, the apex rather strongly, not closely punctured; the 2nd segment more finely and closely so, its apex depressed, narrowly margined. Tegulae black, rather small, the edges not reflexed. ♀.

Total length 12 m.m.

January.

Rhynchium Spin.

Rhynchium haemorrhoidale F.

Race *medium*, Maindron.

Saonek, December.

Odynerus waigeuensis, sp. n.

Black, covered with a white pile, an oblique, not very large, pyriform mark, the narrowed end above, on the sides at the top of clypeus, a narrow line on the lower part of the eye-incision, a narrow line on the top of the outer orbits, not reaching to the middle, 2 lines in centre of apex of pronotum, a little narrower than the black lateral part, a triangular spot on the outer side of tegulae at the base, a larger, more bell-shaped one, on the inner apical part, a transverse line on post-scutellum reaching close to the outer edge and narrow lines on the top of the basal 2 abdominal segments, yellow. Legs black, the apical fourth of the fore femora, a longer line on the apical half of the middle, the apical three fourths of the fore tibiae, and a line almost half their length, near the centre of the middle pair, yellow. Wings hyaline, largely tinged with violaceous, the nervures and stigma black. 1st abdominal segment cup-shaped, smooth, the 2nd smooth in the middle, the sides finely, minutely punctured, a little longer than wide, its apex flat. ♀.

Total length 12 m.m.

31st December.

Clypeus fully wider than it is long, its apex almost transverse, the incision being wide and shallow. Base of thorax transverse, as is also almost the apex; but, seen from above, the post-scutellum projects distinctly over it; the top of the latter is crenulated; the apex has a steep vertical slope, is punctured, with a semicircular smooth space. The puncturation is strong and close and runs into reticulations. There is a narrow striated band on the base of metapleurae; followed by a smooth one; the rest is striated, reticulated at the apex.

POMPILIDAE.

Agénia, sec. Kohl.

Agénia papuana, sp. n.

Black, densely covered with white pile, the head, metanotum and coxae also with white hair; the metathorax transversely striated, the striae weak and sparse on the basal half of the metapleurae; wings hyaline, the nervures black, a fuscous cloud in the basal half of the radial cellule, its apex rounded, and there is a more irregular one in the apical half of the 2nd cubital cellule, it extending more weakly into the posterior basal part of the 3rd; the

1st recurrent nervure is received before the basal third of the cellule, the 2nd shortly behind the base of the basal third; the radial cellule is much widened in the centre and angled there, the base and apex being straight and obliquely sloped; the 1st transverse cubital nervure is roundly obliquely sloped in front, the 2nd is broadly rounded and obliquely sloped towards the 1st recurrent; the transverse median nervure is received shortly beyond the transverse basal; the accessory shortly beyond the cubitus. Apex of clypeus broadly rounded. Palpi black. Mandibles densely covered with depressed white pile. Eyes distinctly converging above. Hinder ocelli separated from each other by one half less than they are separated from the eyes. ♀.

Length 13 m.m.

January.

There is a shallow, longish fovea or furrow at the base of the apical part of the pronotum in the centre. Base of mesonotum broadly rounded, hardly arcuate; there are 2 fine impressed lines in the middle of its base.

Pseudagenia waigeuensis, sp. n.

Black, covered with a white pile; the wings hyaline, a triangular cloud at the transverse basal and transverse median nervures, extending from the base to the apex and wider on the outer than on the inner side, a large cloud extending from the base of the stigma to the apex of the 3rd abscissa of the radius; the nervures in the hyaline part of the wings are white; there is a narrow rounded apical cloud; the 1st transverse cubital nervure is obliquely rounded in front; the 2nd is straight and oblique; the 1st recurrent nervure is received at the base of the apical fourth, the 2nd at the apex of the basal fourth; the transverse median nervure clearly beyond the transverse basal; the accessory nervure in the hind wings at the same distance before the cubitus. Hinder ocelli separated from the eyes by almost double the distance they are from each other. Palpi long, black. Base of mesonotum broadly rounded. Metanotum weakly striated. Basal segment of abdomen distinctly narrowed, pedunculated. The 4 hinder tibiae and tarsi shortly, weakly spinose, the tarsi more thickly than the tibiae. ♀.

Length 12 m.m.

The tibiae and tarsi are more densely spinose than usual with *Pseudagenia*.

Pompilus Catharinae, sp. n.

Black, covered with a white pile, the wings fuscous violaceous, their basal half almost hyaline especially at the base, the 2nd abscissa of the radius about one fourth longer than the 3rd; the 1st and 2nd transverse cubital nervures oblique, the 1st rounded, the 2nd straight; the 1st recurrent nervure received at the base of the apical fourth of the cellule, the 2nd in the middle; the transverse median nervure received shortly beyond the transverse basal, the accessory before the cubitus. Eyes converging above, the hinder ocelli separated from each other by the same distance as they are from the eyes. Clypeus short, transverse, with the sides rounded. The long spur of the hind tibiae a little more than half the length of metatarsus. Tibial spines sparse, longish, the underside of tarsi closely spinose. ♀.

Length 10 m.m.

December.

SPHEGIDAE.

Sphex.

Sphex aurulentus F.

Saonek near Waigeu, December.

A form with the head densely covered with bright golden pubescence and more sparsely with longish reddish hair; the pronotum, mesonotum and scutellums ferruginous. The antennal scape and legs, except the coxae and trochanters of a brighter reddish ferruginous colour;

the hair on the pro- and mesonotum reddish, on the metanotum black. Abdomen entirely black, smooth, shining, bare except the petiole, which bears blackish hair; the base of the 2nd segment is rufous. Wings uniformly fuscous, tinged with violaceous.

Notogonia, Costa.

Notogonia foveiscutis, sp. n.

Black, covered with silvery white pile, densely so on the lower half of front, the face, clypeus, cheeks, breast and apex of metanotum; on the apex of the abdominal segments it forms broad bands; the pygidium is entirely covered with it; wings hyaline, the apex with a fuscous border, the costa and stigma black; the 1st abscissa of radius, if anything, longer than the 2nd, the 3rd half the length; the 1st recurrent nervure obliquely sloped from below the middle, the junction of the 2 parts rounded; the 2nd recurrent nervure is received before the middle, the 2 recurrent nervures separated by a little less than half the length of the 2nd abscissa of radius; the 2nd recurrent nervure is roundly bent outwardly below the middle. The basal part of the metanotum is irregularly transversely reticulated, with a stouter keel down the middle, the apex is more regularly transversely striated and widely furrowed down the middle. Metapleurae obliquely striated, the striae more widely separated and stronger above. The longitudinal furrow on the mesopleurae extends to shortly beyond the middle, is crenulated and distinctly defined. ♂.

Length 5 m.m.

Saonek. January (Mevr. de Beaufort).

There is a rounded fovea on either side of the base of the scutellum. Immediately behind the hinder ocellus is a roundly curved furrow, which projects backwards in the middle.

Notogonia insularis, sp. n.

Black, the hinder femora red to near the apex; densely covered with white pile; the wings hyaline, irregularly tinged with fuscous, the nervures fuscous, the stigma darker coloured, the 1st abscissa of the radius nearly as long as the 2nd and 3rd united; the 2nd one fourth of the length of the 3rd; the 1st transverse cubital nervure is obliquely roundly curved, the 2nd not so oblique, a little rounded; the 2nd recurrent nervure is received near the apex of the basal third; it is broadly roundly curved outwardly. Tegulae fuscous. Metanotum alutaceous, the sides weakly, irregularly transversely striated. Pygidium broader at the base than it is long; the apex almost bilobate. ♂.

Length 7 m.m.

Saonek. January.

The long spur of the hind tibiae is two-thirds of the length of the metatarsus; the tarsal spines are testaceous. Behind the ocelli is a semicircular depression, with a short broad keel in the centre below.

Stizus trichionotus, sp. n.

Black, the thorax and abdomen with a slight, but distinct blue-violaceous iridescence; densely covered with longish white pubescence, which is longest on the head, shortest on the abdomen, the face, clypeus and pleurae with depressed silvery pile; the face, clypeus, labrum, palpi, a narrow line, twice the length of the black central part, on the apex of the pronotum on the sides, tubercles, a small pyriform spot on the inner basal part of the tegulae, a short curved line immediately behind them, a wider, longer conical line, twice longer than wide, on the sides of post-scutellum, the greater part of post-scutellum, distinct lines on basal 2 abdominal segments, that on the 1st the wider and narrowed in the middle, and narrower, much less distinct lines on the 3rd, 4th and 5th, yellow, as are also the apex of the fore femora, the fore tibiae in front entirely and the middle pair broadly in the centre.

Antennal flagellum fulvous on the underside, paler, more yellowish at the base. Wings clear hyaline, the nervures black; the 1st abscissa of radius roundly curved, as long as the 3rd; the 2nd hardly one fourth of their length; the median cellule in hind wings emitting only one short nervure. Lateral angles of metanotum without an incision, becoming gradually lengthened from the top to the bottom. Base of 1st abdominal segment roundly dilated downwards; the last ventral becomes gradually narrowed from the base to the apex, where it ends in a rounded point; there is a line down the centre. ♂.

Length 7 m.m.

Waigeoe. December 25th.

Eyes distinctly converging below, reaching to the base of the mandibles; the clypeus above has the width it is below. Antennae almost touching the eyes, separated from the clypeus by half the length of the antennal scape; their last joint is curved, and roundly narrowed, but not sharply; the spine on the 11th is as long as the joint. Puncturation weak and sparse.

Allied to *S. magretti*, Hand., which is from the same locality and has, like the species here described, the lateral angles of the metanotum not incised; it is a larger species (11—13 m.m.), the wings are distinctly smoky, there is no line on the 3rd abdominal segment and the blue and violet body tints are strong, not weak, while the pubescence is not so strong as it is in the present species.

Pison pallidipalpis, Smith.

Black, densely covered with silvery pubescence, which is longer and denser on the pleurae and metanotum, the apical slope of the metanotum strongly, irregularly transversely striated; the basal half of the 1st segment of the abdomen with a clearly defined furrow down the centre; wings hyaline, the nervures black; a narrow faint cloud at the 2nd cubital cellule; the pedicle of the 2nd cubital cellule curved, oblique, one half longer than the posterior branches, which are roundly curved, the anterior longer than the posterior; the 1st recurrent nervure received near the apex of the 1st cubital cellule, the 2nd interstitial. Apex of clypeus produced into a smooth, shining, distinct, triangular point; there is a smooth line down the lower half of the front, commencing with a smooth point. Apical joints of palpi fuscous. ♀.

Length 9 m.m.

Saonek. October. "Nest in picture".

Front and vertex finely and closely punctured, the thorax more strongly so, the pleurae more strongly than the upper part. Basal half of metanotum with a wide furrow with sloping sides, the upper two-thirds of the apical slope with a wider and deeper furrow, also with sloping sides, the whole forming a longish oval. Apices of abdominal segments depressed. Fore ocellus separated from the hinder by double the distance these are from each other. Spurs black. Tegulae bare, smooth and shining; their apical half piceous.

P. morosus, Sm. = *papuanum*, Schulz, Berl. Ent. Zeit. XLIX, 217 may be known by the "absence of the central longitudinal channel of the metathorax"; *P. nitidus*, Sm. from Aru has the palpi testaceous, the channel on the metanotum transversely striated above and there is no cloud in the fore wings.

I give a description of this species because I am not quite certain that it is the *Pison pallidipalpis* of Smith (Journ. Proc. Linn. Soc. VIII, p. 5); but it seems to be the same species as that described by Schulz, Berlin, Ent. Zeit. XLIX, 214. The latter has small clouds at the 2nd cubital cellule, but these are not mentioned by Smith, who also describes the palpi as "pale testaceous", nor does he describe the smooth shining tooth at the apex of the clypeus found in the present species, but it is mentioned by Mr. Schulz.

ICHNEUMONIDAE.

CRYPTINAE.

Mesostenini.

Buodias nigripes, sp. n.

Black, an irregular mark, twice longer than wide in the middle of the face, the line widened in the middle, the upper, inner orbits broadly, the line oblique, irregularly narrowed below, tegulae, an irregular spot immediately in front of them, tubercles, scutellum, apex of post-scutellum, the middle of metanotum from near the transverse keel, covering the spines and extending down the sides of the apical slope, outwardly going on to the pleurae, the central black apical part being longer than wide and rounded above, the post-petiole, more than the apical fourth of the 2nd segment and the whole of the 7th, pale yellow; the 6th to 11th joints of antennae white except above; the apex of the 4 anterior coxae, the middle pair broadly, irregularly and the 4 front trochanters white, the apical half of the fore tibiae, the apical fourth of the middle and the 4 front tarsi testaceous, the tarsi darker coloured than the tibiae; wings hyaline, a cloud of almost equal width extends from the base of the stigma to the areolet and recurrent nervure, the apex having also a faint narrow cloud, the stigma and nervures black; areolet small, almost square, receiving the recurrent nervure before the middle; the outer nervure faint; the transverse median nervure received behind the transverse basal. The base of metanotum more or less aciculated, especially in the middle; the middle strongly longitudinally striated, the apical slope transversely so. The propleurae longitudinally striated in the middle of apical half, the striae longest in the middle; the mesopleurae more closely striated except at the apex on the upper half, the metapleurae more strongly, closely and obliquely striated. Abdomen smooth, the 2nd, 3rd and base of 4th finely, closely punctured, the base of the 2nd more strongly than the rest. ♀.

Length 9 m.m., terebra 2.5 m.m.

January.

Malar space obliquely striated. Clypeus smooth. The striae on the centre of the face are longitudinal, on the outer edge of the centre transverse. Temples obsolete, the occiput transverse. Metanotal teeth broad, rounded.

Silsila balteata, sp. n.

Black, the palpi, the upper orbits from the end of the vertex to the middle of the front, the line widened below, with the apex irregular and oblique, narrowed and rounded above the ocelli, scutellum, a wide irregular mark across the middle of the metanotum, a longish oval spot on the upper apical half of the mesopleurae, a larger, conical one below the hind wings, an irregular mark, wider than long, on the upper apical part of the metapleurae, its base dilated above, 2 longish lines, rounded on the inner side on the apical half of the petiole, the greater part of the 3rd segment, the mark irregularly incised in the middle, most deeply in the centre, the last segment and the aedeagus whitish yellow. Anterior legs fulvous, their coxae black, trochanters white; the middle femora fulvous, the coxae black, white on the basal third below, the trochanters and tibiae white, the tarsi black, the hind legs black, the coxae above with more than the basal third, basal joint of the trochanters, almost the basal half of the tibiae and the tarsi, except the basal fourth of the metatarsus, white, the 4 hind spurs black. Wings hyaline, the stigma and nervures black; the recurrent nervure interstitial. ♂.

Length 11 m.m.

January.

Face irregularly longitudinally striated above, the clypeus sparsely punctured, bordered by curved furrows. Middle of propleurae finely striated in the hollow. Mesopleurae closely,

obliquely striated between the basal keel and the base of the apical yellow spot, the apical furrow crenulated; the metapleurae more strongly obliquely striated. Metanotum transversely striated from the keel in the middle, the apex in the middle irregularly longitudinally, the sides obliquely striated. Antennae, especially towards the apex, densely covered with short stiff pubescence; there is a broad white band beyond the middle of flagellum.

Pimplinae.

Echthromorpha insidiator, Smith.

Cf. Cameron, Tijds. voor Ent. XLIX, 44.

One ♂.

Xanthopimpla Catharinae, sp. n.

Luteous, flagellum of antennae except at the base and apex, the tips of mandibles, stemmaticum, the mark on the latter extending on to the occiput, where it is roundly narrowed, a large, almost square mark near the apex of the middle lobe of the mesonotum, a smaller, semicircular one outside it, its outer part rounded, the scutellar depression, almost the basal half of the areola, its apex rounded inwardly, a small transverse line near the base of the apical third of 1st abdominal segment, a broad transverse line, its apex rounded, on the 3rd and 5th segments, extending from near the base to near the furrow, one of the same size, but with the apex transverse, and a much shorter, narrower one in the middle of the 7th, the hind knees and the base of the hind tibiae more broadly, black. Wings hyaline, the apices of both narrowly smoky, the stigma and nervures black, the areolet triangular, almost appendiculated, receiving the recurrent nervure near the apex. Ovipositor as long as the hind femora.

Length 8 m.m.; ovipositor 2 m.m.

January.

Parapsidal furrows deep, curving round and uniting before reaching the scutellar depression. Mesonotum distinctly, closely punctured in the centre, at the black marks. Areola large, wider than long, 6-angled, the basal part slightly narrowed and longer than the apical; the lateral basal areae large, semicircular. 1st abdominal segment almost twice wider than long, as long as the following two united. Face clearly longer than wide, closely punctured, weakly and sparsely so above. Mesopleurae smooth with only a few weak punctures above the furrow, closely, distinctly punctured below the furrow. Antennal scape pale yellow, black broadly above; the basal joints of the flagellum brownish below, the apical joint rufous.

Belongs to Krieger's Section D.

BRACONIDAE.

Cardiochelis trichiosomus, sp. n.

Black, the middle of the mandibles and the fore knees testaceous, the wings fuscous, clear hyaline from the apical fourth of the costal cellule to the posterior part of the 1st transverse cubital nervure and the base of the radial cellule and of the discoidal and there is a hyaline cloud beyond the middle of the hind wings; the nervures and stigma black; the head, thorax and legs covered with white pubescence, which is thickest on the face and metanotum. Metanotum, except at the base, strongly transversely striated; the areola twice longer than wide, its base obliquely narrowed to a sharp point, the apex more widely and roundly narrowed; there are no other areae, but the outer side is bordered by a keel. Apex of scutellum with 2 foveae, separated by a narrow keel; post-scutellum with 2 larger foveae.

Pleurae smooth, the apical two-thirds of the metapleurae opaque, rugose, bordered behind. Except the outer basal and the central apical, the areae are strongly striated. Pro- and mesopleurae smooth; the metapleurae, except at the base, rugosely punctured. Basal segment as wide as it is long; in the centre, towards the apex is a large, raised, bell-shaped area, bordered by wide curved furrows. Ovipositor broad, covered with a white pile.

The parapsidal furrows are deep and crenulated. Post-scutellum with a wide deep, curved basal furrow, extending its whole length. The long spur of the hind tibiae more than half the length of metatarsus. Mandibles and tarsi entirely black. ♀ and ♂.

Length 5 m.m.

Waigeu. January.

Cardiochelis piliventris, sp. n.

Black, the anterior knees and the 4 anterior tarsi testaceous, the calcaria white; wings hyaline to the transverse cubital, recurrent nervures and the base of the discoidal cellule to opposite the base of the 2nd cubital cellule; there is a pyriform cloud at the base of the radial cellule; the basal three-fourths of the hind wings hyaline, the apex smoky; the stigma and nervures black; the 2nd abscissa of the radius in the middle, the base of the 3rd entirely and the recurrent nervure white. Densely covered with white pubescence, which is longer on the face, metanotum and ventral surface. Areola gradually widened from the base and apex to the middle, both being sharp-pointed; bordered by its basal half is an area, which extends to the top of the apical slope, the base being in consequence widened, outside it is a narrower, longer area of equal width; there are 3 areae on the apical slope; the outer the larger, rounded at the top, angled in the middle below by a widely crenulated furrow; the base with a row of large foveae. The long spur of the hind tibiae three-fourths of the length of the metatarsus; all the spurs are white. ♂.

Length 5 m.m.

January and December.

Probably the extent of the hyaline colour in the wings varies; the fuscous cloud in the apex of the 1st cubital cellule varies in depth of colour and extent; the basal cloud also varies.

Allied to *C. fuscipennis* Szép. and, more particularly, to *C. fasciatus*, Szép. The structure and form of the metanotum is described in neither of the two species mentioned, nor the form of the areola, which readily separates the 2 species I have described. In both the antennae are over 40-jointed.

Chalcididae.

Chalcis papuana, sp. n.

Black, the sides and apex of the tegulae broadly, the black central part narrowed below, the apical third of the fore femora, the apical fourth of the middle, an obliquely oval spot on the apex of the posterior above, the 4 front tibiae, the hinder except the basal fourth and the tarsi, lemon-yellow; the hind femora with 12 teeth, the apical 4 smaller, regular and close together, the others large, more irregular and more widely and irregularly separated; wings hyaline, the nervures black. ♀.

Length 6 m.m.

October.

Head, thorax and apical segments of abdomen densely covered with silvery pubescence. The raised plate in the middle of the face rugosely punctured below; it becomes gradually narrowed to a point above; is smooth, bare and shining; the space bordering the plate is coarsely rugosely pointed; the smooth lower border has 8 foveae; the outer side is transversely striated, the striae more or less roundly curved; the raised sides of the front irregularly rugosely punctured and thickly covered with silvery pubescence. The vertex closely

reticulated, as is also the occiput, the latter more strongly laterally than in the middle. Pro-mesonotum and scutellum strongly, almost umbilically punctate, the latter more strongly than the rest; its apex with a shallow, rounded incision and densely covered with longish silvery hair. Metanotum widely reticulated, the basal row smooth, square, the apical striated; the areola twice wider than long, becoming gradually widened towards the apex. Propleurae with the apex smooth, the rest with coarse, opaque, irregular striae; base of mesopleurae with 4 roundish foveae at the base above, closely reticulated below; this is followed by a striated belt, the upper striae weaker, and more widely separated, the rest closely reticulated; metapleurae coarsely reticulated. Apical abdominal segments closely punctured.