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Entomological Results from the Swedish Expedition 1934 to Burma and British India.

Diptera: Ptychopteridae.

Collected by RENÉ MALAISE.

By

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With 1 Figure in the text.

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I am greatly indebted to Dr. RENÉ MALAISE for the privilege of being able to study the rich collections of Tipuloidea that were made by his expedition in 1934. In this paper only the Ptychopteridae are considered, the much more numerous Tipulidae and other groups being reserved for later papers. All types and uniques of the species herein discussed will be preserved in the Naturhistoriska Riksmuseet, Stockholm.

The Ptychopteridae constitutes a small family of Diptera, including three genera and approximately fifty species. Two of the genera, *Bittacomorpha* WESTWOOD and *Bittacomorphella* ALEXANDER, are chiefly restricted to the Nearctic Region, with two species of the latter genus occurring in Japan. The chief genus, *Ptychoptera* MEIGEN, occurs in the Nearctic, Palaearctic, Ethiopian and Oriental Regions, although at the present moment with no known forms in either the Neotropical or Australasian Regions. In the Himalayan and Indo-Chinese areas, there appears to be a marked concentration of species that are presumably still poorly known. Five species were included in the present materials of which no fewer than four proved to be undescribed.

Key to the Indo-Himalayan and Chinese Species of Ptychoptera.

1. *Rs* elongate, more than twice as long as *r-m* and exceeding one-half R_{4+5} 2

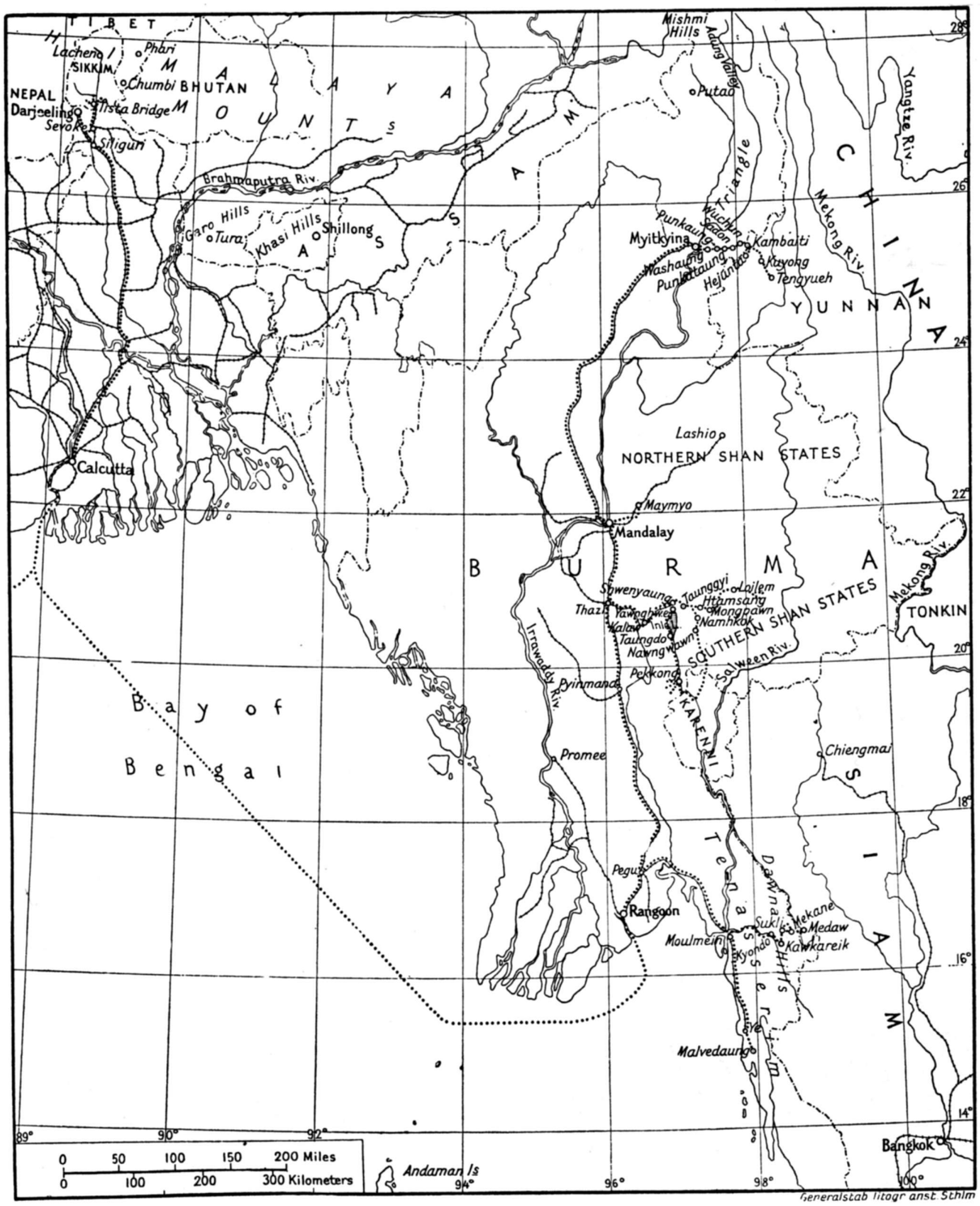

Fig. 1. Sketch-map of the route of the Expedition with collecting localities. The Expedition consisted of Dr. MALAISE and his wife.

–. *Rs* very short, approximately equal to or shorter than *r-m* and less than one-fourth R_{4+5} 6

2. Wings very heavily patterned with brown, the darkened areas subequal in extent to the ground; two conspicuous brown markings basad of the band at cord. (Southeastern China) *P. bellula* ALEX.

–. Wings unpatterned or with the markings very reduced, there being none basad of the cord. 3

3. Mesothorax yellow, the praescutum patterned with narrow dark brown lines; wings with restricted pale brown markings at cord and over the fork of R_{4+5}. (Northeastern Burma) *P. malaisei* sp. n.

–. Mesothorax not as above, at least the praescutum uniformly blackened; wings unpatterned. 4

4. Mesonotum and pleura yellow, the praescutum abruptly blackened. (Southwestern China) *P. clitellaria* ALEX.
–. Mesopleura uniformly blackened.
5. Wings with *r-m* some distance before fork of *Rs*; femora with distal third or more brilliant yellow. (Northern India; northeastern Burma) *P. tibialis* BRUNETTI.
–. Wings with *r-m* close to the fork of *Rs*; femora uniformly blackened. (Northeastern Burma) *P. ichneumonoidea* sp. n.
6. Thorax yellow, the praescutum abruptly blackened. (Northeastern Burma) *P. praescutellaris* sp. n.
–. Mesonotum blackened, this color involving the scutellum and postnotum. 7
7. Thoracic pleura yellow, contrasting with the chiefly blackened mesonotum. (Burma: Shan States) *P. annandalei* BRUNETTI.
–. Thorax uniformly blackened. 8
8. Tibiae and tarsi entirely black. (Northern India) *P. distincta* BRUNETTI.
–. Tibiae brownish yellow, the tips narrowly darkened; tarsi brownish black to black. (Northeastern Burma) *P. perbona* sp. n.

In addition to the species keyed, there are in southeastern Asia three further described forms, occurring in Formosa, Sumatra and Java. All of these are superficially like *annandalei* and would run to this latter species by the use of the key.

Ptychoptera malaisei sp. n.

Size large (wing over 9 mm); general coloration of mesonotum yellow, the praescutum with four black lines, the elongate intermediate pair united behind; lateral borders of mediotergite narrowly darkened; head yellow, vertex blackened; femora blackened apically, the bases broadly pale; tarsi black, the proximal portion of basitarsi restrictedly brightened; wings brownish yellow, very restrictedly patterned with pale brown; *Rs* long, subequal to or only a little shorter than R_{4+5}, *r-m* close to its fork; basal abdominal segments chiefly yellow, the outer five segments uniformly black; male hypopygium with the notch of the tergite unusually wide, the lateral lobes relatively slender.

Male. Length about 10 mm; wing 9.5—10.5 mm; antenna about 4—4.2 mm.

Female. Length about 9.5 mm; wing 10 -10.5 mm; antenna 2.6—2.7 mm.

Rostrum light yellow, labella a trifle darker; palpi pale yellow, especially the unusually elongate terminal segment. Antennae (male) of moderate length; basal three or four segments yellow, the remainder black; flagellar segments cylindrical, verticils short; in female, the proximal seven or eight segments yellow, the outer segments darkened. Head yellow beneath and in front of antennal bases; vertex blackened, the posterior portion, occiput and postgenae abruptly yellow; on

the postgenae, on either side of the occipital foramen and close to the margin of the compound eye with a blackened spot that appears almost like an ocellus.

Prothorax uniformly yellow. Mesonotum yellow, the praescutum conspicuously patterned with black, including two elongate intermediate lines, separate and slightly wider at their anterior ends, narrowed and nearly united into a loop on the scutum; besides these lines, narrow strips on the posterior border of praescutum just above the wing root; lateral borders of mediotergite narrowly margined with brownish black. Pleura uniformly yellow. Halteres infuscated, the base of stem restrictedly yellow. Legs with the coxae and trochanters yellow; femora blackened apically, the bases broadly yellow, involving about the proximal half on the fore and middle pairs, about the proximal three-fourths to four-fifths on posterior femora; tibiae brownish yellow to brown, the tips narrowly darker; tarsi black, the proximal portion of basitarsi very restrictedly brightened; tibial spurs long and very conspicuously hairy; tarsal segments one and two with a row of erect spinous setae along ventral face, additional to the normal appressed vestiture. Wings brownish yellow, the prearcular and costal fields more saturated yellow; a very restricted and inconspicuous pale brown pattern, including origin of *Rs*, cord and fork of R_{4+5} but not of M_{1+2}; veins brown, brighter in the flavous portions. Macrotrichia of cells relatively restricted in number. Venation: *Rs* unusually long, from about four-fifths to fully equal in length to R_{4+5}; *r-m* at or just before fork of *Rs*; cell M_1 very small.

Abdomen with basal four segments yellow, the tergites slightly patterned with brownish black, appearing chiefly as caudal rings, those of the outer segments much wider; basal sternites uniformly yellow; outer abdominal segments, including the genitalia of both sexes, uniformly black. Ovipositor with cerci unusually broad at base, narrowed to an acute point. Male hypopygium (Fig. 2) relatively large, the tergite relatively small, the sternal region large and conspicuously produced ventrad, provided with dense brushes of strong reddish setae that are directed chiefly caudad, three of these setae very stout and flattened, forming a row. Ninth tergite, *9t*, transverse, each outer lateral angle produced caudad into a pale fingerlike lobe that is about as long as the tergite opposite its origin; lobes separated by a broad quadrate notch; surface of tergite with a low subconical or rounded dusky median lobe. Dististyle, *d*, with three distinct lobes, the outer one short-stemmed, unequally bifid, the outer lobule broadly flattened, the inner one much more slender, both lobules with

numerous elongate setae; intermediate lobe a strong, darkened, chiefly glabrous blade, the truncated apex even more blackened, provided with several setae; basal lobe semioval, with strong spinous setae on the outer aspect, those on the lower or caudal face more delicate.

Holotype, alcoholic ♂, Kambaiti, altitude 6800 feet, March 29, 1934 (MALAISE). *Allotopotype*, ♀, with the type. *Paratopotypes*, April 1, 1934.

I take great pleasure in dedicating this distinct fly to the collector, Dr. RENÉ MALAISE, who has added vastly to our knowledge of the insect fauna of Burma. The species is very different from all of those now known from Asia, being most nearly allied to *Ptychoptera ichneumonoidea* sp. n. and *P. tibialis* BRUNETTI, as shown by the key.

Ptychoptera tibialis BRUNETTI.

1911. *Ptychoptera tibialis* BRUNETTI; Rec. Indian Mus., 6: 233.
1911. *Ptychoptera atritarsis* BRUNETTI; l. c., 6: 234.

Described from Darjiling, Eastern Himalayas. Kambaiti, 6800 feet, April 1, 1934 (MALAISE); a single badly damaged specimen in alcohol.

Ptychoptera ichneumonoidea sp. n.

General coloration black, the second abdominal segment abruptly obscure orange; basal flagellar segments yellow; posterior tibiae and basitarsi dilated, obscure white; wings brownish yellow, unpatterned; *Rs* elongate, about two-thirds R_{4+5} and in direct longitudinal alignment with this vein; *r-m* close to fork of *Rs*.

Female. Length about 11 mm; wing 10 mm.

Rostrum and labella dark brown; palpi whitened, the incisures and distal third of the last segment darker. Antennae 15-segmented; scape and pedicel reddish brown, succeeding three segments yellow, the remaining flagellar segments black; first flagellar segment longer than the succeeding two taken together. Head black, more reddened beneath.

Thorax uniformly polished black, only the scutellum slightly brightened; dorsopleural membrane darkened. Halteres with stem and base of knob dusky, remainder somewhat paler. Legs with fore and middle coxae yellow, the base of fore pair narrowly darkened, posterior coxae uniformly blackened; trochanters obscure yellow; fore legs broken; middle femora obscure yellow, at apex passing into brownish black; tibiae and basitarsi obscure yellow, the outer tarsal segments blackened; posterior femora obscure yellow, the tips less distinctly darkened; tibiae

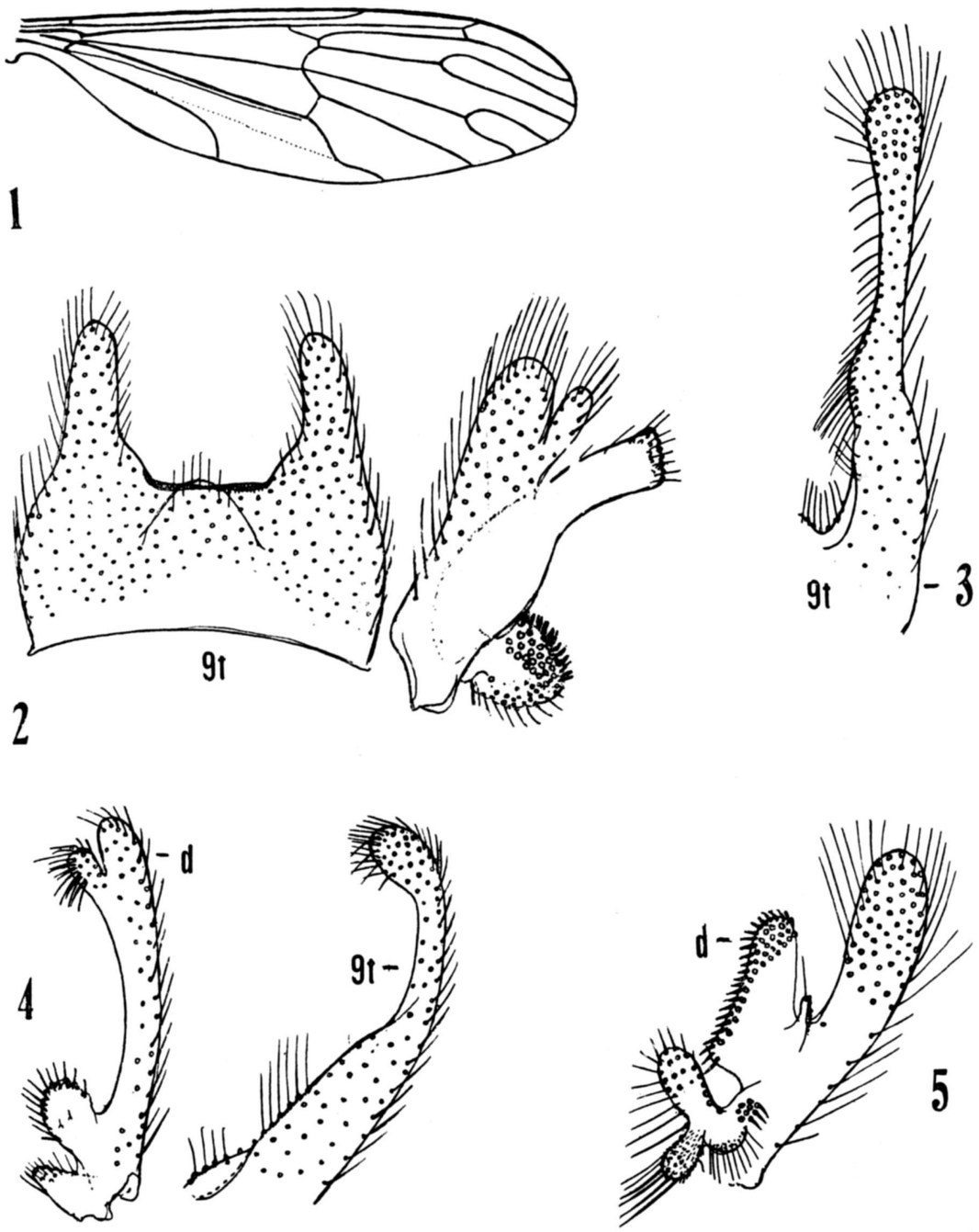

Fig. 1. *Ptychoptera praescutellaris* sp. n.; venation.
Fig. 2. *Ptychoptera malaisei* sp. n.; male hypopygium.
Fig. 3. *Ptychoptera praescutellaris* sp. n.; male hypopygium.
Fig. 4. *Ptychoptera perbona* sp. n.; male hypopygium.
Fig. 5. *Ptychoptera praescutellaris* sp. n.; male hypopygium.
(*Symbols*: *d*, dististyle; *t*, tergite)

restrictedly brightened basally, the distal fourth dirty white, the intermediate portion brownish black; basitarsi dirty white, the tip and remainder of tarsi black; distal end of tibiae and all but the distal end of basitarsus dilated; vestiture of the whitened portions pale. Wings with a strong brownish yellow tinge, the prearcular and costal regions somewhat clearer yellow; stigmal region not differently colored; veins brown. Macrotrichia of cells abundant but small and inconspicuous. Venation *Rs* elongate, in direct longitudinal alignment with R_{4+5}, about

two-thirds to three-fourths as long as the latter; *r-m* close to fork of *Rs*; cell M_1 relatively small, a little more than one-third cell R_4; distal section of Cu_1 only moderately sinuous.

Abdomen brownish black, segment two abruptly obscure orange. Ovipositor with the cerci relatively short; base blackened, the remainder horn-yellow, the extreme tip infuscated.

Holotype, alcoholic ♀, Kambaiti, altitude 7000 feet, May 29, 1934 (MALAISE).

Ptychoptera ichneumonoidea is entirely distinct from other regional species of the genus. The most similar form is *P. tibialis* BRUNETTI, an entirely different fly. I possess a number of co-type specimens of *tibialis*, received in exchange with BRUNETTI, and all of these show *r-m* some distance before the fork of *Rs*.

Ptychoptera praescutellaris sp. n.

General coloration of thorax yellow, the disk of the praescutum and adjoining portions of the scutum abruptly black; antennae (male) long; femora yellow, the tips narrowly blackened; wings with a yellow tinge, restrictedly patterned with darker; *Rs* very short, subequal in length to *r-m*; male hypopygium with the tergite profoundly emarginate, the lateral arms long and slender.

Male. Length about 9 mm; wing 8.2 mm; antenna over 7 mm.

Female. Length about 10 mm; wing 10 mm.

Rostrum and labella brown; basal segments of palpi yellow, the outer segments slightly darker. Antennae with scape and pedicel light brown, flagellum uniformly dark brown, the basal two-thirds of the first segment yellow. Head black.

Pronotum yellow. Thorax uniformly yellow, excepting the praescutum and adjoining portions of the scutum which form a solid blackened disk. Halteres weakly darkened. Legs with the coxae and trochanters yellow; femora yellow, the tips narrowly blackened, slightly more extensively so on the fore legs; tibiae yellow, the tips blackened; basitarsi obscure brownish yellow on proximal portion, remainder of tarsi passing into black. Wings (Fig. 1) with a yellowish tinge, the prearcular and costal fields clearer yellow; a very restricted to scarcely evident dark pattern along cord and at the forks of R_{4+5} and M_{1+2}; veins dark brown, brighter in the flavous portions. Macrotrichia of outer cells relatively restricted, as compared with other species. Venation: *Rs* very short, subequal in length to *r-m*; basal section of R_{4+5} distinct, perpendicular, about one-third as long as *Rs*; cell R_4 subequal in length to its petiole.

Abdomen (male) with basal tergites yellow, their caudal margins broadly ringed with black, the subterminal segments more uniformly blackened; basal sternites more uniformly yellow; hypopygium obscure yellow; in the female, only the basal tergites yellow, the mid-dorsal portion of the third blackened, the succeeding segments uniformly black; base of ovipositor obscure brownish yellow; cerci blackened at base and less evidently so at apex; sternites obscure yellow, the caudal borders rather narrowly blackened, the seventh and eighth sternites more extensively blackened. Male hypopygium (Figs. 3 and 5) with the tergite (Fig. 3 *9t*) profoundly emarginate, the lateral arms long and slender, a little dilated on mesal face near base and here provided with long abundant setae; apex of lobe again weakly dilated and slightly infuscated, provided with long conspicuous setae, especially on the outer surface. Dististyle (Fig. 5, *d*) relatively small, bearing three principal lobes, the outer lobe relatively short and clavate, provided with long conspicuous seta, the longest only a little shorter than the lobe itself; intermediate arm broadly flattened, the entire margin but especially the caudal end with abundant short black spinous setae, chiefly retrorse; in axil of this lobe with a small fingerlike lobule or flange; basal lobe bifid, the more posterior lobule slender, with unusually long and abundant setae and additional microscopic setulae; outer lobule with shorter and stouter setae on the distal half only, without interpolated setulae.

Holotype, alcoholic ♂, Kambaiti, altitude 6500 feet, May 16. 1934 (Malaise). *Allotopotype*, ♀, with the type. *Paratopotype*, 1 ♂, June 4, 1934.

Although very similar in its general coloration to *Ptychoptera clitellaria* Alexander, the present fly is actually very distinct as is well shown by the venation, with *Rs* very short, subequal in length to *r-m*. In *clitellaria Rs* is elongate, nearly straight, more than three times as long as *r-m* and in direct longitudinal alignment with R_{4+5}.

Ptychoptera perbona sp. n.

Head and thorax almost uniformly blackened, including the entire mesonotum; antennae (male) relatively long; femora yellow, the tips narrowly blackened, tibiae brownish yellow; wings pale yellow, with incomplete brown crossbands at cord and across the outer forks; apex of wing less intensely darkened; *Rs* short; male hypopygium with the dististyle shallowly and unequally bifid at apex.

Male. Length about 7—7.5 mm; wing 7.5—8.5 mm; antenna 4.2—4.8 mm.

Female. Length about 8.5 mm; wing about 9 mm.

Rostrum brown, labella yellow; palpi yellow, the terminal segment somewhat darker. Antennae moderately long; scape and pedicel black, first flagellar segment yellow, succeeding segments brownish black; flagellar segments cylindrical. Head black.

Prothorax small, chiefly pale. Thoracic dorsum, including pleurotergite, uniformly black or blue black, the pleura more brownish black; dorsopleural membrane pale. Halteres with stem pale, knob weakly infuscated. Legs with all coxae yellow; trochanters yellow; femora yellow, the tips narrowly blackened, the amount subequal on all legs; tibiae brownish yellow, the tips narrowly darkened; tarsi brownish black, passing into black. Wings chiefly pale yellow, with narrow brown cross-bands at cord and across the outer forks, not reaching the posterior border; wing apex distinctly darkened but paler than the bands; prearcular and costal cells yellow; veins brown, not or scarcely darker in the infuscated areas, paler in the flavous portions. Macrotrichia of cells abundant, occupying more than the distal third of wing, in the Anal field and in outer ends of cells *R* and *M* extending even more basad. Venation: *Rs* unusually short, as in the group, from three-fifths to about two-thirds *r-m*; both forked cells relatively deep, M_1 being about one-half R_4.

Abdomen with basal tergite black; succeeding tergites brownish black, the second with a major yellow area on either side at near midlength; third tergite with more than the basal half yellow; outer segments uniformly darkened, the hypopygium somewhat paler, in cases obscure yellow. Male hypopygium (Fig. 4) with the tergite *9t*, profoundly bifid, each arm slender, a little dilated at apex and here with more abundant and conspicuous black setae. Dististyle, *d*, consisting of a gently curved rod that is slightly expanded outwardly and weakly bilobed at tip, the smaller inner lobule with more numerous but shorter erect to retrorse setae; outer lobule with elongate normal setae on outer margin; at base of style with two small lobes, the outer one with more abundant and stouter black setae. Sternite of typical form with each half produced into a slender spinous point; in the subspecies *flaviventris*, described below, this appears to be lacking.

Holotype, alcoholic ♂, Kambaiti, altitude 7000 feet, June 4, 1934 (Malaise). *Allotopotype*, ♀, with the type. *Paratopotypes*, numerous ♂♂, fewer ♀♀, altitude 6500—7000 feet, May 16—June 16, 1934 (Malaise).

Certain of the specimens have the wing pattern paler and the abdomen, excepting the black basal tergite, is almost uniformly reddened, lacking the conspicuous dark pattern of the typical form. Such specimens appear to be fully-colored and give the decided impression of representing a distinct species. However, from the structure of the male hypopygium, I must consider them to be specifically the same but believe them to represent a distinct subspecies which I hereby designate *Ptychoptera perbona flaviventris* subsp. n.

(*Holotype*, alcoholic ♂, Kambaiti, altitude 7000 feet, June 12, 1934). As indicated above, there appear to be differences in the sternite of the male hypopygium but the tergite and dististyle are very similar in the two forms.

Among the previously described species, the present fly seems to be closest to *Ptychoptera distincta* BRUNETTI (Eastern Himalayas: Darjiling) which differs especially in the coloration of the antennae, legs and abdomen. It seems certain that the venation, as twice figured by BRUNETTI, is incorrect, especially as regards the course of vein Cu_1.

Tryckt den 18 april 1946.

Uppsala 1946. Almqvist & Wiksells Boktryckeri AB