Notes on Pterophoridae

Platyptilia metzneri Zell. and related species

by

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When in 1841 ZELLER (1) made a division of his first group (*Platyptilus*) of the genus *Pterophorus*, he placed the species *P. metzneri* Zell. in section *d.* beside *P. zetterstedti* Zell. (= *calodactyla* (Den. & Schiff.)) and *P. fischeri* Zell. (= *tesseradactyla* (L.)).

Taking into consideration the fact that ZELLER's *P. zetterstedti* comprised also *P. gonodactyla* (Den. & Schiff.) and *P. nemoralis* Zell. (as varieties), such a division was quite obvious. These species show many common features and also those of a specific nature, so they can be placed in a common systematic sub-unit.

In the original description of *P. metzneri* ZELLER merely stated its native country to be Hungary (either not bothering to give more detailed data concerning the locality or having no such data at his disposal). In the "Revision" published in 1852 ZELLER (2) included again the Latin description of the species in question as well as concise remarks (in German) on its external appearance. Thus when in 1856 FREY (3) was determining specimens of a *Platyptilia* unknown to him and taken in the Alps he assumed that they belonged to a new species and described it under the name of *Pterophorus bolli*, although he was well aware of ZELLER's detailed descriptions (1841, 1852). FREY's acquaintance with ZELLER's descriptions is evident from his statement that the new species is very closely related to *P. metzneri* Zell.

The examination of the genitalia undertaken by the author of this paper has shown that *P. metzneri* Zell. stands in a rather isolated position in the systematic division of the genus *Platyptilia* Hbn., and, so far as the male copulatory organ is concerned, has nothing in common with other species with which it was previously linked by ZELLER.

The most distinguishing feature is the presence of a distinct cucullus of the valva, also the shape of the valva and uncus differs from the majority of the European or Palaearctic species of this genus. The structure of the cucullus and of the distinctly apically broadened and spatulate uncus shows that the male copulatory organ of this and related species is similar to the copulatory organs of species belonging to the genus *Amblyptilia* Hbn. However, the lack of a pad, set with spatulate scales at the base of the valva and especially the external appearance of the specimens (despite their variability) leave no doubt that we are dealing with true Platyptilids.

In general the copulatory organ of this type is characteristic for the majority of the North-American species of the genus *Platyptilia* Hbn. From the Palaearctic region only three species with such genitalia were hitherto known; they are *P. metzneri* Zell., *P. terminalis* Ersch., and *P. taprobanes* (Feld.). I have discovered yet another species of this group; its description is given elsewhere in this paper.

Unfortunately I had no opportunity to examine any female specimens of the species in question; all the available material consisted of males. The description of the female genitalia of these species must therefore be postponed.

In the case of *P. taprobanes* (Feld.) only one specimen from the Palaearctic region was examined by the author; this was a damaged specimen from Malta. The description of the male copulatory organ of this species is based upon the work of LANGE (4). In that paper is also included a description of the female genitalia of *P. taprobanes* (Feld.) (LANGE, op. cit., p. 602).

Platyptilia metzneri Zell.

(figs. 1, 2, 3, 4, 5, 6)

metzneri Zeller, 1841, *Isis*, **10** : 783.
bolli Frey, 1856, Tineen u. Pterophoren d. Schweiz : 403. (*Pterophorus*).

Adult: Wing-span 18—26 mm. Fore wings: Ground-colour grey, the dark triangular mark well developed. Costal and inner margins darker. Near the middle of the wing and near the costal margin there is a dark, roundish, sometimes elongated spot. Another similar spot, somewhat less distinctly marked, is situated nearer the inner margin in the basal area. On the first lobe the area between the outer side of the triangular mark and the white transverse line is whitish. In the lower portion of the first lobe a dark, longitudinal, wedge-like dash pointed towards the whitish area. This dash, situated just before the white transverse line, is a very characteristic element of the design of this species as well as of others related to it. The white transverse line distinct, crossing both lobes. Fringes white, at the base brown, in the extension of the white transverse line snow-white, at the apex and at the anal angle of the first lobe almost black. Fringes at the anterior angle of the second lobe and at the tornus also almost black. Two dark dots are situated on the fringes of the inner margin. Hind wings uniformly grey, only the base of cleft of the first and second lobes with indistinct, darker spots. Fringes whitish. The dark scale-tuft on fringes of the inner margin of the third lobe near the apex. Head grey, conical protuberance on forehead not

Fig. 1. *Platyptilia metzneri* Zell. ♂ "Origin ? Coll. MÜSLER (METZNER ?)", "*Metzneri* Zeller", "Prep. gen. Alucit. 4 Mus. Zool. Berlin, *Platyptilia metzneri* Z. Prep. A. J. GAJ 1953", coll. Zoologisches Museum in Berlin.

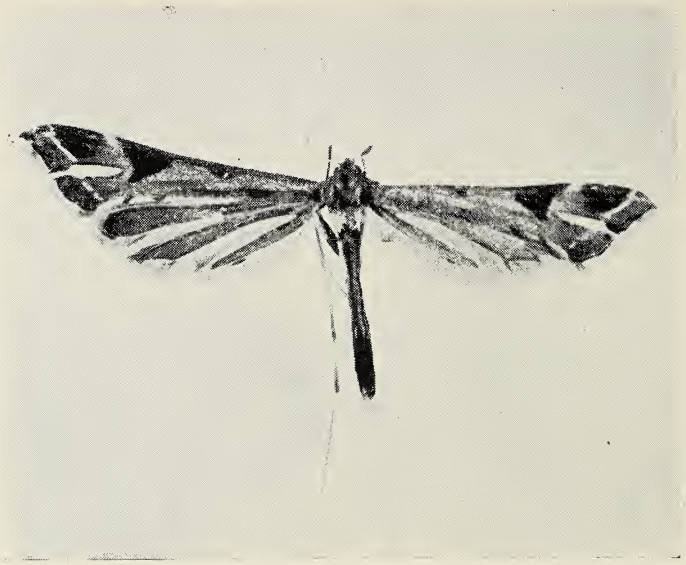

Fig. 2. *Platyptilia metzneri* Zell. ♂ "Ala Tau 78 Hbh", "Prep. gen. Alucit. 7 Mus. Zool. Berlin, *Platyptilia metzneri* Z. Prep. A. J. GAJ 1954", coll. Zoologisches Museum in Berlin.

pronounced. Antennae almost uniformly grey. Palps rather long; the middle joint apically thickened by scales; the terminal joint short and pointed. Abdomen whitish at the base, then dark grey, segments laterally with scattered groups of whitish scales. Legs brown-grey, the spurs of hind legs of almost equal length, the inner ones a little longer than the outer ones. Hind legs slightly thickened by dark scales at bases of spurs.

The specimens from Asia are much bigger than those from Europe. In specimens from the Caucasus Mts. the ground-colour of the wing is also grey but the design of the fore wings is very distinct. Costal margin between the triangular mark and the white transverse line much darkened. The wedge-like dash almost black. A specimen from the Ala Tau Mts. has a light-brown ground; the distinct elements of the design dark brown.

Male copulatory organ: Uncus rather long, not very broad, distinctly spatulate at the apex. Tegumen wide. Valva not very slender, ending in a distinct, pointed cucullus. Surface of valva, apart from the characteristic fold below the cucullus, smooth. Sacculus broad, ellipsoidal. Anellus lobes moderately long, wide basally, then narrowed, terminally again somewhat widened, unilaterally produced into rather sharp apices. Saccus bluntly pointed. Aedeagus curved, evenly narrowing apically, serrated at the tip.

In the specimens from Asia the whole organ is somewhat larger, uncus a little less spatulate, apices of anellus lobes more blunt.

Time of appearance: In Europe July; from Asia no reliable data.

Geographical distribution: Europe: Hungary, Bulgaria, the Alps.

Fig. 3. Copulatory organ of the specimen shown in fig. 1; fig. 4. Aedeagus of the specimen shown in fig. 1; fig. 5. Copulatory organ of the specimen shown in fig. 2; fig. 6. Aedeagus of the specimen shown in fig. 2.

Asia: Armenia (Caucasus Mts.), Ala Tau (northern margin of the Central Tien-Shan Mts.).

Biology: Unknown.

Platyptilia terminalis Ersch.
(figs. 7, 8, 9)

terminalis Erschoff, 1877, *Horae Soc. Ent. Ros.* **12** : 347.

In a very concise diagnosis Erschoff writes: "Fasciculo frontali brevi; alis ant. griseis, costa fuscescente, dorso rufescente, triangulo ante fissuram fusco, striga per lacinias albida, subtus per digitum primum producta, ciliis digiti tertii ante apicem striola nigra notatis. ♂. Expl. al. ant. 22 mm." As the sole feature distinguishing this species from *P. gonodactyla* (Den. & Schiff.) he mentions the position of the scale-tuft on the fringes of the inner margin of the third lobe of the hind wings.

Adult: wing-span 20—22 mm. Fore wings: Ground-colour light brown. Markings very distinct. Costal margin strongly suffused with dark brown scales. Inner margin darkened at the base and then again in the middle of the wing's length. Dark spots rather indistinctly marked; especially the one situated in the basal area which merges with the suffusion of the inner margin. The triangular mark dark brown, sharply defined, bordered on its outer side (towards apex) by a whitish area. Apical area strongly darkened, cut by a distinct white transverse line crossing both lobes. The dark wedge-like dash situated in the darkened area

of the lower portion of the first lobe not very distinctly marked. Fringes white, brown only at the apex, at the anal angle of the first lobe, at the base of the cleft and at the anterior angle of the second lobe as well as on the tornus. Fringes of the inner margin whitish in the basal part, otherwise light brown, merging to-

Fig. 7. *Platyptilia terminalis* Ersch. ♂ "prep. gen. nr. 34", "♂", "FLETCHER coll. 9009. Sinkiang. Korla; Juldus.", "Mus. Zool. Polonicum Warszawa, 49/47, ex coll. T. B. FLETCHER", coll. Zool. Inst., P.A.N., Warsaw.

wards the base of the wing into uniformly light brown. Two dots, situated on fringes of the inner margin, brown, not very distinct. Hind wings light brown without any markings. Fringes somewhat lighter. The dark scale-tuft on the fringes of the inner margin of the third lobe small, situated near the apex. Head brown, the conical protuberance on forehead not pronounced, rather short. Antennae whitish-grey. Palps longer than head; the middle joint apically slightly thickened with scales; the terminal one rather long and pointed. Abdomen light brown, laterally lighter with scattered groups of whitish scales. Legs brown; hind legs thickened with scales at bases of spurs. Sections below thickenings whitish. Inner and outer spurs of almost equal length.

Male copulatory organ: Uncus long, slender, only the apex strongly

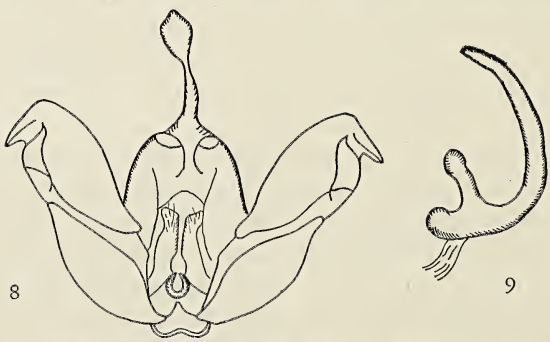

Fig. 8. Copulatory organ of the specimen shown in fig. 7; fig. 9. Aedeagus of the specimen shown in fig. 7.

spatulate. Tegumen rather slender. Valva moderately broad, cucullus distinctly produced, pointed. Surface of valva, besides a characteristic fold below the cucullus, smooth. Sacculus not very broad, ellipsoidal. Anellus lobes long, wide, bluntly terminated. Saccus produced, rather pointed, grooved below. Aedeagus strongly curved, slightly narrowing apically, slightly serrated at the tip.

Time of appearance: June.

Geographical distribution: Central Asia (Sinkiang) and Siberia (Irkutsk).

Biology: Unknown.

Platyptilia catharodactyla sp.n.
(figs. 10, 11, 12)

Adult: Wing-span 28 mm. Fore wings: Ground-colour grey. Costal margin very slightly darkened. Markings reduced. The triangular mark lacking, in its place two brown spots situated symmetrically on both sides of the base of cleft. The two dark spots, one situated about midway on the costal margin of the wing, the other near the inner margin but somewhat nearer to the base, are very weakly marked. The first lobe distinctly paler from base of cleft to about half its length, especially so on the costal margin. The area between this

Fig. 10. *Platyptilia catharodactyla* sp.n. ♂ "Tarbagatai 77 Hbh", "*Zetterstedtii ?* an *Metzneri*", "Prep. gen. Alucit. 1 Mus. Zool. Berlin, *Platyptilia* sp. Prep. A. J. Gaj 1953", coll. Zoologisches Museum in Berlin.

pale spot and the white transverse line brown. This area is the only dark brown element of the design. The dark wedge-like dash indistinctly marked. The white transverse line distinct in the first lobe, less distinct in the second one, interrupted in the middle and doubly arched so that its shape resembles an inverted Greek letter epsilon. Fringes white, brownish at their base, at the apex of the wing dark brown, at the anal angle of the first lobe dark brown too, at the base of cleft whitish. Fringes of the anterior angle of the second lobe dark brown. On the outer margin of the second lobe the brown basal part of the fringes twice interrupted by moderately wide white areas. Fringes of tornus dark brown. On

inner margin two dark specks on white fringes. Hind wings grey-brown, costal margin and the margins of lobes slightly suffused with dark. Fringes light-brown, on the outer margin of the first lobe darker at the base. At the anal angle of the second lobe there is a tuft of darker fringes. The dark scale-tuft on the fringes of the inner margin of the third lobe very small, situated near the apex. Head light brown, conical protuberance on forehead not pronounced. Antennae in basal part uniformly light-brown (other parts of the antennae as well as the palps are not preserved in the specimen examined). Abdomen uniformly grey, of similar colour as the ground-colour of fore wings. Legs are not preserved in the specimen examined.

Male copulatory organ: Uncus long, broad, moderately spatulate, pointed at the tip. Tegumen rather slender. Valva broad, cucullus large, bluntly rounded. Parallel to the costa of valva runs from the cucullus a distinct, strongly sclerotised fold which opens widely and irregularly on the surface of the valva

11

12

Fig. 11. Copulatory organ of the specimen shown in fig. 10; fig. 12. Aedeagus of the specimen shown in fig. 10.

for about half its length. The fold situated below the cucullus large and broad. Sacculus also rather broad, ellipsoidal, in the apical part bluntly terminated (in all previous species bluntly rounded). Anellus lobes fairly long, narrowed in the middle portion, strongly widened at apices, flatly terminated. Saccus short, bluntly pointed. Aedeagus strongly curved, apically narrowed and almost pointed, very slightly serrated in the terminal portion.

Time of appearance: Unknown.

Geographical distribution: Thus far only one specimen is known, it comes from the Tarbagatai Mts. (Central Asia).

Biology: Unknown.

Type: The holotype, labelled "Tarbagatai 77 Hbh, Zetterstedtii ? an Metzneri" from STAUDINGER's collection (leg. HABERHAUER), is in the Zoologisches Museum der Humboldt Universität in Berlin.

Platyptilia taprobanes (Feld.)
(figs. 13, 14, 15)

taprobanes Felder, 1875, Reise Novara, Lep. Het., pl. 140, fig. 54 (*Amblyptilia*).
brachymorpha Meyrick, 1888, *Trans. ent. Soc. London*: 240.
seeboldi Hofmann, 1898, *Iris* (Dresden) **11**: 33 (*Amblyptilia*).
sythoffi Snellen, 1903, *Tijdschr. Ent.* **46**: 54, pl. v, figs. 15—16 (*Amblyptilia*).

crenulata Barnes & McDunnough, 1913, Cont. Nat. Hist. Lep. N.A. 2 : 185, pl. III, fig. 8.

Adult: wing-span 9—16 mm. Fore wings: Ground-colour brownish-grey. Costal margin slightly darkened, in the apical section of the wing more so than elsewhere. Dark spots in the basal area very small, indistinct. The triangular mark not very sharply indicated, bordered on its outer side (towards apex) by a light-

Fig. 13. *Platyptilia taprobanes* (Feld.) "Salina 19.9.1949", author's coll.

brown area. The wedge-like longitudinal dash situated in the lower portion of the first lobe very dark brown, almost black. The transverse white line distinct, crossing both lobes. Fringes white grey, dark basally on the termen of the first lobe, with a group of dark scales at the anal angle. Fringes of the second lobe with three groups of dark scales; the one at the anal angle most distinct. On the whitish-grey fringes of the inner margin, apart from scattered dark scales, there are two distinct dark spots. Hind wings uniformly grey brown. The basal portion at the apex of the first lobe dark. The second lobe sharply narrowed apically, its fringes whitish-grey. The dark scale-tuft on the inner margin of the third lobe is situated at the apex, moreover, there are some scattered dark scales over the whole length of the inner margin. Head brown, conical protuberance on forehead short, truncate at the top. Antennae brown. Palps not long; the middle joint distinctly thickened with scales above and below, the terminal joint thin, pointed.

Abdomen: Basal abdominal segments yellowish-white, the following more yellow with irregularly scattered dark dots. Legs long, fore legs and middle legs with dark stripes on outer sides of tibiae. Hind legs dark brown exteriorly, tarsal segments lighter, even whitish. The first pair of spurs very long, the second shorter

Male copulatory organ: Uncus very slender, pointed apically. Tegumen rather wide, rounded in the terminal portion. Valva slender, cucullus long, rather narrow. Below the cucullus there is a broad rounded fold. Sacculus long, narrowing in the terminal part. Anellus lobes slender, a little widened apically.

Saccus not produced, slightly grooved underneath. Aedeagus very long, strongly curved, gradually narrowing towards the apex.

Geographical distribution: Europe: Malta, Cyprus. Africa: Algeria, Cyrenaica, Mauritius Island, South Africa. Asia: Syria, India, Ceylon, Burma. Australia: Queensland. Pacific area: Hawaiian Islands. North America: Florida, California, South Carolina. South America: Brasil.

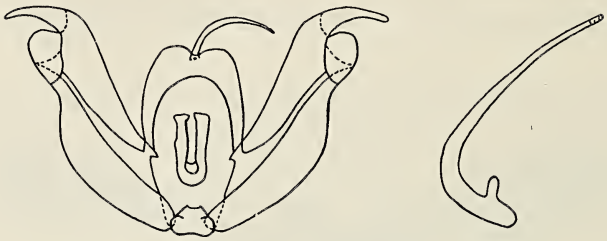

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Fig. 14. Copulatory organ of male *P. taprobanes* (Feld.), after LANGE ; fig. 15. Aedeagus of *P. taprobanes* (Feld.), after LANGE.

Biology: The larva and pupa are described and figured by FLETCHER (5, 6). As host plants are reported: *Celsia coromandeliana, Limnophila heterophylla, Pentstemon* and *Veronica anagalis*. The larvae were found in January, April, August and September, boring into the fruit of *Limnophila* and *Veronica* and the unripe seeds of *Pentstemon*.

Discussion: In some respects the male copulatory organ of this species is somewhat different from that of the other species discussed in this paper by having a pointed uncus, a much more slender cucullus and a non produced saccus. However, on account of other features, external ones (wedge-like longitudinal dash of the fore wings) as well as internal ones (the presence of a distinct cucullus), I think it advisable to include *P. taprobanes* (Feld.) in the *P. metzneri* Zell.-group.

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