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A NEW GENUS AND TWO NEW SPECIES OF PARROT MALLOPHAGA (PHILOPTERIDAE) FROM NEW GUINEA

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ABSTRACT

A new genus, Theresiella, gen. n., and two new species, hitchcocki, sp. n., and gemina, sp. n., are described from Psittacella brehmii (Psittacidae), of New Guinea.

This is the first paper of an intended series on philopterid Mallophaga found on Psittaciformes. The present paper deals with materials belonging to the CSIRO, Canberra, Australia, sent to me by Dr. Theresa Clay (British Museum, Natural History), whom I thank for the loan.

The specimens were collected from parrots of the genus *Psittacella*. According to Peters (1937, Check-list of Birds of the World, vol. 3) the genus occurs only in New Guinea and has three species: *brehmii*, *picta* and *modesta*, each one with several subspecies distributed over the entire island.

Theresiella, gen. n.

As in all genera of the *Echinophilopterus* complex, the anterior part of the head is shaped like a forceps, with branches formed by the hyaline margin.

Fore end of ventral carinae not fused with premarginal carina; dorsal anterior plate present, well outlined, but no more sclerotized than the remainder of the head; post-antennal suture absent. Antennae dimorphic. Only m.t.s. (marginal temporal seta) 4 long.

Abdomen of female with tergites I to VII interrupted on the mid line, VIII entire; in the male all tergites entire, with the exception of tergite I. Sternal plates of male entire; sternal plates of female, if present, reduced to two pairs of small and very slightly sclerotized plates laterally placed. Female with latero-posterior angles of abdominal segment II produced into a very long, tapering process. Terminal segment of male presenting a triangular dorsal process with the vertex pointing forward.

Genital region of female and genitalia of male characteristic and completely different from those found in any of the genera of the *Echinophilopterus* complex.

Type species of the genus: *Theresiella hitchcocki*, sp. n.

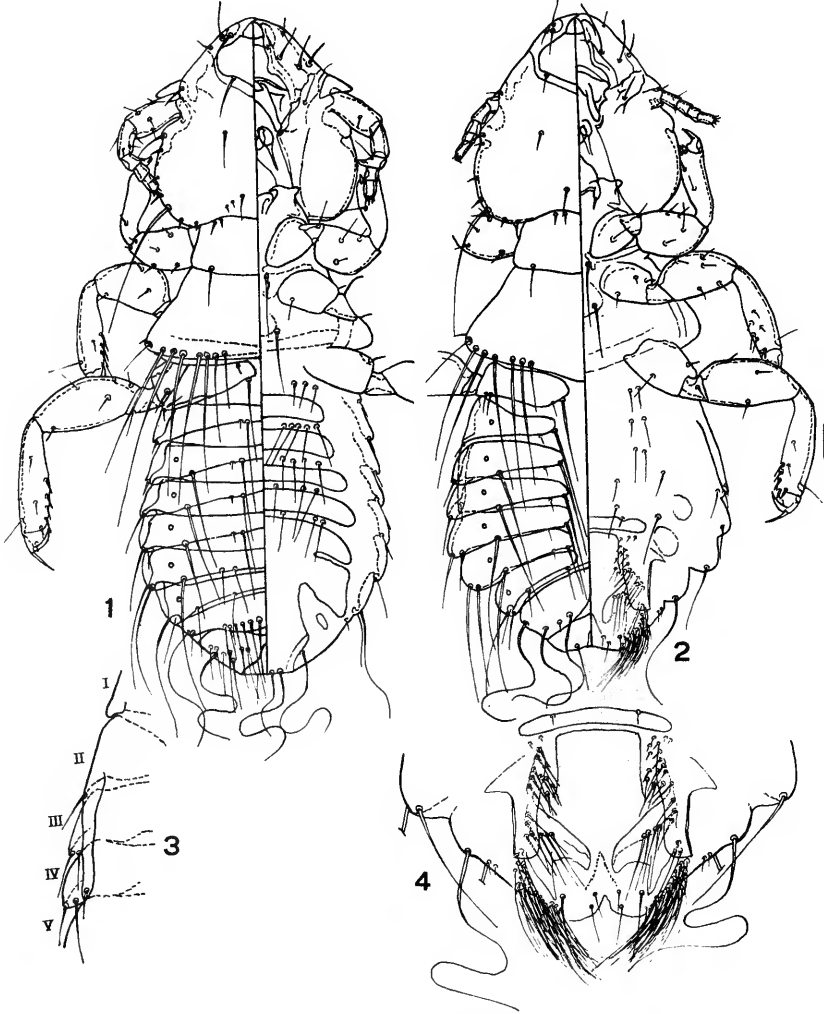
The genus is named in honour of Dr. Theresa Clay, for her unfailing good will and patience in helping students of Mallophaga.

***Theresiella hitchcocki*, sp. n.**
(Figs. 1-5)

Type-host: *Psitacella brehmii* subsp., from Kamang, Kubor Range (6°00'S, 144°30'E), New Guinea.

Material examined: 5 males and 9 females collected from the type-host by W. B. Hitchcock, 24.VII.1963.

Male (figs. 1-5): Head slightly wider than long; preantennal region shorter than postantennal. Margins of preantennal region straight,



Theresiella hitchcocki, sp. n.: 1, male (holotype); 2, female (allotype); 3, projection of latero-posterior corner of the segment II of female (ventral); 4, genital region of female (ventral).

converging toward the mid line, then bending to form the branches of the forceps-like process of the anterior region of the head; temporal margins rounded; occipital margin transverse, undulate. Pre- and post-marginal carinae widely separated by the dorsal preantennal suture; pre-marginal carina reduced to two poorly defined bands on either side of the head, near the anterior angle of the anterior dorsal plate. This plate uniformly colored, identical to the remainder of the head tegument, and clearly delimited by the dorsal preantennal suture; its shape heptagonal, broader than long, with the three anterior and the two posterior sides slightly concave; the two lateral sides slightly convex; the posterior angle not conspicuous. Conus conspicuous, projecting laterally. Eyes slightly salient behind. Antennae long; first segment wider than second, one and a half times as long as the conus; third segment with a hook on the inner corner of the distal margins. Ocular setae of medium length; marginal temporal seta 4 long, 1, 2, 3, 5 and 6 short.

Prothorax with slightly divergent sides and with one seta on either side of the posterior margin, at some distance from the latero-posterior corners.

Pterothorax with sides more divergent than those of the prothorax, slightly sinuous; latero-posterior angles slightly rounded, with a spiniform seta and a sensory one; posterior margin of pterothorax dark-edged, almost straight, wider than the anterior margins of abdominal segment I; on each side 6 to 7 setae, apparently forming two closely set groups: one, lateral, of 3, the other, medial, of 3, 4 or even 5 setae; the setae of the latter group shorter and thinner than the others. Sternal plate poorly set off, with two pairs of setae.

Abdomen a little shorter than head and thorax together, widest at segment V; pleural thickening clearly present on segments II to VII; in segment I there is only an outline of the pleural thickening near the latero-posterior angles; tergal plate of segment I interrupted on the middle; in the remaining segments the plates are complete; in segments II to VII they become gradually narrower toward the middle; that of segment VIII, on the contrary, is broader along the mid line, due to the convexity of the posterior margin of the plate; terminal segment showing dorsally a median triangular structure, wider than long, with rounded vertex turned forward, somewhat concave lateral margins and straight base, the latter undistinguishable from the distal margin of the segment. Segment I with a long tergo-central seta on each side; II to V with two setae, one of which very small; VI with two setae of medium length; VII with one. One tergo-lateral seta on each side of segments III to VII; the setae of segment VII much shorter than those of the anterior segments. Segments I, II and III with two short pleural setae; IV also with two setae, but long; V, VI and VII with three setae, two of which long; VIII with three setae of varying length. 12 to 14 setae along the distal margin of segment VIII. On each side of the triangular structure of the distal segment, one long seta and 7 to 8 thin ones of medium length. On the base of the triangular structure two medium and four long setae. Ventrally five rows of sterno-central setae (with 3 to 4, 5 to 6, 3 to 4 and 3 to 4 setae on each side) and four clearly outlined sternal plates. Genital plate reaching, toward the front, the level of the fifth tergite; its anterior half as wide as the adjacent sternal plate, showing, on either side, a deep and narrow indentation (resulting from the incomplete fusion of two sternites); the posterior half much narrower than the anterior, its latero-posterior corners slightly convergent toward the mid line and more sclerotized than the plate, undistinguishable from the lateral corners of the triangular structure on the dorsal surface of the terminal segment of the abdomen.

Genitalia (fig. 5) with the basal apodeme a little longer than its greatest width; its sides parallel, strengthened by sclerotized marginal strips; parameres broad, with basal half curved toward the mid line and tapering backward; the inner margin of each paramere with a spine-like projection. Mesosome very complex and very hard to interpret (see discussion under *T. gemina*, sp. n.).

Female (figs. 2, 3, 4). Conus shorter than in the male. Pterothorax with at least one seta less than in the male on each side of the posterior margin; this not straight as that of the male but convex, overlapping the first abdominal segment. Tergal plates of segments I to VII interrupted on the mid line; that of segment VIII entire; the posterior margin of segment VIII shows, on either side, one short and two long setae. Terminal segment with one seta of medium length on either side of the dorsal surface. Process of the latero-posterior corner of segment II (fig. 3) reaching to the level of the posterior margin of segment IV. One pair of sternal setae on each segment; the setae of the two distal pairs widely separate. Sternal plates inapparent anteriorly, poorly outlined posteriorly. Genital region as in fig. 4.

(Tab. 1)

Measurements in mm (types)

	Male		Female	
	Length	Width	Length	Width
Head	.610	.620	.650	.660
Prothorax	.190	.320	.190	.440
Pterothorax	.250	.680	.330	.780
Abdomen	.970	.760	.900	.900
Total	2.020	-	2.070	-

Total length of 6 paratypes: 3 males, 2.020, 2.040, 2.040 mm; 3 females, 2.080, 2.150, 2.150 mm.

Holotype male and allotype female in the Division of Entomology, CSIRO, Canberra, Australia. Paratypes, 4 males and 8 females, collected from the same host individual.

The species is named in honour of Mr. W. B. Hitchcock, the collector.

***Theresiella gemina*, sp. n.**

(Fig. 6)

Type-host: *Psitacella brehmii* subsp., from Uinba, Kubor Range, New Guinea.

Material examined: 5 males and 5 females collected from the type host by W. B. Hitchcock, 8.VIII.1963; 1 male and 2 females, collected from *Psitacella picta*, from Kubor Range, New Guinea, by W. B. Hitchcock, 6.IX.1963.

With exception of the male genitalia this species is identical to the preceding one. Even in the genitalia differences are found only in the structure of the mesosome. At first I supposed these differences to be due to the position of the mesosome in relation to the basal apodeme or a consequence of the preparation of the specimens. However, studying the specimens more closely I came to conclusion that these factors would not explain the differences found in the structure of the mesosome, and that these differences were real and that two species were involved.

The mesosome in both species is very clearly composed of two pieces: one, very simple and of easy definition, the other, much more complex, probably the result of the fusion of several pieces. In *Theresiella gemina*, sp. n., the simpler piece is dorsal and shows on the basal margin two horn-shaped processes pointing toward the anterior portion of the abdomen; the more complex piece is ventral and shows, on either side of the terminal opening of the ductus ejaculatorius, a better sclerotized structure, also with a horn-shaped projection pointing forward; the opening of the ductus ejaculatorius is approximately oval. In *Theresiella hitchcocki*, sp. n., the simpler piece is posterior to the more complex one — not placed above it as in *T. gemina*, sp. n. It does not have the horn-shaped processes. The simple piece in *hitchcocki* has two conspicuous lateral thickened bands, approximately semicircular, not found in *Theresiella gemina*, sp. n. The more complex piece is narrower than in *T. gemina*, sp. n.; the lateral sclerotized structures are fused on the mid line, immediately below the terminal opening of the ductus ejaculatorius, and have not the horn-shaped processes. The terminal opening of the ductus ejaculatorius is more approximately circular than in *T. gemina*, sp. n.

(Tab. 2)

Measurements in mm (types)

	Male		Female	
	Length	Width	Length	Width
Head	.620	.630	.660	.670
Prothorax	.190	.410	.200	.490
Pterothorax	.240	.680	.370	.810
Abdomen	.970	.740	.960	.910
Total	2.020	-	2.200	-

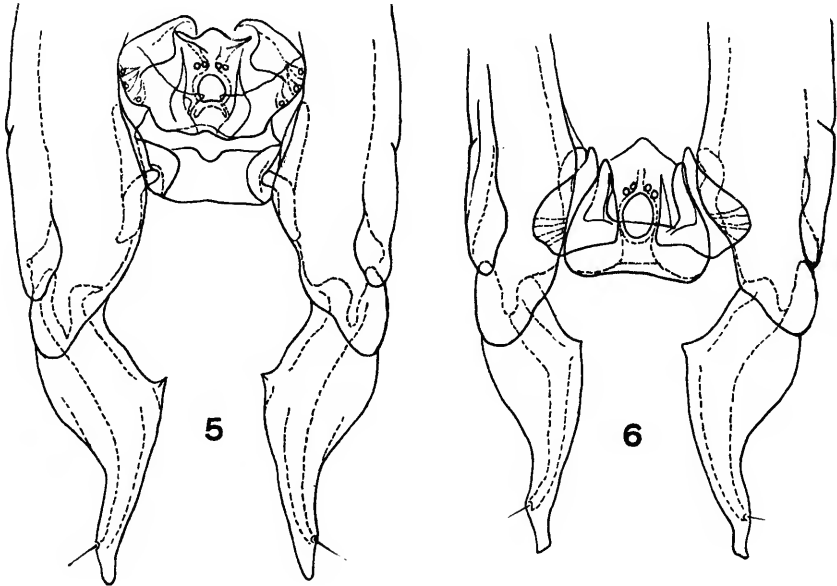
Total length of five paratypes: 2 males, 2.030 and 2.050 mm; 3 females, 2.160, 2.080 and 2.130 mm. These specimens collected from *Psittacella picta*: 1 male, 1.900 mm; 2 females, 2.000, 1.950 mm.

Holotype male and allotype female, collected from *Psittacella brehmii*, in the Division of Entomology, CSIRO, Canberra, Australia. Paratypes, four males and four females from the same host individual.

The specimens from *Psittacella picta* are, undoubtedly, smaller than those from *Psittacella brehmii*. The single male is not in very good condition and its genitalia, while of the same type found in the males of the type series, show some small differences. So I think it better not to consider them as paratypes.

Remarks: The finding of more than one species of Mallophaga belonging to the same genus on a single host species is not uncommon. Among the Tinamiformes or even the Psittaciformes (species of *Paragoniocotes*) many examples could be cited. But the finding of very closely related ("sibling") species on the same host species, is actually very rare. This is exactly the case of *Theresiella hitchcocki*, sp. n., and *T. gemina*, sp. n.

Both species have been found on *Psittacella brehmii*. Three species of *Psittacella* (*brehmii*, *modesta* and *picta*) are found in the area where the two species of Mallophaga were collected so that the possibility of contamination or of host misidentification cannot be ruled out at once. Dr. T. Clay asked for information on the point from dr. J. H. Calaby, of CSIRO, and was kind enough to forward a copy of his reply, which I hereby quote: "The collector, Mr. Hitchcock, assures me that there was no mix-up with the parasite specimens. I had a look through our collection of *Psittacella* (*brehmii*, *modesta*, and *picta*)



Theresiella hitchcocki, sp. n.: 5, genitalia of male (holotype); *Theresiella gemina*, sp. n.: 6, genitalia of male (holotype).

collected by Mr. Hitchcock at various localities in the Kubor Range area during June to August, 1963. The *brehmii* from Kamang was the only *Psittacella* collected there. One specimen each of *brehmii* and *modesta* were collected at Uinba. However the *brehmii* was collected on July 8 and the other on July 13. Mr. Hitchcock's expedition was a mobile one that progressed slowly up the Range from about 6,000 to 10,000 feet, at least several days being spent at each locality. However only an odd specimen of *Psittacella* was collected at each locality and never more than one on any particular day. With regard to species distribution, *brehmii* has the widest altitudinal range and was found over almost the whole traverse. It overlaps a little at the highest altitude with *picta* and is sympatric with *modesta* at the lower altitudes. My conclusion from all these odd pieces of information is that the possibility of contamination is rather low."

Theresiella gemina was collected from *Psittacella brehmii* at Uinba on 8.VII.1963. *Psittacella modesta* was obtained at the same locality but on a different day (13.VII.1963).

Th. hitchcocki was also collected from *P. brehmii* but at another locality, Kamang, presumably at a somewhat higher elevation, since the date of the latter specimens is 23.VII.1963 and, as informed by dr. Calaby, the expedition progressed slowly up the Kubor Range. The specimens from *P. picta* (which we identify as *gemina* only tentatively) were collected at a still higher elevation, as indicated by the very late date, 8.IX.1963.

It is thus possible that *Psittacella brehmii* has acquired one of its species of *Theresiella* either from *P. modesta* or from *P. picta*, due to partial overlap of ranges. We know that *P. picta* has a *Theresiella*, either *gemina* or very close to it; about *modesta* nothing is known at present.

