

## CHEWING LICE FROM BIRDS OF THE ORIENTAL REGION. PART XI \*

*PICICOLA ROBERTI*, SP. NOV. (PHTHIRAPTERA : ISCHNOCERA)\*\*

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**ABSTRACT.** A new species of *Picicola*, *P. roberti*, has been described from *Picus chlorolophus* and the congeneric form from *Picus erythrogygius* and *Dinopium javanense intermedium* has been identified as *P. roberti* s. lact. These chewing lice were collected in Thailand.

*Picicola* was erected by Clay & Meinertzhagen (1938) for three new species of Ischnocera parasitic on woodpeckers (Picidae of Piciformes). In a recent review of *Picicola* from the Picidae nine species have been accorded taxonomic validity (Dalglish 1969). On comparison with the specific descriptions given by Dalglish, the *Picicola* collected in Thailand from three species of birds belonging to the Picidae was found to be a new taxon and is described in this paper.

The chaetotaxy in the figures agrees with the specimens from which these were drawn and broken or missing setae, shown by broken lines, have been completed from the other side of the same specimen or from another specimen. Figures in parentheses denote the number of specimens examined for chaetotaxy or measured; the measurements in millimetres have been corrected to two decimal places and  $\bar{x}$  denotes the mean.

*Picicola roberti*, sp. nov. (Figs. 1-8)

Type host : *Picus chlorolophus* Vieillot

**Diagnosis :** Dalglish (1969) recognised nine species of *Picicola*, placing them in three species groups: *snodgrassi* group of two, *candidus* of three and *thripias* of four species. The new species belongs to the *snodgrassi* group in which *snodgrassi* and *mississippiensis* were included. It can be distinguished from both these species by the shape of the head, of which the temples are more swollen, in the male by the details of the external genitalia and in the female by the shape of the terminal segment of the abdomen.

\*For part X see *J. Med. Ent.* 7 : 357-361 (1970).

\*\*This is the fifth paper based on chewing lice received from Dr. K.C. Emerson.

*Male and female:* General characters and chaetotaxy as in Figs. 1, 2. Abdominal dorsum with a characteristic pigmentation pattern, the well-pigmented lateral edges contrasting strongly with the light pigmented central area. Anterior margin of the head (or frons) rounded; part of head anterior to the anterior dorsal setae less than 0.10 mm long. Lateral ends of the preantennal suture fall well short of the inner edge of marginal carina, consequently the latter is smooth laterally as it is medially also. Dorsal cuticle of the head inner to marginal carina and temples extensively sculptured (Figs. 1-3). Gular plate characteristic (Fig. 4). No lateral pigmented spots in the neck region. Tip of conus falls short of the distal end of antennal segment I. Pterosternal plate present. Thickening of terga II-VIII in the form of lateral tergites; of IX+X in the male as a transversely continuous plate. In the female, thickening of tergum IX+XI forms a characteristically pigmented plate, especially centrally (Fig. 2); posterior margin of this composite tergum considerably emarginate, unlike *snodgrassi* (probably *mississippiensis* also) in which this margin is merely depressed (Fig. 13 in Dalglish, 1969). In the male, bulge of the last abdominal segment short and broad (Fig. 1), with a dorsal thickening which extends laterally beneath tergum XI. Sternites II and III not apparent, IV-VI as median plates. Female genital region as in Fig. 8, the subgenital plate with a posterior median bulge. In the male, the subgenital plate, while variable in shape, is considerably longer than in *snodgrassi* (compare Fig. 5 with Fig. 14 in Dalglish, 1969). External male genitalia (Figs. 6, 7) relatively short and wide. The inner margin of each paramere merges with the outer margin of the basal apodeme of its side. An oblique transverse sclerite present ventrally on each side, between the basal apodeme and mesosome. Dorsal and ventral endomeres characteristic; the former somewhat globular with two anteriorly directed arms and the latter somewhat wing-shaped. Penial complex relatively anterior; lateral penial arms separate from each other and from the short penis; tip of the penis falls greatly short of the dorsal endomere. Lateral penial arms with 1-3 basal sensilla; 1+3 (1), 2+3 (2). It may be recalled that Dalglish (1969) has used the number of sensilla on the dorsal arm of the endomere, the sclerites here called the penial arms, as one of the characters for separating the *snodgrassi* (3+3) and *candidus* (2+2) species groups. In *roberti* from the type host, as also in *roberti* s. lat. from two other members of the Picidae discussed later, the sensilla vary between 1-3 or 4. Owing to its variability in *roberti* a taxon included in the *snodgrassi* group, this character is inadequate for separating *snodgrassi* and *candidus* species groups.

Important head setae as follows (Fig. 1): Dorsal submarginal and anterior dorsal setae short to medium; ocular seta very long; marginal temporal setae 2 and 4 very long; anterior seta 1 short to medium, 2 medium and 3 short; anterior ventrals 1, 2 medium to long, and 3 long.

Thoracic chaetotaxy: Marginal pteronotal setae: male 5+5 (3) (Fig. 1); female 5+5 (3), each side 4-6, total 8-11 (7). Variation in the seven females

is due to the absence of seta m (shown in Fig. 1) on one side (2) or on both sides (2) (Fig. 2) or in seta m together with variation in the other long to very long marginal setae (3). Of the 5+5 long to very long marginal setae, the central one has been referred to as seta m (Fig. 1); this seta is slightly shorter than the other four setae of its side. Mesosternal setae : male 2-3 (3); female 2 (10). Metasternal setae : male 4-5 (3); female 4-6 (10); forming a semi-circular row.

**Abdominal chaetotaxy :** For convenience certain tergal and sternal setae and all pleural setae have been named (Figs. 1, 2, 5, 8). Tergal setae : male (3); II 2 anterocentral. Marginal; II 2 central+2 lateral; III 2+3; IV-VIII 2+2; total of III-VII 21; IX+X seta a 1+0 (2) medium to long, 0 (1); seta b 1+1; terminal setae, total 16-20,  $\bar{x}$  18.33. Female (10); II 2 anterocentral (8), Marginal; II 2 central+2 lateral; III-VIII normally 2+2 (range 3-5); total of III-VII 17-22,  $\bar{x}$  20.2 (9); on VIII the 2 central setae are slightly longer than the 2-3 lateral setae; IX-XI seta a 1+1 (1), 0+1 (5), 0 (4) medium to long; seta b 1+1 (9), 2+1 (1). The 2 central setae on terga III-VII are well apart from each other, the central seta of one side being close to the lateral seta of its side. No seta (e) occurs inner to seta b on tergum IX+X in the male and IX-XI in the female (Figs. 1, 2).

**Pleural setae :** male (3); II, III absent; IV, V 1+1 (as seta referred to as 1 present); IV short to medium, 0.042-0.064 mm,  $\bar{x}$  0.045 (7 setae), its tip extending slightly beyond the posterior margin of IV; VI-VIII 2+2 (1+1 setae 1; 1+1 setae referred to as d newly added); seta ad 1+1; ad<sub>2</sub> 1+1 (2), 0+1 (1) medium to long; seta pd 1+0 (1), 0 (2) very long; pv 1+1 (1), 0 (2) short. Female (10); II, III absent; IV, V 1+1; IV short to medium, 0.032-0.064 mm,  $\bar{x}$  0.045 (15 setae), its tip extending beyond the spiracle of V, VI, VII 2+2; VIII 2+2 (9), 2+1 (1) as seta 1 absent on one side; seta ad 1+1; ad<sub>2</sub> 1+1 (7), 1+0 (3) slightly longer than in the male; seta pd 1+1, dorsal; pl 1+1, lateral; pv 1+1 (4), 0+1 (5), 0 (1) long, rather fine. Sternal setae : male (3); II 2 central+2 lateral (1), 2+0 (2); III-VI 2+2; total of II-VI 18-20; VIII 2 central (2), 1 (1); VIII 1+1; seta e 1+1; seta e<sub>1</sub> 1+1 (2), 1+0 (1) thin, long and anterior to seta e; seta f 1+1 (1), 0+1 (1), 0 (1). Female (10); II 2 central+2 lateral (6), 2+1 (1), 2+3 (1); III-VI normally 2+2; total of II-VI 19-21; VIII 2 central+0 lateral (3), 2+1 (5), 2+2 (2); VIII 1+1, these are well separated from and readily identifiable from the row of setae on sternum VII. Short setae in genital region, each side 2-5, total 6-9; vulval marginal, anterior and central 5-8,  $\bar{x}$  6.5, posterior and marginal 15-20,  $\bar{x}$  17 almost long (Fig. 8). Seta f 1+1 spiniform, always present. Anal setae 3+3; anterior spiniform (or short also in the female), middle short and posterior spiniform or short, middle one being the longest.

**Measurements of 3 males and 10 females :** Length : total, ♂ 1.60-1.70,  $\bar{x}$  1.65; ♀ 1.74-2.01,  $\bar{x}$  1.93. Head, ♂ 0.46-0.47,  $\bar{x}$  0.463; ♀ 0.47-0.52,  $\bar{x}$  0.50. Abdomen, ♂ 0.90-0.96,  $\bar{x}$  0.93; ♀ 1.05-1.22,  $\bar{x}$  1.16. Breadth : head, at level of

anterior seta 1, ♂ 0.231-0.244,  $\bar{x}$  0.238; ♀ 0.228-0.251,  $\bar{x}$  0.239; at level of pre-antennal seta, ♂ 0.30-0.32,  $\bar{x}$  0.31; ♀ 0.30-0.34,  $\bar{x}$  0.32; across temples, ♂ 0.33-0.34,  $\bar{x}$  0.336; ♀ 0.34-0.38,  $\bar{x}$  0.35. Prothorax, ♂ 0.23-0.25,  $\bar{x}$  0.24; ♀ 0.21-0.25,  $\bar{x}$  0.23. Pterothorax, ♂ 0.34-0.38,  $\bar{x}$  0.36; ♀ 0.34-0.39,  $\bar{x}$  0.36. Abdomen, ♂ 0.44-0.45,  $\bar{x}$  0.443; ♀ 0.44-0.53,  $\bar{x}$  0.48. Head index, ♂ 0.71-0.73,  $\bar{x}$  0.72; ♀ 0.68-0.75,  $\bar{x}$  0.71.

*Holotype* ♂, slide no. RE 2496a (RT-B-21058), from *Picus chlorolophus* Viéillot, THAILAND: Khlong Khlung, Kamphaeng Phet Province, 29.iv.1953, R.E. Elbel and H.G. Deignan (U.S. NATIONAL MUSEUM). *Paratypes* 2 ♂♂, 11 ♀♀, with data as given for holotype, K.C. Emerson and H.G. Elbel collection.

The species has been named in honour of Dr. Robert E. Elbel.

Status of *Picicola* from *Picus erythropygius* and *Dinopium javanense intermedium*:

The available *Picicola* from these two species of birds, also belonging to the Picidae, resembles rather closely *roberti* from the type host and differs from *snodgrassi* and *mississippiensis* in those very characters in which *roberti* does. However, the *Picicola* from both these birds shows certain differences from *roberti* s. str. The differences in *Picicola* from *Picus erythropygius* are: (1) The male is slightly smaller (1.49-1.68 mm,  $\bar{x}$  1.61 (7)), but not the females (1.85-2.06 mm,  $\bar{x}$  1.93 (11)). (2) The dorsal cuticle inner to marginal carina and temples is less extensively sculptured. (3) Dorsal thickening on terminal bulge of last abdominal segment in the male is narrower, its lateral ends not being covered by tergum XI. (4) In the male external genitalia, the basal apodeme is slightly narrower posteriorly, the mesosomal complex is shorter and the lateral oblique sclerites and penial arms are narrower (basal sensilla on the latter in 14 males number thus: 3+3 (7), 3+2 (3), 3+4 (2), 4+2 (1), 4+4 (1)). (5) In the female, the anterolateral thickening of tergum IX-XI is narrower, the median bulge of the subgenital plate is somewhat smaller and the anterior central setae on vulval margin are fewer (total 2-6,  $\bar{x}$  3.63 (11)).

The *Picicola* from *Dinopium javanense intermedium* differs from *roberti* s. str. (1) in being longer (male 1.70, 1.73 mm (2); female 1.90, 2.00 mm (2)), (2) in having narrower lateral oblique sclerites and penial arms in the male genitalia and (3) fewer anterior central setae on the vulval margin (total 3 (2)). Thus, the resemblance of this *Picicola* with *roberti* s. str. is greater than that of *Picicola* from *Picus erythropygius*.

While the enumerated differences show that *Picicola* from the two above mentioned hosts has diverged from *roberti* s. str., they fail to show a clear taxonomic separation from each other. For this reason and because of the close resemblance of the specimens under consideration with *roberti* s. str. in three important characters—(1) pigmentation pattern, (2) male external genitalia and (3) female terminalia and external genitalia—the specimens have been identified as *P. roberti* s. lat.

These *Picicola* specimens have been excluded from the type-series of *roberti* and their data are as follows :

14 ♂♂, 41 ♀♀ (2 dissected), slides nos. RE 902 (RT-B-17538), RE 2471 (RT-B-21038), RE 2489 (RT-B-21052), from *Picus erythropygius* (Elliot), THAILAND : Chaiyaphum and Kamphaeng Phet Provinces, 14.xii.1952 and 22-28.iv.1953, R. E. Elbel and H. G. Deignan (K.C. Emerson and R.E. Elbel collections).

2 ♂♂, 2 ♀♀, slide nos. RE 2216 (RT-B-17739), RE 2706 (RT-B-21633), from *Dinopium javanense intermedium* (Blyth), THAILAND : Lampang and Kamphaeng Phet Provinces, 31.i., 21.vi.1953, R.E. Elbel (K.C. Emerson and R.E. Elbel collections).

*Remarks* : In Part IV of Mallophagen-Synopsis, Eichler (1942) has placed six specific names under the genus *Picicola*—three being names given to the Ischnocera for which Clay & Meinertzhagen (1938) erected the genus and three were names given to Ischnocera by Denny (1842) and Nitzsch (1866). Hopkins & Clay (1952) have, in their check list of Mallophaga, placed under *Picicola* a larger number of names given by earlier workers to ischnoceran lice. Eichler's (1942) list is restricted to names given to Ischnocera parasitic on the Picidae but Hopkins & Clay (1952) have included names given to Ischnocera parasitic on other bird families also—six of their thirteen names printed in bold face having been given to Ischnocera parasitic on hosts belonging to seven families of a different order, the Passeriformes (Tyrannidae, Pittidae, Dicuridae, Cractidae, Ptilinorhynchidae, Mimidae and Laniidae, families arranged according to Wetmore, 1951 ).

After the publication of the check list (Hopkins & Clay, 1952), new taxa under *Picicola* have been described by Carriker (1956a), Zlotorzycza (1965) and Dalglish (1969). Carriker added one new subspecies from the Picidae and one new species from the Tyrannidae, placing the latter in a new subgenus of *Picicola*. In the same year, Carriker (1956b) proposed a new genus *Cotingacola* for twelve new species of Neotropical degeerielline lice from the bird family Cotingidae. As Tyrannidae and Cotingidae belong to the same superfamily, Tyrannoidea of Passeriformes, the placing of the new subgenus *Tyrannicola* under *Picicola*, and not under *Cotingacola*, is of particular interest. Zlotorzycza (1965) added two new species from the Picidae and Dalglish's (1969) review of *Picicola* from the Picidae contains the descriptions of three new species.

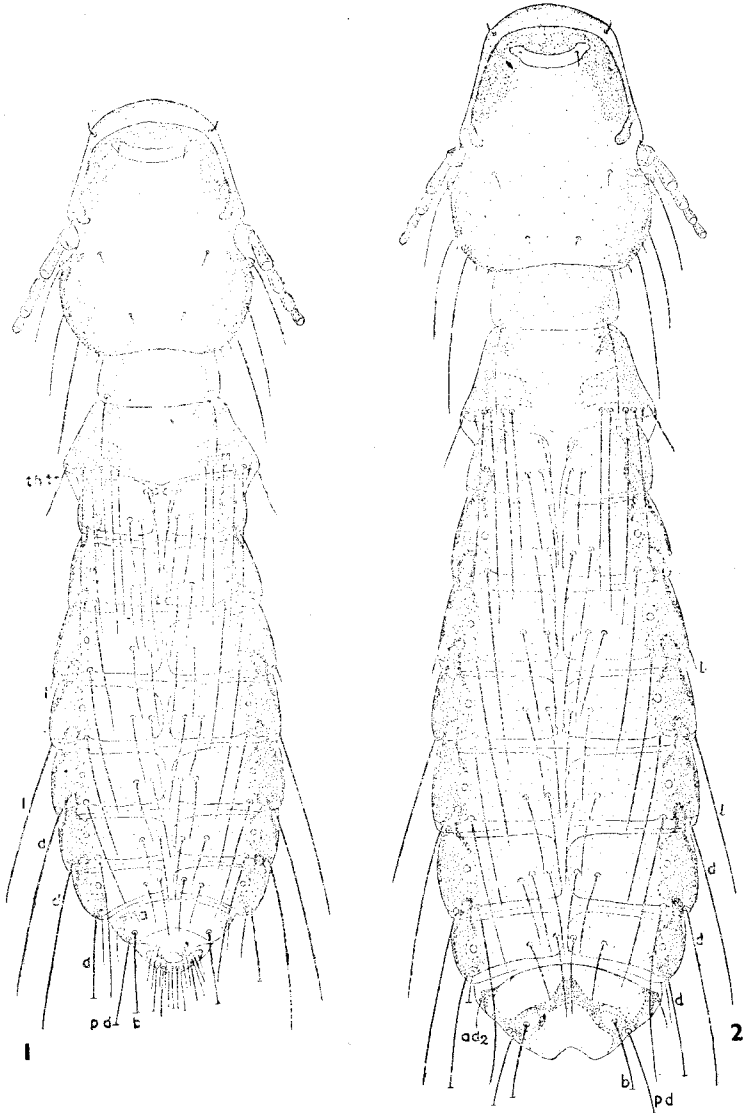
The present position regarding *Picicola*, therefore, is that although it was proposed for chewing lice parasitic on the Picidae, later degeerielline lice from seven families of Passeriformes were placed in it. Whereas the species of *Picicola* parasitic on the Picidae have been reviewed (Dalglish, 1969), a critical study justifying the inclusion of degeerielline lice from the Passeriformes in this genus has not been undertaken.

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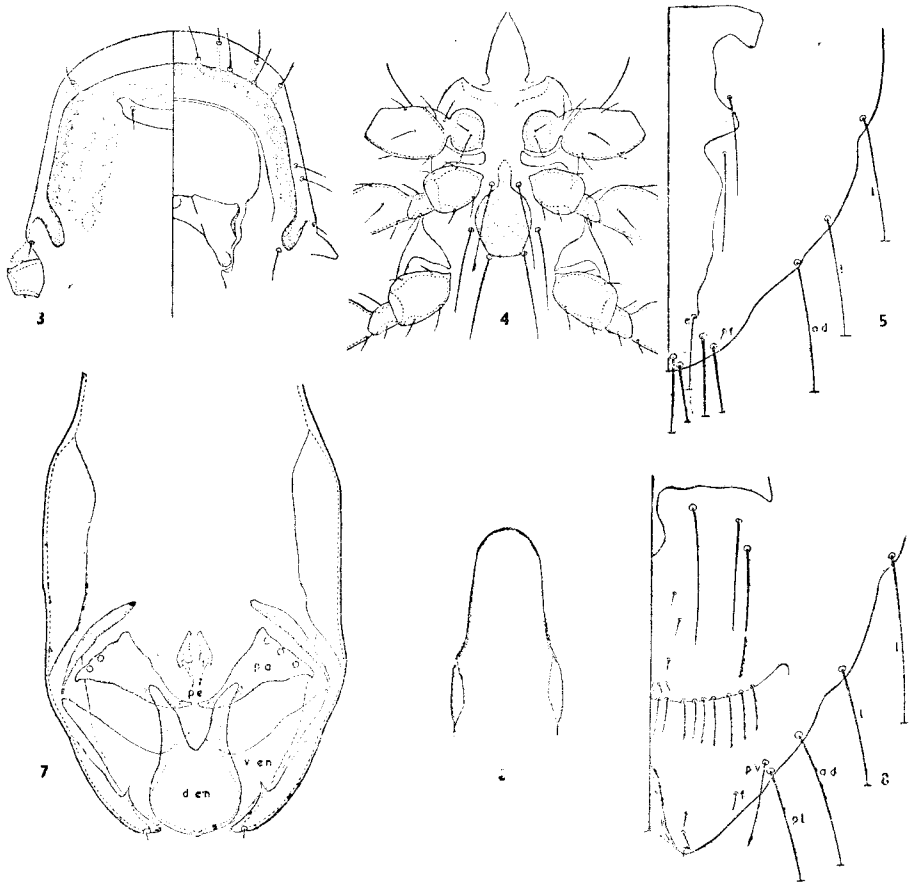
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Figs. 1, 2, *Picicola roberti*, dorsal : 1, male; 2, female. Lateral pleural seta shown on IV and V only. ac, antero-central; d, dorsal and l, lateral pleural setae; tc, tergo-central; th tr, thoracic trichobothrium.



Figs. 3-8. *Picicola roberti*. 3-7 male: 3, head, preantennal region, dorsal and ventral; 4, gular plate and thoracic venter; 5, terminalia, ventral; 6, basal apodeme; 7, posterior sclerites of external genitalia (penial complex drawn from another specimen having protruding genitalia); d en, v en, dorsal and ventral endomere; pa, penial arm; pe, penis. 8, female terminalia, ventral.